RIVERSIDE COUNTY
AIRPORT LAND USE COMMISSION

STAFF REPORT

AGENDA ITEM:	3.1
HEARING DATE:	May 11, 2023
CASE NUMBER:	ZAP1564MA23 – Stellar Solar Electric (Representative: Frida Mock)
APPROVING JURISDICTION:	City of Perris
JURISDICTION CASE NO:	PMT23-00627 (Building Permit)
LAND USE PLAN:	2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan
Airport Influence Area:	March Air Reserve Base
Land Use Policy:	Zone C1
Noise Levels:	Below 60 CNEL contour
MAJOR ISSUES:	None

RECOMMENDATION: Staff recommends that the Commission find the proposed Building Permit CONSISTENT with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, subject to the conditions included herein.

PROJECT DESCRIPTION: A proposal to construct a 4,910 square rooftop foot solar panel system on an existing 55,650 square foot industrial manufacturing building on 1.94 acres.

PROJECT LOCATION: The site is located easterly of Indian Street, and northerly of Harley Knox Boulevard, approximately 4,730 feet southeasterly of the southerly end of Runway 14-32 at March Air Reserve Base.

BACKGROUND:

Non-Residential Intensity: Pursuant to the Airport Land Use Compatibility Plan for the March Air Reserve Base/Inland Port Airport, the site is located within Compatibility Zone C1, where Zone C1 limits average intensity to 100 people per acre and 250 people in any single acre. The proposed rooftop solar panels will not generate any occupancy.

March Air Reserve Base/United States Air Force Input: Given that the project site is located in Zone C1 southeasterly of the southerly runway at March Air Reserve Base, the March Air Reserve Base staff was notified of the proposal to add rooftop solar panels and sent a solar glare hazard analysis study for their review. On March 28, 2023, the Air Force provided comments concurring with the analysis and conclusions of the glare study.

Prohibited and Discouraged Uses: The applicant does not propose any uses prohibited or discouraged in Compatibility Zone C1 (children's schools, day care centers, hospitals, nursing homes, libraries, places of assembly, highly noise-sensitive outdoor nonresidential uses and hazards to flight).

Flight Hazard Issues: Structure height, electrical interference, and reflectivity/glare are among the issues that solar panels in the airport influence area must address. The project's 4,910 square foot photovoltaic (PV) panel structures would be located on the rooftop of the existing industrial building within Compatibility Zone C1.

Glint and Glare/Reflectivity

Based on the Federal Aviation Administration's Interim Policy for Review of Solar Energy System Projects on Federally Obligated Airports, no glare potential or low potential for temporary after-image ("green" level) are acceptable levels of glare on final approach (within 2 miles from end of runway) for solar facilities located on airport property. However, potential for temporary after-image" ("yellow" level) and potential for permanent eye damage ("red" level) are not acceptable levels of glare on final approach. No glare is permitted at air traffic control towers.

The project proposes 4,910 square feet of solar panels on the building rooftop with a fixed tilt of 5 degrees with no rotation, and an orientation of 180 degrees. The applicant has submitted a glare analysis utilizing the web-based Forge Solar. The analysis was based on a 2 mile straight in approach (as per FAA Interim Policy standards) to runways 14 and 32, and also based on the traffic patterns as identified by March Air Reserve Base staff (Runway 12/30 General Aviation, Runway 14/32 General Aviation, Runway 14/32 C-17/KC-135, Runway 14/32 Overhead). The analysis utilized a glide slope approach of 3.0 degrees. No glare would affect the Air Traffic Control Tower.

The analysis concluded that some glare would occur on the 2 mile approach to the runways, and some potential for glare was identified within the Air Force traffic pattern. Evaluation of the Air Force traffic patterns indicates that the panels would result in a low potential for temporary after-image ("green" level glare) or no glare. All times are in standard time.

Runway 14/32 General Aviation traffic pattern (total 15,851 minutes of 'green' level glare):

- Runway 14 General Aviation Downwind totaling 4,091 minutes of 'green' level glare, lasting up to 30 minutes a day, between September to March, from 6:00 a.m. to 7:30 a.m.

- Runway 14 General Upwind totaling 3,814 minutes of 'green' level glare, lasting up to 35 minutes a day, between September to March, from 6:00 a.m. to 7:30 a.m.

- Runway 32 General Downwind totaling 4,094 minutes of 'green' level glare, lasting up to 35 minutes a day, between September to March, from 6:00 a.m. to 7:30 a.m.

- Runway 32 General Final totaling 3,852 minutes of 'green' level glare, lasting up to 30 minutes a day, between September to March, from 6:00 a.m. to 7:30 a.m.

Runway 14/32 C-17/KC-135 traffic pattern (totaling 6,452 minutes of 'green' level glare):

- Runway 14 Downwind, totaling 1,983 minutes of "green" level glare, lasting up to 25 minutes a day, between October to March, from 6:00 a.m. to 7:30 a.m.

- Runway 14 Upwind, totaling 1,130 minutes of "green" level glare, lasting up to 25 minutes a day, between October to March, from 6:00 a.m. to 7:30 a.m.

- Runway 32 Downwind, totaling 1,983 minutes of "green" level glare, lasting up to 25 minutes a day, October to March, from 6:00 a.m. to 7:30 a.m.

- Runway 32 Final, totaling 1,356 minutes of "green" level glare, lasting up to 25 minutes a day, between October to March, from 6:00 a.m. to 7:30 a.m.

Runway 14/32 Overhead Aviation traffic pattern (totaling 11,457 minutes of 'green' level glare):

- Runway 14 Downwind, totaling 2,680 minutes of "green" level glare, lasting up to 25 minutes a day, September to March, from 6:00 a.m. to 7:30 a.m.

- Runway 32 Downwind, totaling 112 minutes of "green" level glare, lasting up to 15 minutes a day, in March and October, from 6:00 a.m. to 6:30 a.m.

- Runway 32 Final, totaling 2,494 minutes of "green" level glare, lasting up to 25 minutes a day, between February to April and September to November, from 6:00 a.m. to 7:30 a.m.

- Runway 32 Initial, totaling 6,171 minutes of "green" level glare, lasting up to 30 minutes a day, between September to April, from 7:00 a.m. to 8e:30 a.m.

The total of 33,760 minutes of "green" level glare represents less than 13 percent of total day light time.

Electrical and Communication Interference

The applicant has indicated that they do not plan to utilize equipment that would interfere with aircraft communications. The PV panels themselves present little risk of interfering with radar transmission due to their low profiles. In addition, solar panels do not emit electromagnetic waves over distances that could interfere with radar signal transmissions, and any electrical facilities that do carry concentrated current will be buried beneath the ground and away from any signal transmission. There are no radar transmission or receiving facilities within the site.

Noise: The March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan depicts the site as being below the 60 CNEL range from aircraft noise. Therefore, no special measures are required to mitigate aircraft-generated noise.

Part 77: The elevation of Runway 14-32 at its southerly terminus is 1,488 feet above mean sea level (1,488 feet AMSL). At a distance of approximately 4,730 feet from the runway to the site, Federal Aviation Administration (FAA) review would be required for any structures with top of roof elevation exceeding 1,535 feet AMSL. The site's finished floor elevation is 1,467 feet AMSL and the existing building height is 32 feet, resulting in a top point elevation of 1,499 feet AMSL. Therefore, review by the FAA Obstruction Evaluation Service (FAA OES) was not required. The height of the solar panels will not significantly increase the overall height of the building.

Open Area: None of the Compatibility Zones for the March Air Reserve Base/Inland Port ALUCP require open area specifically.

CONDITIONS:

1. Any new outdoor lighting that is installed shall be hooded or shielded so as to prevent either the spillage of lumens or reflection into the sky. Outdoor lighting shall be downward facing.

2. The following uses/activities are not included in the proposed project and shall be prohibited at this site:

   (a) Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight or circling climb following takeoff or toward an aircraft engaged in a straight or circling final approach toward a landing at an airport, other than a DoD or FAA-approved navigational signal light or visual approach slope indicator.

   (b) Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight or circling climb following takeoff or towards an aircraft engaged in a straight or circling final approach towards a landing at an airport.

   (c) Any use which would generate smoke or water vapor or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area. (Such uses include landscaping utilizing water features, aquaculture, production of cereal grains, sunflower, and row crops, composting operations, wastewater management facilities, artificial marshes, trash transfer stations that are open on one or more sides, recycling centers containing putrescible wastes, construction and demolition debris facilities, fly ash disposal, and incinerators.)

   (d) Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

   (e) Highly noise-sensitive outdoor nonresidential uses. Examples of noise-sensitive outdoor nonresidential uses that are prohibited include, but are not limited to, major spectator-oriented sports stadiums, amphitheaters, concert halls and drive-in theaters.

   (f) Other Hazards to flight.

3. The attached “Notice of Airport in Vicinity” shall be provided to all prospective purchasers and occupants of the property, and be recorded as a deed notice.

4. March Air Reserve Base must be notified of any land use having an electromagnetic radiation component to assess whether a potential conflict with Air Base radio communications could result. Sources of electromagnetic radiation include radio wave transmission in conjunction with remote equipment inclusive of irrigation controllers, access gates, etc.

5. All solar arrays installed on the project site shall consist of smooth glass photovoltaic solar panels without anti-reflective coating, a fixed tilt of 5 degrees and orientation of 180 degrees. Solar panels shall be limited to a total of 4,910 square feet, and the locations and

coordinates shall be as specified in the glare study. Any deviation from these specifications (other than reduction in square footage of panels), including change in orientation, shall require a new solar glare analysis to ensure that the amended project does not result in any glare impacting the air traffic control tower or creation of any "yellow" or "red" level glare in the flight paths, and shall require a new hearing by the Airport Land Use Commission.

6. In the event that any glint, glare, or flash affecting the safety of air navigation occurs as a result of project operation, upon notification to the airport operator of an event, the airport operator shall notify the project operator in writing. Within 30 days of written notice, the project operator shall be required to promptly take all measures necessary to eliminate such glint, glare, or flash. An "event" includes any situation that results in an accident, incident, "near-miss," or specific safety complaint regarding an in-flight experience to the airport operator or to federal, state, or county authorities responsible for the safety of air navigation. The project operator shall work with the airport operator to prevent recurrence of the incidence. Suggested measures may include, but are not limited to, changing the orientation and/or tilt of the source, covering the source at the time of day when events of glare occur, or wholly removing the source to diminish or eliminate the source of the glint, glare, or flash. For each such event made known to the project operator, the necessary remediation shall only be considered to have been fulfilled when the airport operator states in writing that the situation has been remediated to the airport operator's satisfaction.

7. In the event that any electrical interference affecting the safety of air navigation occurs as a result of project operation, upon notification to the airport operator of an event, the airport operator shall notify the project operator in writing. Within 30 days of written notice, the project operator shall be required to promptly take all measures necessary to eliminate such interference. An "event" includes any situation that results in an accident, incident, "near-miss," report by airport personnel, or specific safety complaint to the airport operator or to federal, state, or county authorities responsible for the safety of air navigation. The project operator shall work with the airport operator to prevent recurrence of the event. For each such event made known to the project operator, the necessary remediation shall only be considered to have been fulfilled when the airport operator states in writing that the situation has been remediated to the airport operator's satisfaction.

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances [can vary from person to person. You may wish to consider what airport annoyances], if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you. Business & Professions Code Section 11010 (b)(13)(A)

NOTICE

THERE IS AN AIRPORT NEARBY.

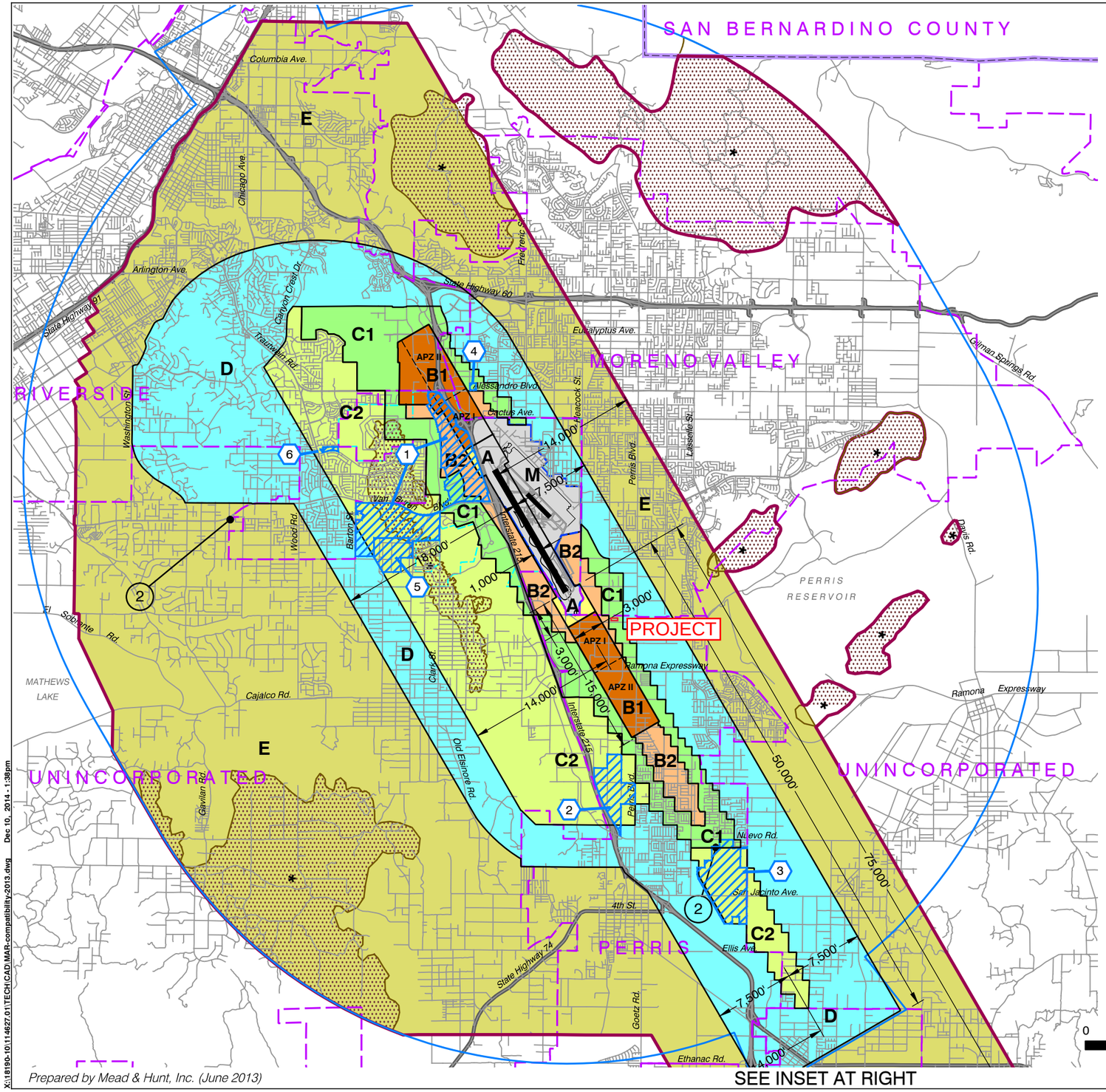
THIS STORM WATER BASIN IS DESIGNED TO HOLD STORM WATER FOR ONLY 48 HOURS AND NOT TO ATTRACT BIRDS

PROPER MAINTENANCE IS NECESSARY TO AVOID BIRD STRIKES

RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION ALUC

IF THIS BASIN IS OVERGROWN, PLEASE CONTACT:

Name: _____ Phone: _____



LEGEND

Compatibility Zones

- Airport Influence Area Boundary
- Zone A
- Zone B1
- Zone B2
- Zone C1
- Zone C2
- Zone D
- Zone E
- Zone M
- High Terrain Zone
- FAR Part 77 Military Outer Horizontal Surface Limits
- FAR Part 77 Notification Area

Boundary Lines

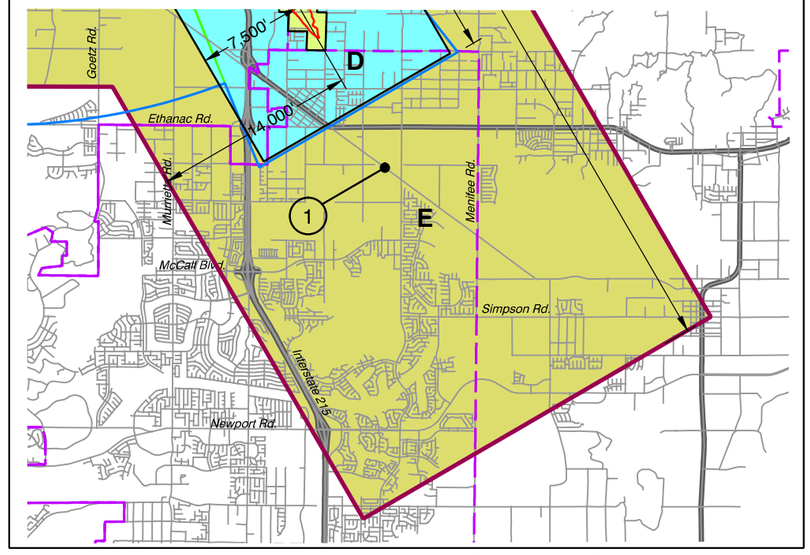
- March Air Reserve Base / Air Force Property
- March Joint Powers Authority Property Line
- County Boundary
- City Limits
- Site-Specific Exceptions (existing local agency commitments to development projects)

1. March JPA: March Business Center/Meridian
2. Perris: Harvest Landing
3. Perris: Park West
4. Moreno Valley: Affordable Housing
5. March JPA: Ben Clark Training Center
6. Riverside: Ridge Crest Subdivision

(1) Point at which aircraft on Runway 32 ILS approach descend below 3,000 feet above runway end. Airport Elevation is 1,535 feet MSL.

(2) Point at which departing aircraft typically reach 3,000 feet above runway end.

INSET



Note:
All dimensions are measured from runway ends and centerlines.

N

0 2 4 MILES

Base map source: County of Riverside 2013

Riverside County
Airport Land Use Commission

March Air Reserve Base / Inland Port Airport
Land Use Compatibility Plan

(Adopted November 13, 2014)

Map MA-1

Compatibility Map

March Air Reserve Base / Inland Port Airport

Prepared by Mead & Hunt, Inc. (June 2013)

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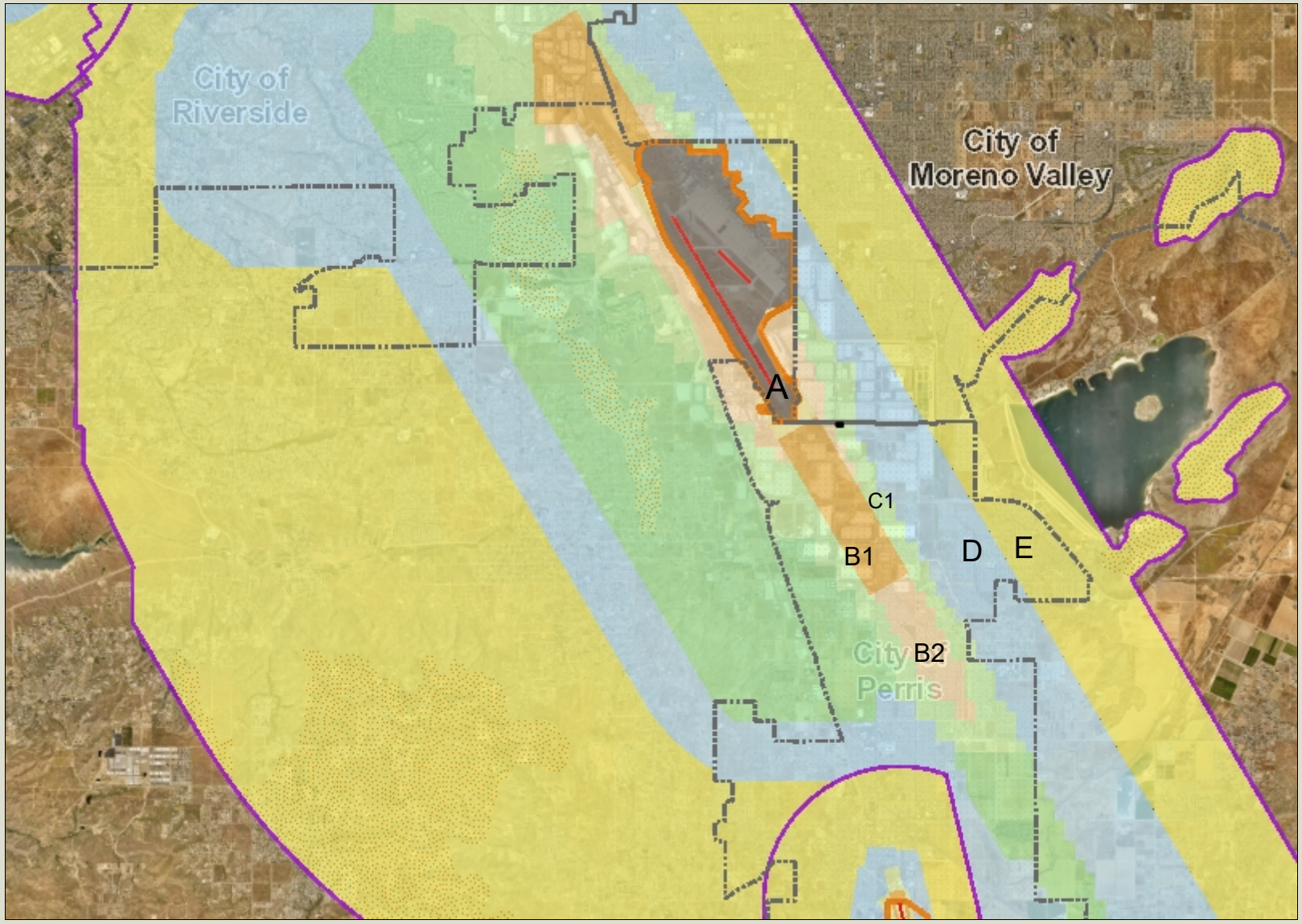
Map My County Map



Legend

- Runways
- Airports
- Airport Influence Areas
- Airport Compatibility Zones
  - OTHER COMPATIBILITY ZONE
  - A
  - A-EXC1
  - B1
  - B1-APZ I
  - B1-APZ I-EXC1
  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5
  - C2-EXC6

0 12,314 24,629 Feet

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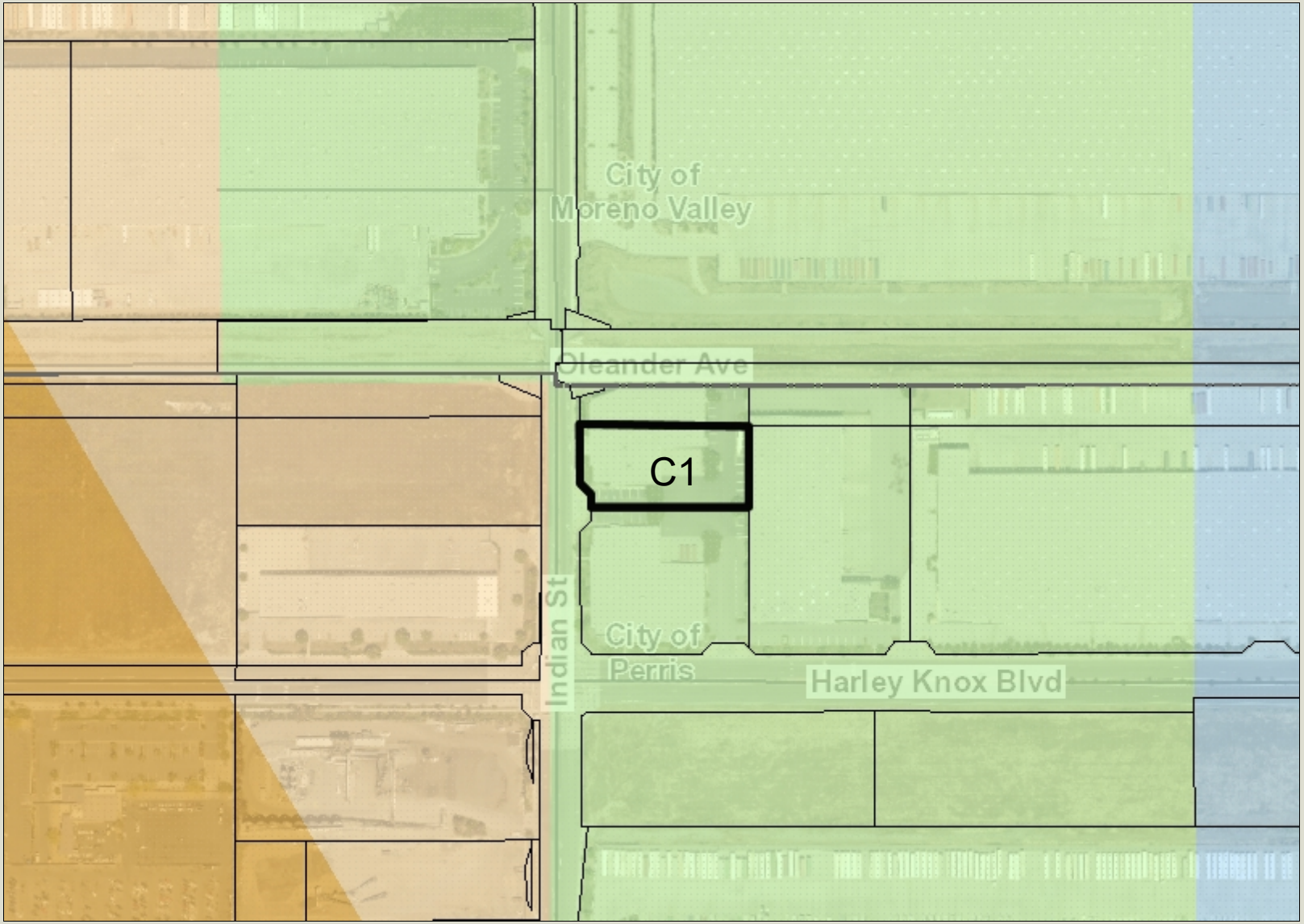

Legend

- Parcels
- Runways
- Airports
- Airport Influence Areas
- Airport Compatibility Zones
  - OTHER COMPATIBILITY ZONE
  - A
  - A-EXC1
  - B1
  - B1-APZ I
  - B1-APZ I-EXC1
  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5

RCIT

0 385 770 Feet

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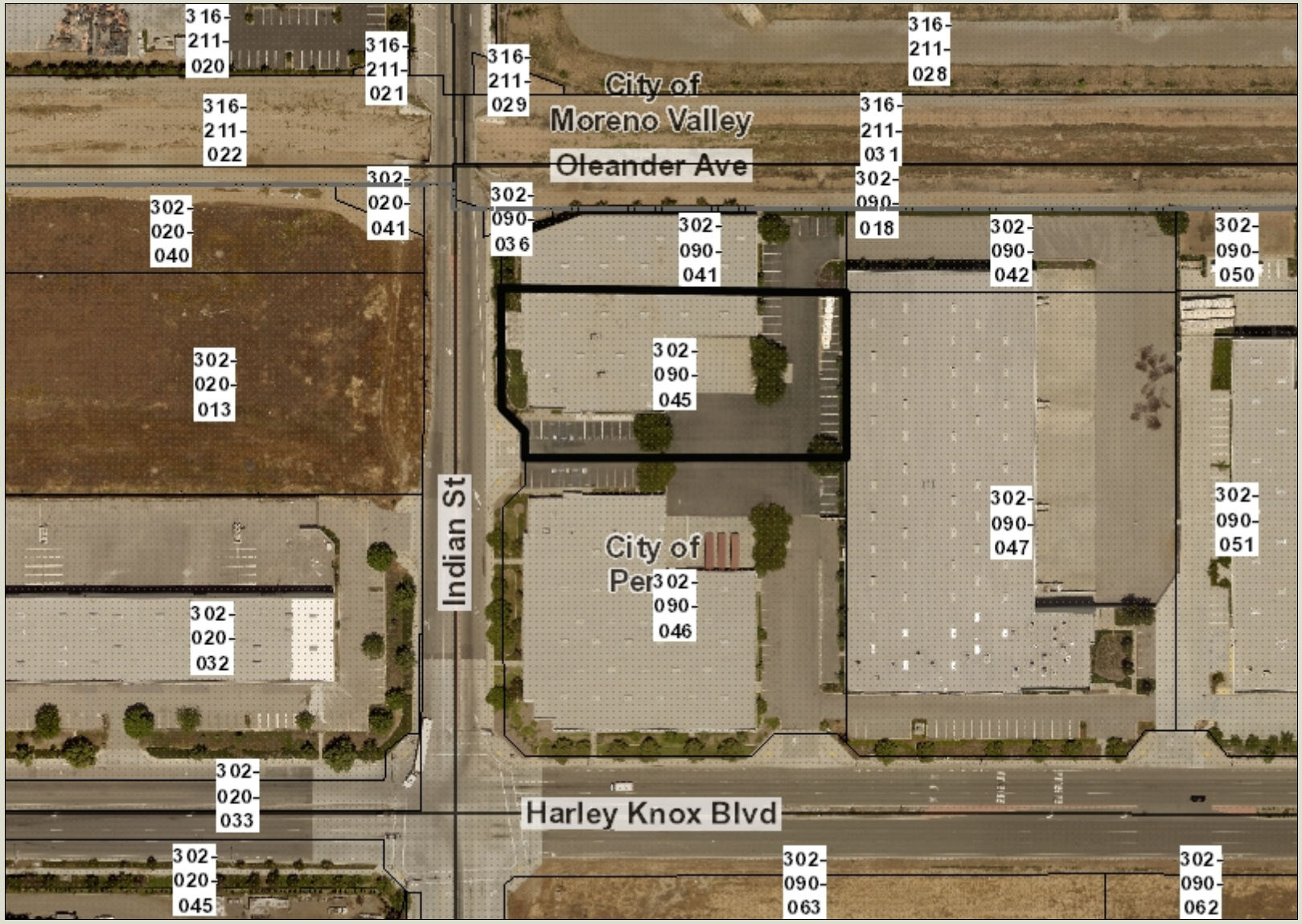

Legend

- Parcel APNs
- Parcels
- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 188 376 Feet

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Notes

Map My County Map

Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 1,539 3,079 Feet

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Notes

Map My County Map

Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 770 1,539 Feet

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Notes

Map My County Map

Legend

- Blueline Streams
- City Areas
- World Street Map

0 3,079 6,157 Feet

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Notes

Glint & Glare Assessment

Triad magnetics PV

17225, Rev. 01

Prepared for: StellarSolar

Prepared by:

Phoventus, Inc.
2401 Bristol Cir Building A# 103, Oakville, ON L6H 5S9

Revision	Date (YYYY-MM-DD)	Issue Reason	Elaborated By	Approved By
00	2023-03-22	Draft	AN/SH/RC	RL
00	2023-03-22	Final	AN/SH/RC	RL
01	*Date*	*Current Revision*	*Descriptive Only*	*Descriptive Only*

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Executive Summary

StellarSolar is evaluating a rooftop PV system (the Project) in California. StellarSolar engaged with Phoventus Inc. to conduct a Glint and Glare Assessment of the Triad magnetics PV system, this report. This assessment complies with the 2021 U.S. Federal Aviation Administration (FAA) Policy [1], specifically employing a Solar Glare Hazard Analysis Tool (SGHAT) for all instances of glare.

This assessment uses GlareGauge (a ForgeSolar software that calculates glint and glare impact) and considers all Flight Paths and Air Traffic Control Towers in the study area. The assessment considers the Project's visual impact on four flight paths ,one Air Traffic Control Tower and route receptors.

Table 1 presents a summary of the visual impacts on all receptors.

Table 1 – Summary of ocular impact on all receptors.

Component	Green glare (min)	Yellow glare (min)
Flight Path: FP 12	0	0
Flight Path: FP 30	0	0
Flight Path: FP 32	0	0
Flight Path: FP 14	0	0
1-ATCT	0	0
C KC Rwy 14 Base	0	0
C KC Rwy 14 Crosswind	0	0
C KC Rwy 14 Downwind	2,586	0
C KC Rwy 14 Final	0	0
C KC Rwy 14 Upwind	1,435	0
C KC Rwy 32 Base	0	0
C KC Rwy 32 Crosswind	0	0
C KC Rwy 32 Downwind	2,588	0
C KC Rwy 32 Final	1,719	0
C KC Rwy 32 Upwind	0	0
GA Rwy 12 Base	0	0
GA Rwy 12 Crosswind	0	0
GA Rwy 12 Downwind	0	0
GA Rwy 12 Final	0	0
GA Rwy 12 Upwind	0	0

Component	Green glare (min)	Yellow glare (min)
GA Rwy 30 Base	0	0
GA Rwy 30 Crosswind	0	0
GA Rwy 30 Downwind	0	0
GA Rwy 30 Final	0	0
GA Rwy 30 Upwind	0	0
GA Rwy 14 Base	0	0
GA Rwy 14 Crosswind	0	0
GA Rwy 14 Downwind	4,091	0
GA Rwy 14 Final	0	0
GA Rwy 14 Upwind	3,814	0
GA Rwy 32 Base	0	0
GA Rwy 32 Crosswind	0	0
GA Rwy 32 Downwind	4,094	0
GA Rwy 32 Final	3,852	0
GA Rwy 32 Upwind	0	0
OHead Rwy 14 Downwind	3,378	0
OHead Rwy 14 Final	0	0
OHead Rwy 14 Initial	0	0
OHead Rwy 32 Downwind	280	0
OHead Rwy 32 Final	3,082	0
OHead Rwy 32 Initial	7,499	0

This assessment indicated that the Project is expected to create only green glare in minimal daily duration, restricted to certain seasons and times of the day. Considering the small duration of glare predicted at the Project receptors, Phoventus believes that no further investigations or mitigations are required to address glare impacts.

1 Acronyms

ATCT	Air Traffic Control Tower
FAA	Federal Aviation Administration
FP	Flight Path
OP	Observation Point
PV	Photovoltaic
SGHAT	Solar Glare Hazard Analysis Tool

2 Introduction

StellarSolar (the Client) engaged with Phoventus Inc. to conduct a Glint and Glare Assessment for the Triad magnetics PV system (the Project) in California.

This report aims to fulfill the FAA requirements concerning solar glare assessment. According to FAA Policy [1], the assessment report must:

- *Describe the time, location, duration and intensity of solar glare predicted to be caused by the Project.*
- *Describe the software or tools used in the assessment, the assumptions and the input parameters (equipment-specific and environmental) utilized.*
- *Describe the qualification of the individual(s) performing the assessment.*
- *Identify the potential solar glare at Airports and Air traffic control towers.*

3 Assessment Methodology

We used FAA regulations and best practices to define the study area, Air traffic control (ATCT), flight paths (FP), and Route receptors for the Project.

The study area (scope) considers the Project's visual impact on two flight paths, Air Traffic Control and Route receptors at March air reserve Base.

This assessment uses GlareGauge; a ForgeSolar software specialized in calculating glint and glare impact. GlareGauge is approved by the FAA and clearly states whether the facility passes FAA regulations regarding the impact of glint and glare.

GlareGauge calculates the ocular impact over an entire calendar year in one-minute intervals, including all times between when the sun rises above the horizon until the sun sets below the horizon.

Figure 1 – Study area for showing all Observational Points and Flight paths.

3.1 Input Parameters

The solar array, ATCT, flight paths (FPs) , and Route Receptors were plotted using an interactive Google Map API and inputting site-specific data. The following sections provide details of the parameters specified for the analysis calculations in the GlareGauge software.

3.1.1 The PV Array

- PV Array 1

Array layout and site boundary were plotted using the interactive Google Map API and adjusted for accuracy. The boundary defines the reflective area encompassing the modules and is defined by the site layout to date.

Name: PV Array 1
Axis tracking: Fixed (no rotation)
Tilt: 5.0 deg
Orientation: 180.0 deg
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: Correlate with material

Figure 2 –Array area plotted on GlareGauge.

Table 2 – Vertices defining Parcel 1 PV array area.

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.858429	-117.234492	1467.90	34.25
2	33.858428	-117.234361	1467.24	34.25
3	33.858417	-117.234362	1467.24	34.25
4	33.858418	-117.234049	1465.68	34.25
5	33.858627	-117.234047	1465.69	34.25
6	33.858624	-117.233745	1464.44	34.25
7	33.858724	-117.233743	1464.45	34.25
8	33.858720	-117.234509	1468.06	34.25
9	33.858517	-117.234510	1468.19	34.25
10	33.858518	-117.234494	1468.05	34.25

3.1.2 2-Mile Flight Path Recept

The flight paths were plotted using the interactive Google Map API and adjusted for accuracy. The FP1 and FP2 are for the March Air Reserve Base.

- Flight Path 14

Name: FP14
Description: March air reserve base
Threshold height: 56 ft
Direction: 149.0°
Glide slope: 2.59°
Pilot view restricted: Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Figure 3 – FP14 plotted on GlareGauge

Table 3 – Vertices defining FP1 on GlareGauge.

Number	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.896436	-117.270631	1535.67	56.00	1591.67
2-Mile	33.921219	-117.288592	1524.58	544.77	2069.35

- Flight Path 12

Name: FP12
Description: March air reserve Base
Threshold height: 50 ft
Direction: 135.0°
Glide slope: 3.0°
Pilot view restricted: Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Figure 4 – FP12 plotted on GlareGauge.

Table 4 – Vertices defining FP12 on GlareGauge.

Number	Latitude (deg)	Longitude (deg)	Ground elevation (m)	Height above ground (ft)	Total elevation (ft)
Threshold	33.890243	-117.260666	1517.92	50.00	1567.92
2-Mile	33.910687	-117.285323	1543.40	577.95	2121.35

- Flight Path 30

Name: FP30
Description: March air reserve Base
Threshold height: 50 ft
Direction: 315.0°
Glide slope: 3.0°
Pilot view restricted: Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Figure 5 – FP30 plotted on GlareGauge.

Table 5 – Vertices defining FP30 on GlareGauge.

Number	Latitude (deg)	Longitude (deg)	Ground elevation (m)	Height above ground (ft)	Total elevation (ft)
Threshold	33.884351	-117.253579	1505.92	50.00	1555.92
2-Mile	33.863907	-117.228923	1469.80	639.55	2109.35

- Flight Path 32

Name: FP32
Description: March air reserve Base
Threshold height: 50 ft
Direction: 329.0°
Glide slope: 3.0°
Pilot view restricted: Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Figure 6 – FP32 plotted on GlareGauge.

Table 6 – Vertices defining FP32 on GlareGauge.

Number	Latitude (deg)	Longitude (deg)	Ground elevation (m)	Height above ground (ft)	Total elevation (ft)
Threshold	33.865319	-117.248518	1487.41	50.00	1537.41
2-Mile	33.840536	-117.230563	1461.13	629.71	2090.84

3.1.3 ATCT Tower

Name: 1-ATCT
Description: KRIV Tower

Figure 7 – ATCT Tower plotted on GlareGauge.

Table 7 – Vertices defining ATCT on GlareGauge.

Number	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1-ATCT	33.891568	-117.251182	1508.79	118.01

3.1.4 Route Receptors

- GA Rwy 12 Base
  GA Rwy 12 Base is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 12 Base
Route type: Two-way
Viewing angle: 50.0 deg

Figure 8 – Route receptor along GA Rwy 12 Base

Table 8 – Vertices defining route receptor GA Rwy 12 Base

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.910322	-117.264967	1500.14	1300.12
2	33.905592	-117.270622	1500.14	1300.12

- GA Rwy 12 Crosswind
  GA Rwy 12 Crosswind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 12 Crosswind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 9 – Route receptor along GA Rwy 12 Crosswind

Table 9 – Vertices defining route receptor GA Rwy 12 Crosswind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.876081	-117.235119	1500.14	1300.12
2	33.880814	-117.229467	1500.14	1300.12

- GA Rwy 12 Downwind
  GA Rwy 12 Downwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 12 Downwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 10 – Route receptor along GA Rwy 12 Downwind

Table 10 – Vertices defining route receptor GA Rwy 12 Downwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.887897	-117.229483	1500.14	1300.12
2	33.910333	-117.256469	1500.14	1300.12

- GA Rwy 12 Final
  GA Rwy 12 Final is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 12 Final
Route type: Two-way
Viewing angle: 50.0 deg

Figure 11 – Route receptor along GA Rwy 12 Final

Table 11 – Vertices defining route receptor GA Rwy 12 Final

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.898508	-117.270608	1500.14	1300.12
2	33.890258	-117.260680	1500.14	0

- GA Rwy 12 Upwind
  GA Rwy 12 Upwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 12 Upwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 12 – Route receptor along GA Rwy 12 Upwind

Table 12 – Vertices defining route receptor GA Rwy 12 Upwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.884319	-117.253536	1500.14	0
2	33.876069	-117.243611	1500.14	1300.13

- GA Rwy 30 Base
  GA Rwy 30 Base is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 30 Base
Route type: Two-way
Viewing angle: 50.0 deg

Figure 13 – Route receptor along GA Rwy 30 Base

Table 13 – Vertices defining route receptor GA Rwy 30 Base

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.880814	-117.229471	1500.14	1300.13
2	33.876081	-117.235119	1500.14	1300.13

- GA Rwy 30 Crosswind
  GA Rwy 30 Crosswind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 30 Crosswind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 14 – Route receptor along GA Rwy 30 Crosswind

Table 14 – Vertices defining route receptor GA Rwy 30 Crosswind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.905592	-117.270622	1500.14	1300.12
2	33.910322	-117.264967	1500.14	1300.12

- GA Rwy 30 Downwind
  GA Rwy 30 Downwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 30 Downwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 15 – Route receptor along GA Rwy 30 Downwind

Table 15 – Vertices defining route receptor GA Rwy 30 Downwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.910333	-117.256469	1500.14	1300.12
2	33.887897	-117.229483	1500.14	1300.12

- GA Rwy 30 Final
  GA Rwy 30 Final is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 30 Final
Route type: Two-way
Viewing angle: 50.0 deg

Figure 16 – Route receptor along GA Rwy 30 Final

Table 16 – Vertices defining route receptor GA Rwy 30 Final

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.876069	-117.243611	1500.14	1300.13
2	33.884319	-117.253536	1500.14	0

- GA Rwy 30 Upwind
  GA Rwy 30 Upwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 30 Upwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 17 – Route receptor along GA Rwy 30 Upwind

Table 17 – Vertices defining route receptor GA Rwy 30 Upwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.890258	-117.260681	1500.14	0
2	33.898508	-117.270608	1500.14	1300.12

- C KC Rwy 14 Base
  C KC Rwy 14 Base is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 14 Base
Route type: Two-way
Viewing angle: 50.0 deg

Figure 18– Route receptor along C KC Rwy 14 Base

Table 18– Vertices defining route receptor C KC Rwy 14 Base

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.922394	-117.325047	1500.14	1500.14
2	33.931244	-117.309014	1500.14	1500.14

- C KC Rwy 14 crosswind

  C KC Rwy 14 crosswind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 14 crosswind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 19 – Route receptor along C KC Rwy 14 crosswind

Table 19 – Vertices defining route receptor C KC Rwy 14 crosswind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.821961	-117.228367	1500.14	1500.14
2	33.813147	-117.244350	1500.14	1500.14

- C KC Rwy 14 Downwind

  C KC Rwy 14 Downwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 14 Downwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 20 – Route receptor along C KC Rwy 14 Downwind

Table 20 – Vertices defining route receptor C KC Rwy 14 Downwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.819225	-117.262269	1500.14	1500.14
2	33.908131	-117.325528	1500.14	1500.14

- C KC Rwy 14 Final
  C KC Rwy 14 Final is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 14 Final
Route type: Two-way
Viewing angle: 50.0 deg

Figure 21 – Route receptor along C KC Rwy 14 Final

Table 21 – Vertices defining route receptor C KC Rwy 14 Final

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.925156	-117.291061	1500.14	1500.14
2	33.896431	-117.270636	1500.14	0

- C KC Rwy 14 Upwind
  C KC Rwy 14 Upwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 14 Upwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 22 – Route receptor along C KC Rwy 14 Upwind

Table 22 – Vertices defining route receptor C KC Rwy 14 Upwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.864994	-117.248281	1500.14	0
2	33.836269	-117.227869	1500.14	1500.14

- OHead Rwy 14 Downwind

  OHead Rwy 14 Downwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: OHead Rwy 14 Downwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 23 – Route receptor along OHead Rwy 14 Downwind

Table 23 – Vertices defining route receptor OHead Rwy 14 Downwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.863564	-117.293808	1500.14	2000.20
2	33.908131	-117.325528	1500.14	2000.20

- OHead Rwy 14 Final
  OHead Rwy 14 Final is plotted using the interactive Google Map API and adjusted for accuracy.

Name: OHead Rwy 14 Final
Route type: Two-way
Viewing angle: 50.0 deg

Figure 24 – Route receptor along OHead Rwy 14 Final

Table 24 – Vertices defining route receptor OHead Rwy 14 Final

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.925156	-117.291061	1500.14	2000.20
2	33.896431	-117.270636	1500.14	0

- OHead Rwy 14 Initial

OHead Rwy 14 Initial is plotted using the interactive Google Map API and adjusted for accuracy.

Name OHead Rwy 14 Initial
Route type: Two-way
Viewing angle: 50.0 deg

Figure 25 – Route receptor along OHead Rwy 14 Initial

Table 25 – Vertices defining route receptor OHead Rwy 14 Initial

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.968036	-117.322128	1500.14	2000.20
2	33.880706	-117.259453	1500.14	2000.20

- OHead Rwy 32 Downwind

OHead Rwy 32 Downwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: OHead Rwy 32 Downwind
Route type: Two-way
Viewing angle: 50.0 deg

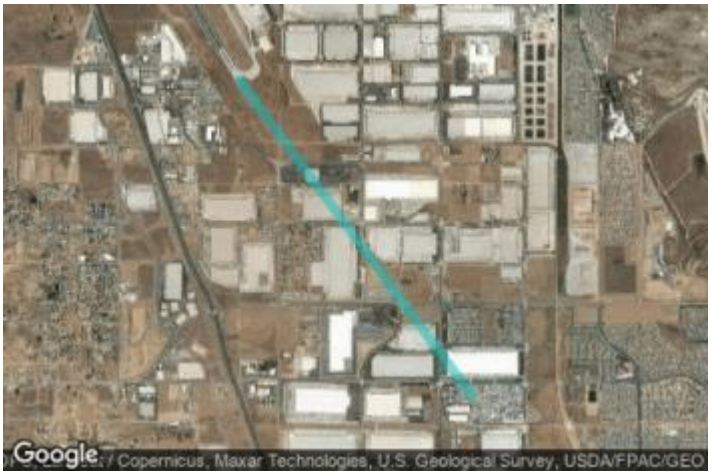
Figure 26 – Route receptor along OHead Rwy 32 Downwind

Table 26 – Vertices defining route receptor OHead Rwy 32 Downwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.863564	-117.293808	1500.14	2000.20
2	33.819225	-117.262269	1500.14	2000.20

- OHead Rwy 32 Final

OHead Rwy 32 Final is plotted using the interactive Google Map API and adjusted for accuracy.



Name: OHead Rwy 32 Final
Route type: Two-way
Viewing angle: 50.0 deg

Figure 27 – Route receptor along OHead Rwy 32 Final

Table 27 – Vertices defining route receptor OHead Rwy 32 Final

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.836269	-117.222787	1500.14	2000.20
2	33.864994	-117.248281	1500.14	0

- OHead Rwy 32 Initial

OHead Rwy 32 Initial is plotted using the interactive Google Map API and adjusted for accuracy.

Name: OHead Rwy 32 Initial
Route type: Two-way
Viewing angle: 50.0 deg

Figure 28 – Route receptor along OHead Rwy 32 Initial

Table 28 – Vertices defining route receptor OHead Rwy 32 Initial

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.793375	-117.196878	1500.14	2000.20
2	33.880706	-117.270622	1500.14	2000.20

- GA Rwy 14 Base

GA Rwy 14 Base is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 14 Base
Route type: Two-way
Viewing angle: 50.0 deg

Figure 29 – Route receptor along GA Rwy 14 Base

Table 29 – Vertices defining route receptor GA Rwy 14 Base

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.904833	-117.292903	1500.14	1500.14
2	33.908242	-117.286017	1500.14	1500.14

- GA Rwy 14 Crosswind
  GA Rwy 14 Crosswind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 14 Crosswind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 30 – Route receptor along GA Rwy 14 Crosswind

Table 30 – Vertices defining route receptor GA Rwy 14 Crosswind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.848078	-117.243236	1500.14	1500.14
2	33.844669	-117.250119	1500.14	1500.14

- GA Rwy 14 Downwind
  GA Rwy 14 Downwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 14 Downwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 31 – Route receptor along GA Rwy 14 Downwind

Table 31 – Vertices defining route receptor GA Rwy 14 Downwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.846422	-117.258344	1500.14	1500.14
2	33.897972	-117.295011	1500.14	1500.14

- GA Rwy 14 Final
  GA Rwy 14 Final is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 14 Final
Route type: Two-way
Viewing angle: 50.0 deg

Figure 32 – Route receptor along GA Rwy 14 Final

Table 32 – Vertices defining route receptor GA Rwy 14 Final

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.906486	-117.277783	1500.14	1500.14
2	33.896431	-117.270636	1500.14	0

- GA Rwy 14 Upwind
  GA Rwy 14 Upwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 14 Upwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 33 – Route receptor along GA Rwy 14 Upwind

Table 33 – Vertices defining route receptor GA Rwy 14 Upwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.864994	-117.248281	1500.14	0
2	33.854942	-117.241136	1500.14	1500.14

- GA Rwy 32 Base
  GA Rwy 32 Base is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 32 Base
Route type: Two-way
Viewing angle: 50.0 deg

Figure 34 – Route receptor along GA Rwy 32 Base

Table 34 – Vertices defining route receptor GA Rwy 32 Base

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.844669	-117.250119	1500.14	1500.14
2	33.848078	-117.243236	1500.14	1500.14

- GA Rwy 32 Crosswind
  GA Rwy 32 Crosswind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 32 Crosswind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 35 – Route receptor along GA Rwy 32 Crosswind

Table 35 – Vertices defining route receptor GA Rwy 32 Crosswind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.908242	-117.286017	1500.14	1500.14
2	33.904833	-117.292903	1500.14	1500.14

- GA Rwy 32 Downwind
  GA Rwy 32 Downwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 32 Downwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 36 – Route receptor along GA Rwy 32 Downwind

Table 36 – Vertices defining route receptor GA Rwy 32 Downwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.897972	-117.295011	1500.14	1500.14
2	33.846422	-117.258344	1500.14	1500.14

- GA Rwy 32 Final
  GA Rwy 32 Final is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 32 Final
Route type: Two-way
Viewing angle: 50.0 deg

Figure 37 – Route receptor along GA Rwy 32 Final

Table 37 – Vertices defining route receptor GA Rwy 32 Final

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.854942	-117.241136	1500.14	1500.14
2	33.864994	-117.248281	1500.14	0

- GA Rwy 32 Upwind
  GA Rwy 32 Upwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: GA Rwy 32 Upwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 38 – Route receptor along GA Rwy 32 Upwind

Table 38 – Vertices defining route receptor GA Rwy 32 Upwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.896431	-117.270636	1500.14	0
2	33.906486	-117.277783	1500.14	1500.14

- C KC Rwy 32 Base
  C KC Rwy 32 Base is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 32 Base
Route type: Two-way
Viewing angle: 50.0 deg

Figure 39 – Route receptor along C KC Rwy 32 Base

Table 39 – Vertices defining route receptor C KC Rwy 32 Base

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.813147	-117.244350	1500.14	1500.14
2	33.821961	-117.228367	1500.14	1500.14

- C KC Rwy 32 Crosswind

  C KC Rwy 32 Crosswind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 32 Crosswind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 40 – Route receptor along C KC Rwy 32 Crosswind

Table 40 – Vertices defining route receptor C KC Rwy 32 Crosswind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.931244	-117.309014	1500.14	1500.14
2	33.922394	-117.325047	1500.14	1500.14

- C KC Rwy 32 Downwind

  C KC Rwy 32 Downwind is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 32 Downwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 41 – Route receptor along C KC Rwy 32 Downwind

Table 41 – Vertices defining route receptor C KC Rwy 32 Downwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.908131	-117.325528	1500.14	1500.14
2	33.819225	-117.262269	1500.14	1500.14

- C KC Rwy 32 Final
  C KC Rwy 32 Final is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 32 Final
Route type: Two-way
Viewing angle: 50.0 deg

Figure 42 – Route receptor along C KC Rwy 32 Final

Table 42 – Vertices defining route receptor C KC Rwy 32 Final

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.836269	-117.227869	1500.14	1500.14
2	33.864994	-117.248281	1500.14	3386

- C KC Rwy 32 Upwind
  C KC Rwy 32 Upwind l is plotted using the interactive Google Map API and adjusted for accuracy.

Name: C KC Rwy 32 Upwind
Route type: Two-way
Viewing angle: 50.0 deg

Figure 43 – Route receptor along C KC Rwy 32 Upwind

Table 43 – Vertices defining route receptor C KC Rwy 32 Upwind

Vertex	Latitude (deg)	Longitude (deg)	Ground elevation (ft)	Height above ground (ft)
1	33.896431	-117.270636	1500.14	0
2	33.925156	-117.291061	1500.14	1500.14

3.2 Assumptions

1. Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
2. Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover, and geographic obstacles.
3. Detailed system geometry is not rigorously simulated.
4. The glare hazard determination relies on several approximations, including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
5. Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
6. Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
7. Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
8. Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.

4 Glare Analysis Procedure

The assessment results will be interpreted, analyzed, and reported to quantify and determine the significance of any ocular impact found. In the case of impact found, the potential requirement(s) for mitigation are discussed.

The Solar Glare Hazard Analysis Tool (SGHAT) User's Manual v 3.0 states that:

"*If glare is found, the tool calculates the retinal irradiance and subtended source angle (size/distance) of the glare source to predict potential ocular hazards ranging from temporary after-image to retinal burn. The results are presented in a simple, easy-to-interpret plot that specifies when glare will occur throughout the year, with color codes indicating the potential ocular hazard. The tool can also predict relative energy production while evaluating alternative designs, layouts, and locations to identify configurations that maximize energy production while mitigating the impacts of glare.*"

The color codes used in this assessment are based on a red, yellow, and green structure that categorizes the level of danger to a person's eyes, as defined by [2]. The descriptions are as follows:

- Green: Low potential for temporary after-image,
- Yellow: Potential for temporary after-image, and
- Red: Potential for permanent eye damage.

For clarification, an after image can be described as a lingering image of glare in the field of view or flash blindness when observed prior to a typical blink response time.

The FAA requires the following criteria be met for solar energy systems on airport property:

- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height; and
- Default glare analysis and observer eye characteristics are as follows:
    - Analysis time interval: 1 minute;
    - Ocular transmission coefficient: 0.5;
    - Pupil diameter: 0.002 meters;
    - Eye focal length: 0.017 meters; and
    - Sun subtended angle: 9.3 milliradians.

As set out by the FAA [1], the criteria listed above are inputs to this assessment.

5 Assessment of Impact

This section presents the findings of the glint and glare assessment using the GlareGauge analysis software that forms the Solar Glare Hazard Analyses Tool as approved by the FAA. Results are informational only and open to interpretation.

5.1 Summary of Impact

Table 44 summarizes the Glare results.

Table 44 – Summary of GlareGauge ocular impact on all FPs, OPs, and Route Recepetors from each PV array.

Component	Green glare (min)	Yellow glare (min)
Flight Path: FP 12	0	0
Flight Path: FP 30	0	0
Flight Path: FP 32	0	0
Flight Path: FP 14	0	0
1-ATCT	0	0
C KC Rwy 14 Base	0	0
C KC Rwy 14 Crosswind	0	0
C KC Rwy 14 Downwind	2,586	0
C KC Rwy 14 Final	0	0
C KC Rwy 14 Upwind	1,435	0
C KC Rwy 32 Base	0	0
C KC Rwy 32 Crosswind	0	0
C KC Rwy 32 Downwind	2,588	0
C KC Rwy 32 Final	1,719	0
C KC Rwy 32 Upwind	0	0
GA Rwy 12 Base	0	0
GA Rwy 12 Crosswind	0	0
GA Rwy 12 Downwind	0	0
GA Rwy 12 Final	0	0
GA Rwy 12 Upwind	0	0
GA Rwy 30 Base	0	0

Component	Green glare (min)	Yellow glare (min)
GA Rwy 30 Crosswind	0	0
GA Rwy 30 Downwind	0	0
GA Rwy 30 Final	0	0
GA Rwy 30 Upwind	0	0
GA Rwy 14 Base	0	0
GA Rwy 14 Crosswind	0	0
GA Rwy 14 Downwind	4,091	0
GA Rwy 14 Final	0	0
GA Rwy 14 Upwind	3,814	0
GA Rwy 32 Base	0	0
GA Rwy 32 Crosswind	0	0
GA Rwy 32 Downwind	4,094	0
GA Rwy 32 Final	3,852	0
GA Rwy 32 Upwind	0	0
OHead Rwy 14 Downwind	3,378	0
OHead Rwy 14 Final	0	0
OHead Rwy 14 Initial	0	0
OHead Rwy 32 Downwind	280	0
OHead Rwy 32 Final	3,082	0
OHead Rwy 32 Initial	7,499	0

The following subsections detail the glare found along the RRs C KC Rwy 14 Downwind, C KC Rwy 14 Upwind, C KC Rwy 32 Downwind, C KC Rwy 32 Final, GA Rwy 14 Downwind, GA Rwy 14 Upwind, GA Rwy 32 Downwind, GA Rwy 32 Final, OHead Rwy 14 Downwind, OHead Rwy 32 Downwind, OHead Rwy 32 Final, and OHead Rwy 32 Initial.

All the graphics can be found in Section 9.

5.1.1 C KC Rwy 14 Downwind

C KC Rwy 14 Downwind is predicted to receive approximately 2,586 minutes of green glare annually. The glare is seasonal and predicted to occur in from January to March and from October to December. Daily glare is predicted for the period from 6:00 to 7:00.

C KC Rwy 14 Downwind is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project, directly in line with the Project. For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image.

5.1.2 C KC Rwy 14 Upwind

C KC Rwy 14 Upwind is predicted to receive approximately 1,435 minutes of green glare per year. The glare is predicted to occur from February to March and September to November. Daily glare is predicted for the period 6:00 to 7:00. Less than 30 minutes of glare per day is expected during these periods.

C KC Rwy 14 Upwind is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project, directly in line with the Project. For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image.

5.1.3 C KC Rwy 32 Downwind

C KC Rwy 32 Downwind is predicted to receive approximately 2,588 minutes of green glare per year. The glare is predicted to occur from October to March. Daily glare is predicted for the period 6:00 to 7:00. Less than 30 minutes of glare per day is expected during these periods.

C KC Rwy 32 Downwind is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project, directly in line with the Project. For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image.

5.1.4 C KC Rwy 32 Final

C KC Rwy 32 Final is predicted to receive approximately 1,719 minutes of green glare per year. The glare is predicted to occur from February to March and From September to November.Daily glare is predicted for the period 6:00 to 7:00. Less than 30 minutes of glare per day is expected during these periods.

C KC Rwy 32 Final is located on the westof the Project. At the time when glare was found, the sun was rising to the east of the project, directly in line with the Project. For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image

5.1.5 GA Rwy 14 Downwind

GA Rwy 14 Downwind is predicted to receive approximately 4,091 minutes of green glare per year. The glare is predicted to occur from October to March. Daily glare is predicted for the period 6:00 to 7:00. Less than 30 minutes of glare per day is expected during these periods.

GA Rwy 14 Downwind is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image.

5.1.6 GA Rwy 14 Upwind

GA Rwy 14 Upwind is predicted to receive approximately 3,814 minutes of green glare per year. The glare is predicted to occur fromSeptember to March. Daily glare is predicted for the period 6:00 to 7:00. Less than 35 minutes of glare per day is expected during these periods.

GA Rwy 14 Upwind is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image.

5.1.7 GA Rwy 32 Downwind

GA Rwy 32 Downmwind is predicted to receive approximately 4,094 minutes of green glare per year. The glare is predicted to occur from September to March. Daily glare is predicted for the period 6:00 to 7:00. Less than 30 minutes of glare per day is expected during these periods.

GA Rwy 32 Downwind is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image.

5.1.8 GA Rwy 32 Final

GA Rwy 32 Final is predicted to receive approximately 3,852 minutes of green glare per year. The glare is predicted to occur from September to March. Daily glare is predicted for the period 6:00 to 7:00. Less than 35 minutes of glare per day is expected during these periods.

GA Rwy 32 Final is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image

5.1.9 OHead Rwy 14 Downwind

OHead Rwy 14 Downwind is predicted to receive approximately 3,378 minutes of green glare per year. The glare is predicted to occur from September to March. Daily glare is predicted for the period 6:00 to 7:00. Less than 30 minutes of glare per day is expected during these periods.

OHead Rwy 14 Downwind is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image

5.1.10 OHead Rwy 32 Downwind

OHead Rwy 32 Downwind is predicted to receive approximately 280 minutes of green glare per year. The glare is predicted to occur in March and September and October. Daily glare is predicted for the period 6:00 to 7:00. Less than 25 minutes of glare per day is expected during these periods.

OHead Rwy 32 Downwind is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project, directly in line with the Project. For the reasons mentioned, the

impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image.

5.1.11 OHead Rwy 32 Final

OHead Rwy 32 Final is predicted to receive approximately 3,082 minutes of green glare per year. The glare is predicted to occur from February to April and From September to November. Daily glare is predicted for the period 6:00 to 7:00. Less than 30 minutes of glare per day is expected during these periods.

OHead Rwy 32 Final is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project, directly in line with the Project. For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image

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5.1.12 OHead Rwy 32 Initial

OHead Rwy 32 Initial is predicted to receive approximately 7,499 minutes of green glare per year. The glare is predicted to occur from September to April. Daily glare is predicted for the period 7:00 to 9:00. Less than 35 minutes of glare per day is expected during these periods.

OHead Rwy 32 Initial is located on the west of the Project. At the time when glare was found, the sun was rising to the east of the project, directly in line with the Project .For the reasons mentioned, the impact of this green glare is not considered significant; while observing the Project, the visual effect of the sun poses a much greater potential for an after-image.

6 Conclusion

This assessment indicated that the Project is expected to create only green glare in minimal daily duration, restricted to certain seasons and times of the day. Considering the small duration of the glare predicted at the Route Receptors, Phoventus believes no further investigations or mitigations are required to address glare impacts.

The site passes according to FAA policy.

7 References

[1] Federal Aviation Administration (2021). Final Policy, Review of Solar Energy System Projects on Federally Obligated Airports. Document Number 2021-09862.

[2] Ho, C. K., Ghanbari, C. M., and Diver, R. B., 2011, “Methodology to Assess Potential Glint and Glare Hazards From Concentrating Solar Power Plants: Analytical Models and Experimental Validation”, *ASME J. Sol. Energy Eng.*, 133.

8 Individuals Performing the Assessment

- **Sara Hazin**, Junior Electrical Engineer
  - **Role:** Glare Analyst and Co-author
  - **Experience:** She has a bachelor's degree in Electrical Engineering and a Master's in Engineering. She has provided technical support for solar systems implementation in the USA, in which glare was considered.

- **Ronaldo Chacon**, Electrical Engineer
  - **Role:** Glare Analyst and Co-author
  - **Experience:** He has Bachelor's, Master's, and PhD in Electrical Engineering. He has provided technical support for solar systems implementation in the USA, in which glare was considered.

- **Robert Lydan**, Managing Director
  - **Role:** Technical Reviewer
  - **Experience:** He is an expert witness with experience in technical solar development in the USA. He has worked in technical oversight and technical review, or authorship of 5+ glare assessments.

9 Forge Solar Results

FORGESOLAR GLARE ANALYSIS

Project: **Triad - Stellar Solar**
Site configuration: **Overhead Analysis**
Analysis conducted by Ronaldo Chacon (rchacon@phoventus.com) at 14:18 on 24 Mar, 2023.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	PASS	Flight path receptor(s) do not receive yellow glare
ATCT(s)	PASS	Receptor(s) marked as ATCT do not receive glare

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

FORGESOLAR GLARE ANALYSIS

Project: **Triad - Stellar Solar**
Site configuration: **Rwy 14 32 GA Rectangular Analysis-temp-0**

Created 21 Mar, 2023
Updated 21 Mar, 2023
Time-step 1 minute
Timezone offset UTC-8
Site ID 86688.15305
Category 1 MW to 5 MW
DNI peaks at 1,000.0 W/m^2
Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	5.0	180.0	15,851	264.2	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
GA Rwy 14 Base	0	0.0	0	0.0
GA Rwy 14 Crosswind	0	0.0	0	0.0
GA Rwy 14 Downwind	4,091	68.2	0	0.0
GA Rwy 14 Final	0	0.0	0	0.0
GA Rwy 14 Upwind	3,814	63.6	0	0.0
GA Rwy 32 Base	0	0.0	0	0.0
GA Rwy 32 Crosswind	0	0.0	0	0.0
GA Rwy 32 Downwind	4,094	68.2	0	0.0
GA Rwy 32 Final	3,852	64.2	0	0.0
GA Rwy 32 Upwind	0	0.0	0	0.0
FP 12	0	0.0	0	0.0
FP 14	0	0.0	0	0.0
FP 30	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
FP 32	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

Component Data

PV Arrays

Name: PV array 1
Axis tracking: Fixed (no rotation)
Tilt: 5.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

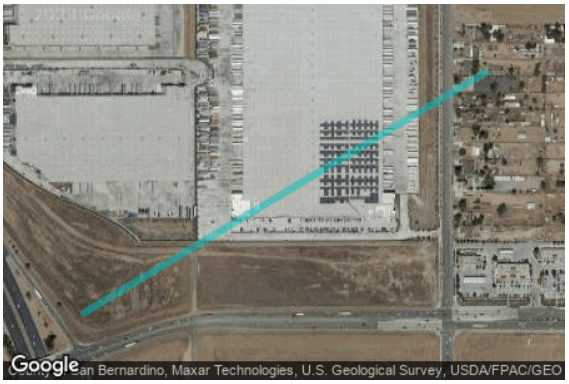
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.858429	-117.234492	1467.90	34.25	1502.15
2	33.858428	-117.234361	1467.24	34.25	1501.49
3	33.858417	-117.234362	1467.24	34.25	1501.49
4	33.858418	-117.234049	1465.68	34.25	1499.93
5	33.858627	-117.234047	1465.69	34.25	1499.94
6	33.858624	-117.233745	1464.44	34.25	1498.69
7	33.858724	-117.233743	1464.45	34.25	1498.70
8	33.858720	-117.234509	1468.06	34.25	1502.31
9	33.858517	-117.234510	1468.19	34.25	1502.44
10	33.858518	-117.234494	1468.05	34.25	1502.30

Route Receptors

Name: GA Rwy 14 Base
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.904833	-117.292903	1500.14	1500.14	3000.28
2	33.908242	-117.286017	1500.14	1500.14	3000.28

Name: GA Rwy 14 Crosswind
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.848078	-117.243236	1500.14	1500.14	3000.28
2	33.844669	-117.250119	1500.14	1500.14	3000.28

Name: GA Rwy 14 Downwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.846422	-117.258344	1500.14	1500.14	3000.28
2	33.897972	-117.295011	1500.14	1500.14	3000.28

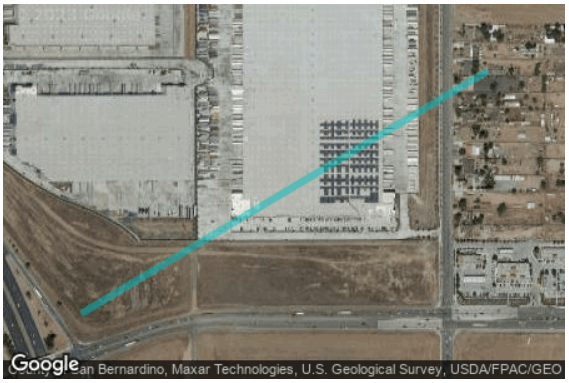
Name: GA Rwy 14 Final
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.906486	-117.277783	1500.14	1500.14	3000.28
2	33.896431	-117.270636	1500.14	0.00	1500.14

Name: GA Rwy 14 Upwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.864994	-117.248281	1500.14	0.00	1500.14
2	33.854942	-117.241136	1500.14	1500.14	3000.28

Name: GA Rwy 32 Base
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.844669	-117.250119	1500.14	1500.14	3000.28
2	33.848078	-117.243236	1500.14	1500.14	3000.28

Name: GA Rwy 32 Crosswind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.908242	-117.286017	1500.14	1500.14	3000.28
2	33.904833	-117.292903	1500.14	1500.14	3000.28

Name: GA Rwy 32 Downwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.897972	-117.295011	1500.14	1500.14	3000.28
2	33.846422	-117.258344	1500.14	1500.14	3000.28

Name: GA Rwy 32 Final
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.854942	-117.241136	1500.14	1500.14	3000.28
2	33.864994	-117.248281	1500.14	0.00	1500.14

Name: GA Rwy 32 Upwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.896431	-117.270636	1500.14	0.00	1500.14
2	33.906486	-117.277783	1500.14	1500.14	3000.28

Flight Path Receptors

Name: FP 12
Description:
Threshold height: 50 ft
Direction: 135.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.890243	-117.260666	1519.07	50.00	1569.07
Two-mile	33.910687	-117.285323	1543.40	579.10	2122.50

Name: FP 14
Description:
Threshold height: 50 ft
Direction: 149.0°
Glide slope: 2.59°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.896436	-117.270631	1535.67	50.00	1585.67
Two-mile	33.921219	-117.288592	1524.58	538.77	2063.35

Name: FP 30
Description:
Threshold height: 50 ft
Direction: 315.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.884351	-117.253579	1505.92	50.00	1555.92
Two-mile	33.863907	-117.228923	1469.80	639.55	2109.35

Name: FP 32
Description:
Threshold height: 50 ft
Direction: 329.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.865319	-117.248518	1487.41	50.00	1537.41
Two-mile	33.840536	-117.230563	1461.13	629.71	2090.84

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	33.891566	-117.251168	1508.79	118.00

Map image of 1-ATCT

Glare Analysis Results

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	5.0	180.0	15,851	264.2	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
GA Rwy 14 Base	0	0.0	0	0.0
GA Rwy 14 Crosswind	0	0.0	0	0.0
GA Rwy 14 Downwind	4,091	68.2	0	0.0
GA Rwy 14 Final	0	0.0	0	0.0
GA Rwy 14 Upwind	3,814	63.6	0	0.0
GA Rwy 32 Base	0	0.0	0	0.0
GA Rwy 32 Crosswind	0	0.0	0	0.0
GA Rwy 32 Downwind	4,094	68.2	0	0.0
GA Rwy 32 Final	3,852	64.2	0	0.0
GA Rwy 32 Upwind	0	0.0	0	0.0
FP 12	0	0.0	0	0.0
FP 14	0	0.0	0	0.0
FP 30	0	0.0	0	0.0
FP 32	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

PV: PV array 1 low potential for temporary after-image

Receptor results ordered by category of glare

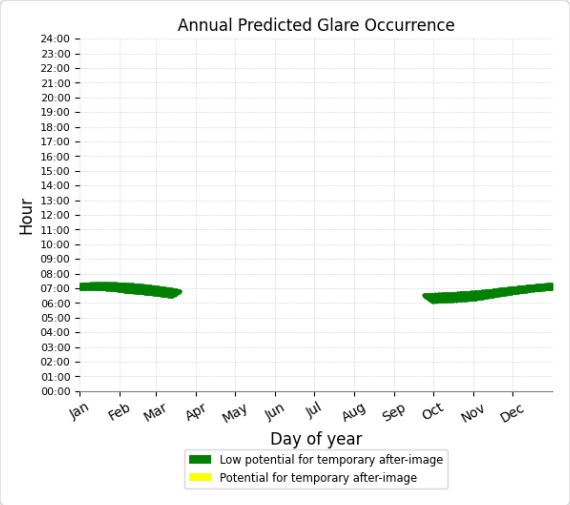
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
GA Rwy 14 Downwind	4,091	68.2	0	0.0
GA Rwy 14 Upwind	3,814	63.6	0	0.0
GA Rwy 32 Downwind	4,094	68.2	0	0.0
GA Rwy 32 Final	3,852	64.2	0	0.0
GA Rwy 14 Base	0	0.0	0	0.0
GA Rwy 14 Crosswind	0	0.0	0	0.0
GA Rwy 14 Final	0	0.0	0	0.0
GA Rwy 32 Base	0	0.0	0	0.0
GA Rwy 32 Crosswind	0	0.0	0	0.0
GA Rwy 32 Upwind	0	0.0	0	0.0
FP 12	0	0.0	0	0.0
FP 14	0	0.0	0	0.0
FP 30	0	0.0	0	0.0
FP 32	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

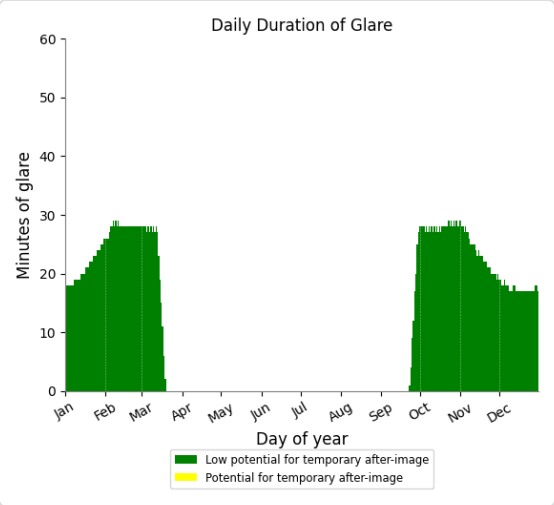
PV array 1 and GA Rwy 14 Downwind

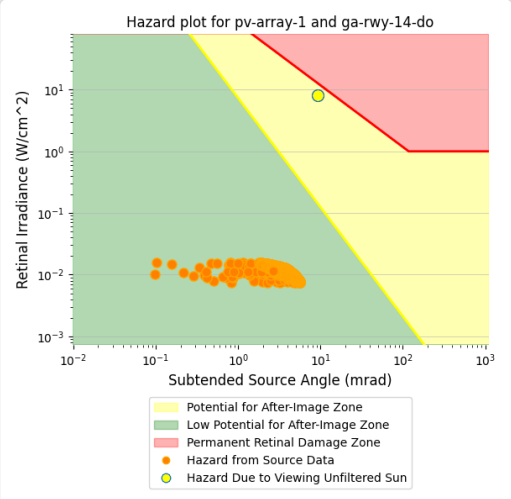
Receptor type: Route

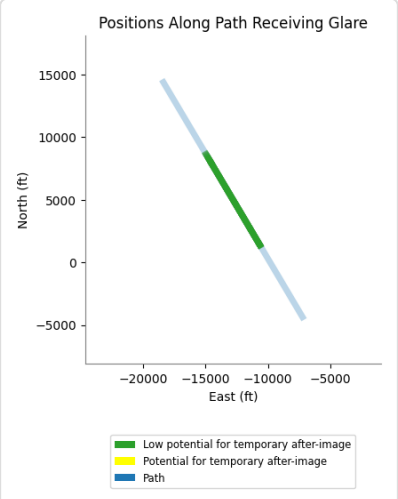
0 minutes of yellow glare

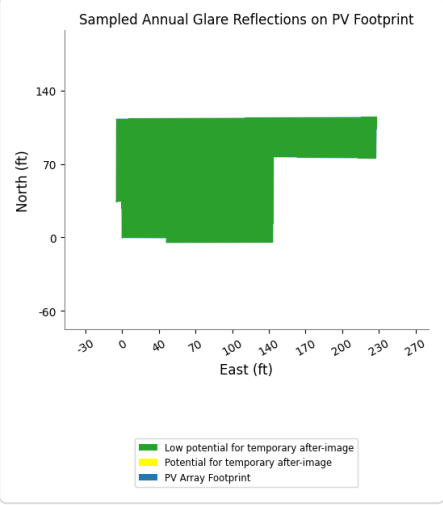
4,091 minutes of green glare









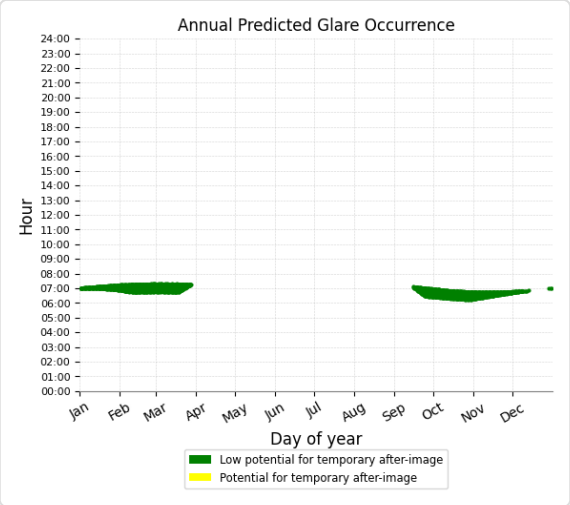


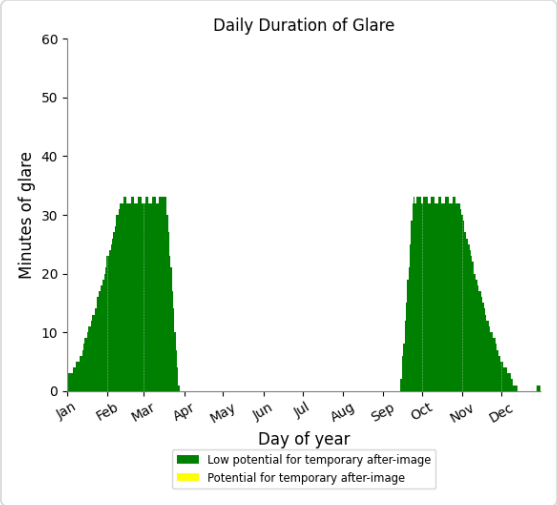
PV array 1 and GA Rwy 14 Upwind

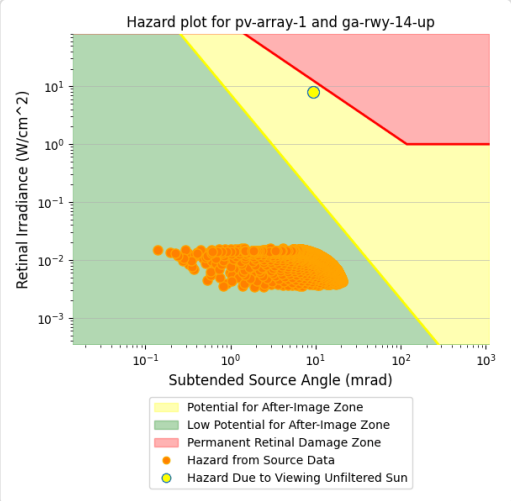
Receptor type: Route

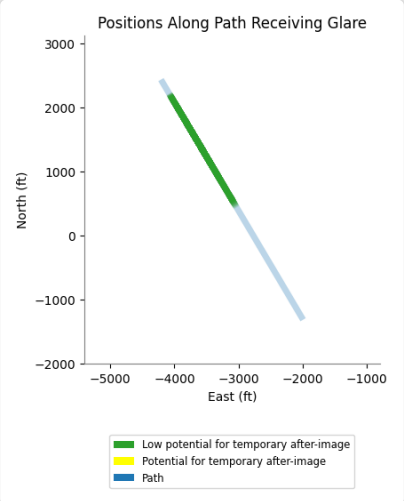
0 minutes of yellow glare

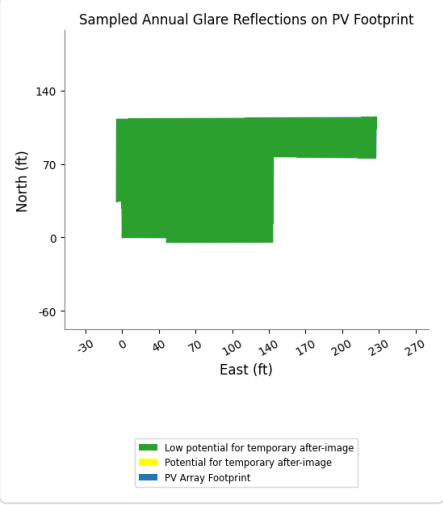
3,814 minutes of green glare









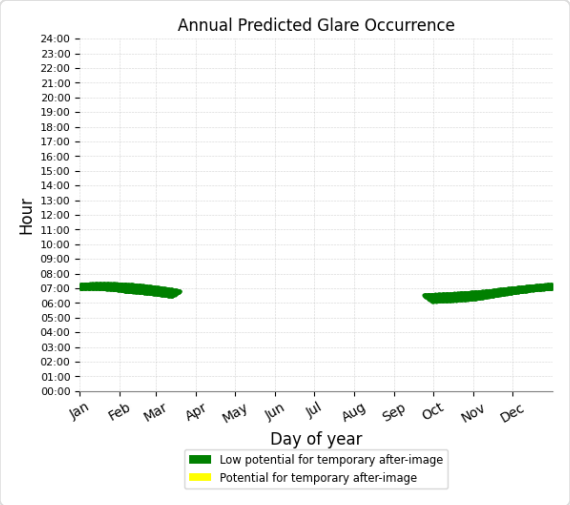


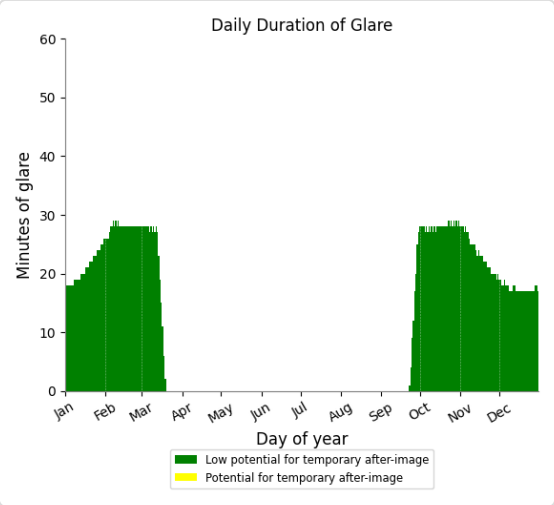
PV array 1 and GA Rwy 32 Downwind

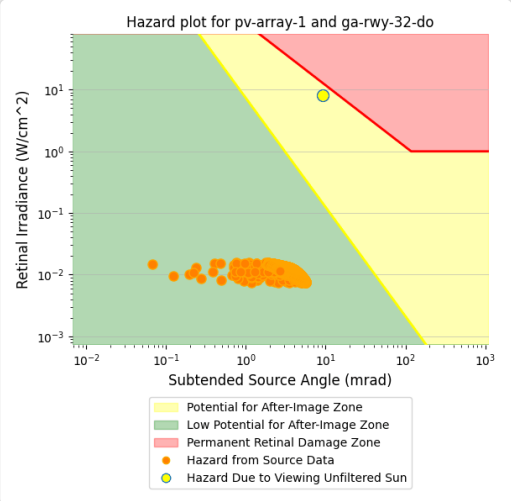
Receptor type: Route

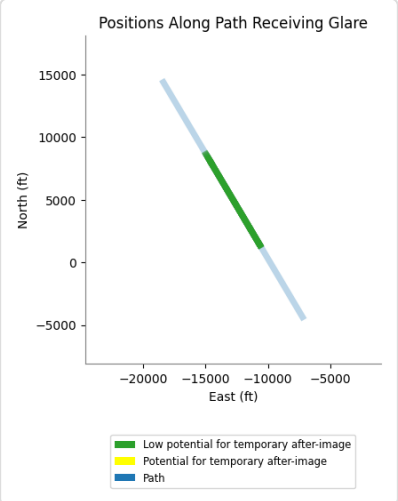
0 minutes of yellow glare

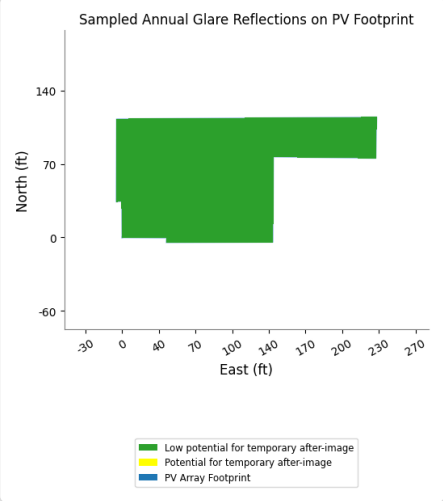
4,094 minutes of green glare









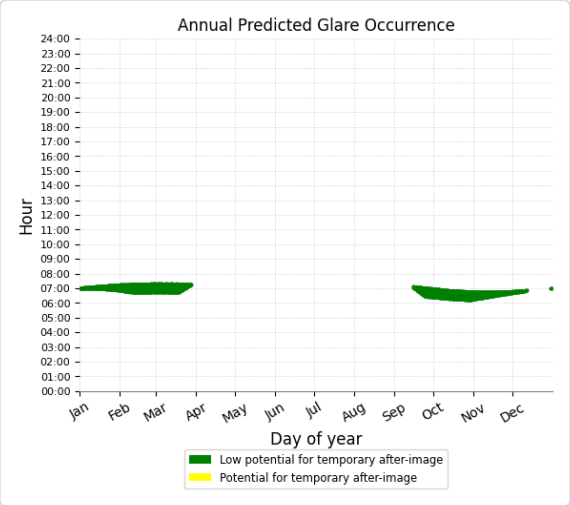


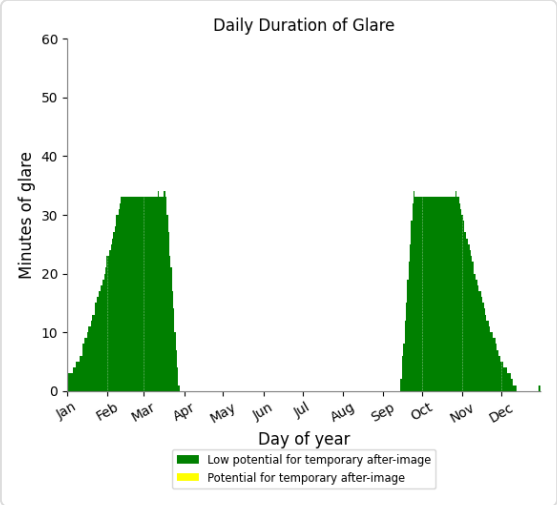
PV array 1 and GA Rwy 32 Final

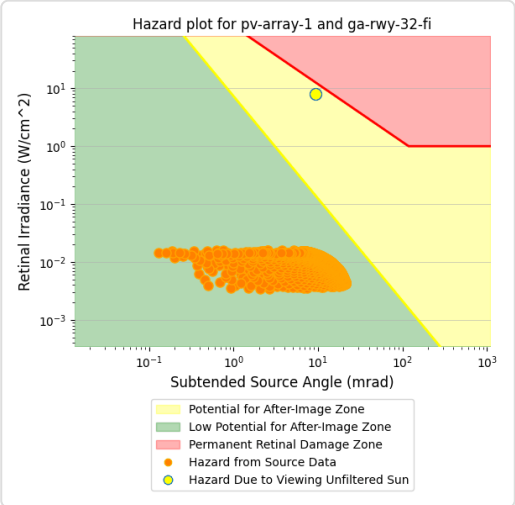
Receptor type: Route

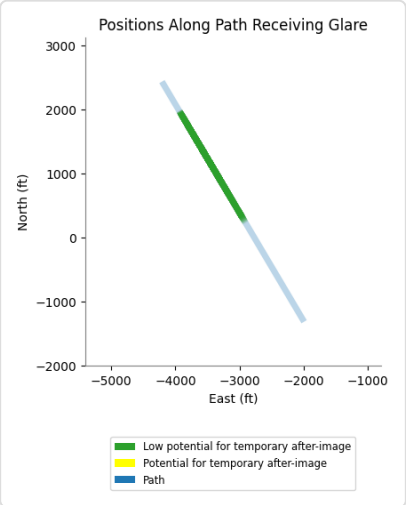
0 minutes of yellow glare

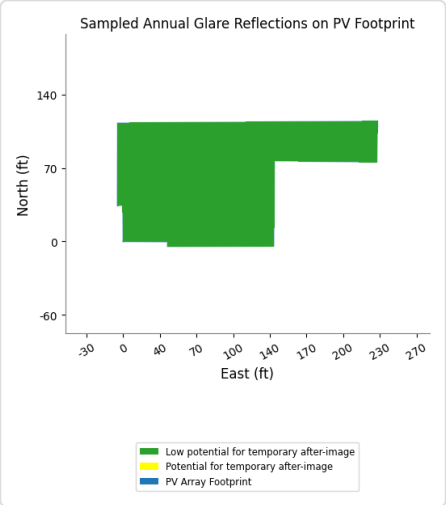
3,852 minutes of green glare











PV array 1 and GA Rwy 14 Base

Receptor type: Route
No glare found

PV array 1 and GA Rwy 14 Crosswind

Receptor type: Route
No glare found

PV array 1 and GA Rwy 14 Final

Receptor type: Route
No glare found

PV array 1 and GA Rwy 32 Base

Receptor type: Route
No glare found

PV array 1 and GA Rwy 32 Crosswind

Receptor type: Route
No glare found

PV array 1 and GA Rwy 32 Upwind

Receptor type: Route
No glare found

PV array 1 and FP 12

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and FP 14

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and FP 30

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and FP 32

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and 1-ATCT

Receptor type: Observation Point
No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FORGESOLAR GLARE ANALYSIS

Project: **Triad - Stellar Solar**
Site configuration: **untitled**

Created 22 Mar, 2023
Updated 24 Mar, 2023
Time-step 1 minute
Timezone offset UTC-8
Site ID 86769.15305
Category 1 MW to 5 MW
DNI peaks at 1,000.0 W/m^2
Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	5.0	180.0	6,452	107.5	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
C KC Rwy 14 Base	0	0.0	0	0.0
C KC Rwy 14 Crosswind	0	0.0	0	0.0
C KC Rwy 14 Downwind	1,983	33.0	0	0.0
C KC Rwy 14 Final	0	0.0	0	0.0
C KC Rwy 14 Upwind	1,130	18.8	0	0.0
C KC Rwy 32 Base	0	0.0	0	0.0
C KC Rwy 32 Crosswind	0	0.0	0	0.0
C KC Rwy 32 Downwind	1,983	33.0	0	0.0
C KC Rwy 32 Final	1,356	22.6	0	0.0
C KC Rwy 32 Upwind	0	0.0	0	0.0
GA Rwy 12 Base	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
GA Rwy 12 Crosswind	0	0.0	0	0.0
GA Rwy 12 Downwind	0	0.0	0	0.0
GA Rwy 12 Final	0	0.0	0	0.0
GA Rwy 12 Upwind	0	0.0	0	0.0
GA Rwy 30 Base	0	0.0	0	0.0
GA Rwy 30 Crosswind	0	0.0	0	0.0
GA Rwy 30 Downwind	0	0.0	0	0.0
GA Rwy 30 Final	0	0.0	0	0.0
GA Rwy 30 Upwind	0	0.0	0	0.0
FP 12	0	0.0	0	0.0
FP 14	0	0.0	0	0.0
FP 30	0	0.0	0	0.0
FP 32	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

Component Data

PV Arrays

Name: PV array 1
Axis tracking: Fixed (no rotation)
Tilt: 5.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.858429	-117.234492	1467.90	34.25	1502.15
2	33.858428	-117.234361	1467.24	34.25	1501.49
3	33.858417	-117.234362	1467.24	34.25	1501.49
4	33.858418	-117.234049	1465.68	34.25	1499.93
5	33.858627	-117.234047	1465.69	34.25	1499.94
6	33.858624	-117.233745	1464.44	34.25	1498.69
7	33.858724	-117.233743	1464.45	34.25	1498.70
8	33.858720	-117.234509	1468.06	34.25	1502.31
9	33.858517	-117.234510	1468.19	34.25	1502.44
10	33.858518	-117.234494	1468.05	34.25	1502.30

Route Receptors

Name: C KC Rwy 14 Base
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.922390	-117.325050	1500.14	1500.14	3000.28
2	33.931240	-117.309010	1500.14	1500.14	3000.28

Name: C KC Rwy 14 Crosswind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.821960	-117.228370	1500.14	1500.14	3000.28
2	33.813150	-117.244350	1500.14	1500.14	3000.28

Name: C KC Rwy 14 Downwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.819230	-117.262270	1500.14	1500.14	3000.28
2	33.908130	-117.325530	1500.14	1500.14	3000.28

Name: C KC Rwy 14 Final
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.925160	-117.291060	1500.14	1500.14	3000.28
2	33.896430	-117.270640	1500.14	0.00	1500.14

Name: C KC Rwy 14 Upwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.864990	-117.248280	1500.14	0.00	1500.14
2	33.836270	-117.227870	1500.14	1500.14	3000.28

Name: C KC Rwy 32 Base
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.813150	-117.244350	1500.14	1500.14	3000.28
2	33.821960	-117.228370	1500.14	1500.14	3000.28

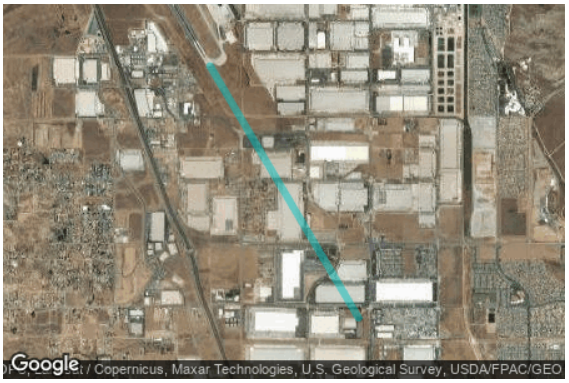
Name: C KC Rwy 32 Crosswind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.931240	-117.309010	1500.14	1500.14	3000.28
2	33.922390	-117.325050	1500.14	1500.14	3000.28

Name: C KC Rwy 32 Downwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.908130	-117.325530	1500.14	1500.14	3000.28
2	33.819230	-117.262270	1500.14	1500.14	3000.28

Name: C KC Rwy 32 Final
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.836270	-117.227870	1500.14	1500.14	3000.28
2	33.864990	-117.248280	1500.14	33.86	1534.01

Name: C KC Rwy 32 Upwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.896430	-117.270640	1500.14	0.00	1500.14
2	33.925160	-117.291060	1500.14	1500.14	3000.28

Name: GA Rwy 12 Base
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.910320	-117.264970	1500.14	1300.12	2800.26
2	33.905590	-117.270620	1500.14	1300.12	2800.26

Name: GA Rwy 12 Crosswind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.876080	-117.235120	1500.14	1300.12	2800.26
2	33.880810	-117.229470	1500.14	1300.12	2800.26

Name: GA Rwy 12 Downwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.887900	-117.229480	1500.14	1300.12	2800.26
2	33.910330	-117.256470	1500.14	1300.12	2800.26

Name: GA Rwy 12 Final
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.898510	-117.270610	1500.14	1300.12	2800.26
2	33.890260	-117.260680	1500.14	0.00	1500.14

Name: GA Rwy 12 Upwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.884320	-117.253540	1500.14	0.00	1500.14
2	33.876070	-117.243610	1500.14	1300.13	2800.27

Name: GA Rwy 30 Base
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.880810	-117.229470	1500.14	1300.13	2800.27
2	33.876080	-117.235120	1500.14	1300.13	2800.27

Name: GA Rwy 30 Crosswind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.905590	-117.270620	1500.14	1300.12	2800.26
2	33.910320	-117.264970	1500.14	1300.12	2800.26

Name: GA Rwy 30 Downwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.910330	-117.256470	1500.14	1300.12	2800.26
2	33.887900	-117.229480	1500.14	1300.12	2800.26

Name: GA Rwy 30 Final
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.876070	-117.243610	1500.14	1300.13	2800.27
2	33.884320	-117.253540	1500.14	0.00	1500.14

Name: GA Rwy 30 Upwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.890260	-117.260680	1500.14	0.00	1500.14
2	33.898510	-117.270610	1500.14	1300.12	2800.26

Flight Path Receptors

Name: FP 12
Description:
Threshold height: 50 ft
Direction: 135.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.890243	-117.260666	1517.92	50.00	1567.92
Two-mile	33.910687	-117.285323	1543.40	577.95	2121.35

Name: FP 14
Description:
Threshold height: 56 ft
Direction: 149.0°
Glide slope: 2.59°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.896436	-117.270631	1535.67	56.00	1591.67
Two-mile	33.921219	-117.288592	1524.58	544.77	2069.35

Name: FP 30
Description:
Threshold height: 50 ft
Direction: 315.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.884351	-117.253579	1505.92	50.00	1555.92
Two-mile	33.863907	-117.228923	1469.80	639.55	2109.35

Name: FP 32
Description:
Threshold height: 50 ft
Direction: 329.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.865319	-117.248518	1487.41	50.00	1537.41
Two-mile	33.840536	-117.230563	1461.13	629.71	2090.84

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	33.891563	-117.251182	1508.79	118.00

Map image of 1-ATCT

Glare Analysis Results

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	5.0	180.0	6,452	107.5	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
C KC Rwy 14 Base	0	0.0	0	0.0
C KC Rwy 14 Crosswind	0	0.0	0	0.0
C KC Rwy 14 Downwind	1,983	33.0	0	0.0
C KC Rwy 14 Final	0	0.0	0	0.0
C KC Rwy 14 Upwind	1,130	18.8	0	0.0
C KC Rwy 32 Base	0	0.0	0	0.0
C KC Rwy 32 Crosswind	0	0.0	0	0.0
C KC Rwy 32 Downwind	1,983	33.0	0	0.0
C KC Rwy 32 Final	1,356	22.6	0	0.0
C KC Rwy 32 Upwind	0	0.0	0	0.0
GA Rwy 12 Base	0	0.0	0	0.0
GA Rwy 12 Crosswind	0	0.0	0	0.0
GA Rwy 12 Downwind	0	0.0	0	0.0
GA Rwy 12 Final	0	0.0	0	0.0
GA Rwy 12 Upwind	0	0.0	0	0.0
GA Rwy 30 Base	0	0.0	0	0.0
GA Rwy 30 Crosswind	0	0.0	0	0.0
GA Rwy 30 Downwind	0	0.0	0	0.0
GA Rwy 30 Final	0	0.0	0	0.0
GA Rwy 30 Upwind	0	0.0	0	0.0
FP 12	0	0.0	0	0.0
FP 14	0	0.0	0	0.0
FP 30	0	0.0	0	0.0
FP 32	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
1-ATCT	0	0.0	0	0.0

PV: PV array 1 low potential for temporary after-image

Receptor results ordered by category of glare

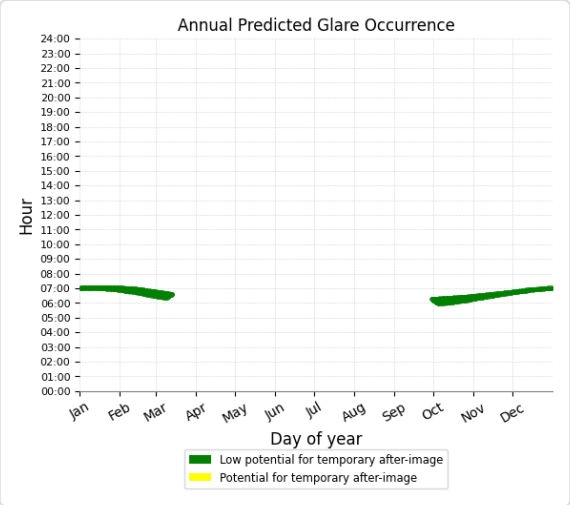
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
C KC Rwy 14 Downwind	1,983	33.0	0	0.0
C KC Rwy 14 Upwind	1,130	18.8	0	0.0
C KC Rwy 32 Downwind	1,983	33.0	0	0.0
C KC Rwy 32 Final	1,356	22.6	0	0.0
C KC Rwy 14 Base	0	0.0	0	0.0
C KC Rwy 14 Crosswind	0	0.0	0	0.0
C KC Rwy 14 Final	0	0.0	0	0.0
C KC Rwy 32 Base	0	0.0	0	0.0
C KC Rwy 32 Crosswind	0	0.0	0	0.0
C KC Rwy 32 Upwind	0	0.0	0	0.0
GA Rwy 12 Base	0	0.0	0	0.0
GA Rwy 12 Crosswind	0	0.0	0	0.0
GA Rwy 12 Downwind	0	0.0	0	0.0
GA Rwy 12 Final	0	0.0	0	0.0
GA Rwy 12 Upwind	0	0.0	0	0.0
GA Rwy 30 Base	0	0.0	0	0.0
GA Rwy 30 Crosswind	0	0.0	0	0.0
GA Rwy 30 Downwind	0	0.0	0	0.0
GA Rwy 30 Final	0	0.0	0	0.0
GA Rwy 30 Upwind	0	0.0	0	0.0
FP 12	0	0.0	0	0.0
FP 14	0	0.0	0	0.0
FP 30	0	0.0	0	0.0
FP 32	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

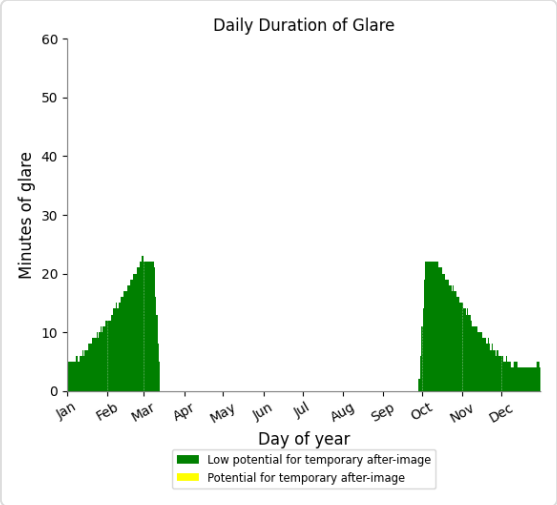
PV array 1 and C KC Rwy 14 Downwind

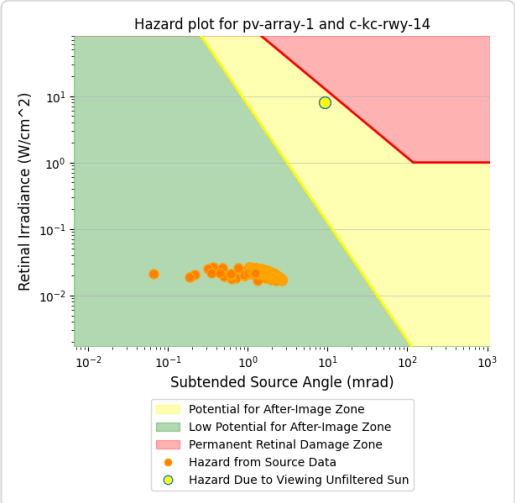
Receptor type: Route

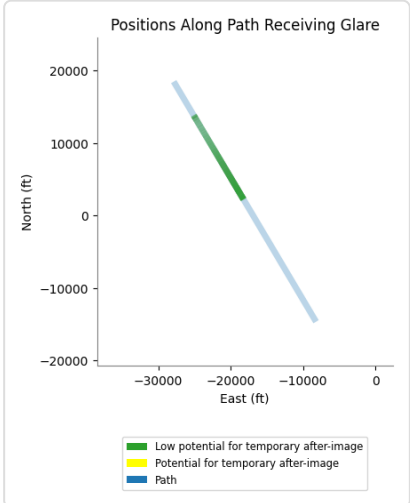
0 minutes of yellow glare

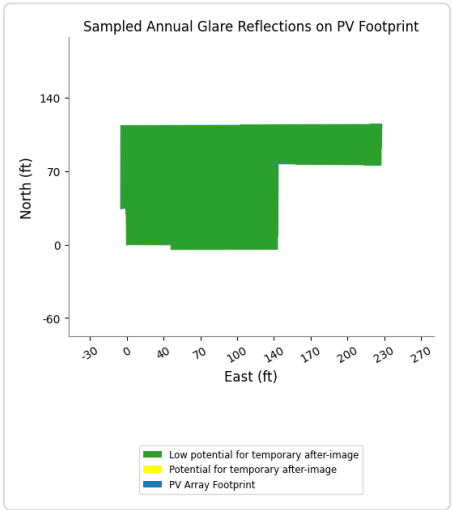
1,983 minutes of green glare









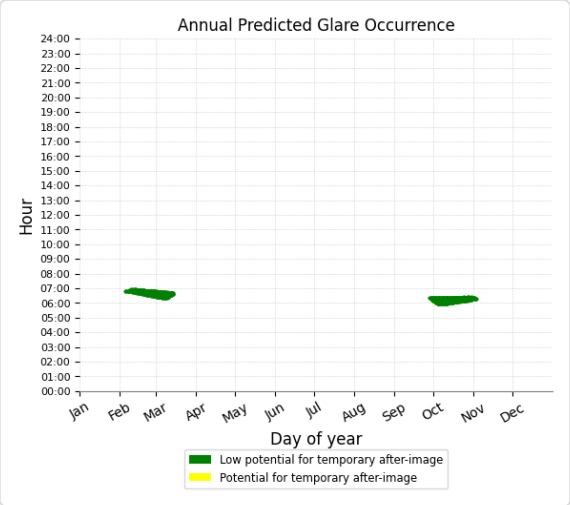


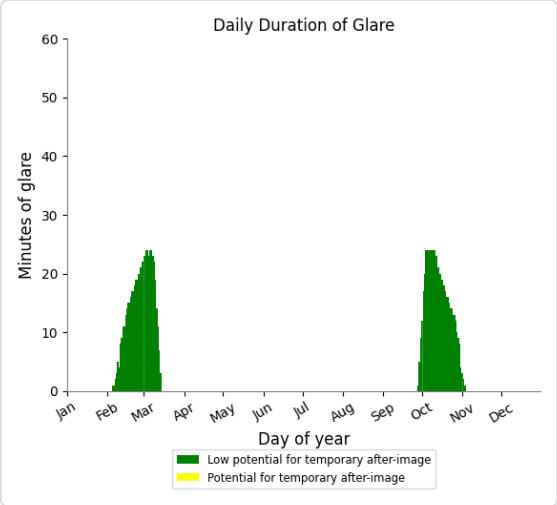
PV array 1 and C KC Rwy 14 Upwind

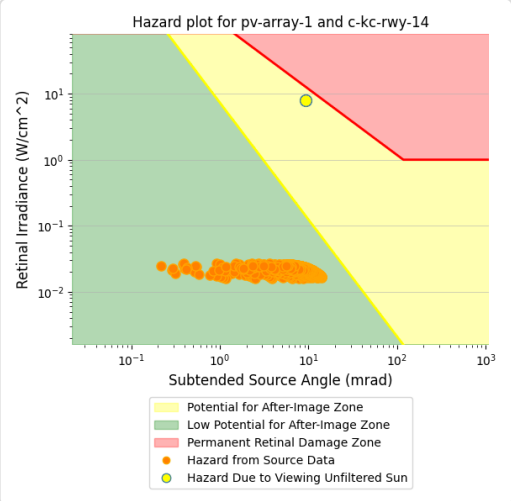
Receptor type: Route

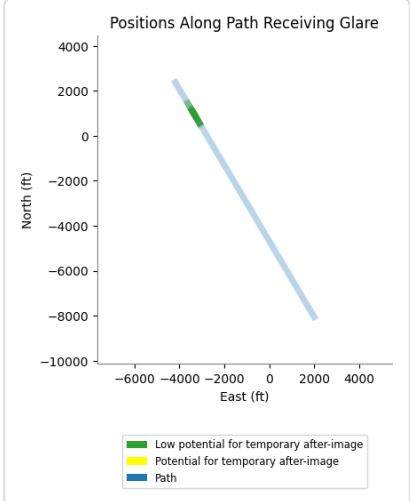
0 minutes of yellow glare

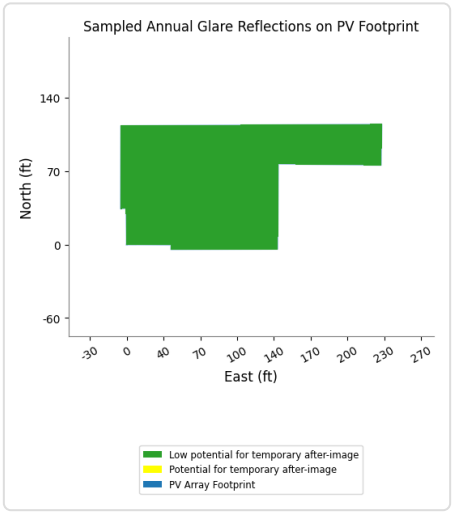
1,130 minutes of green glare









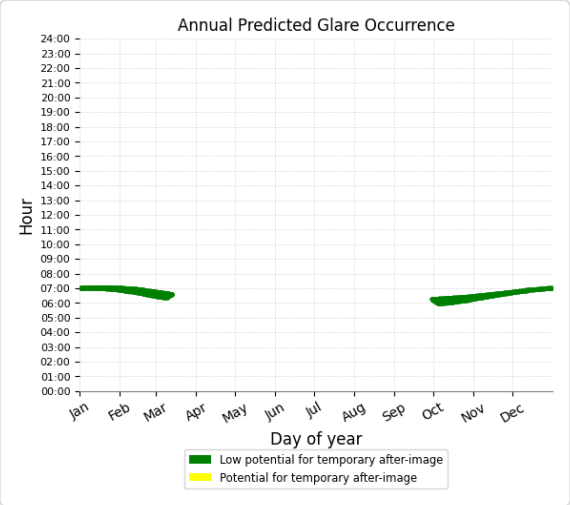


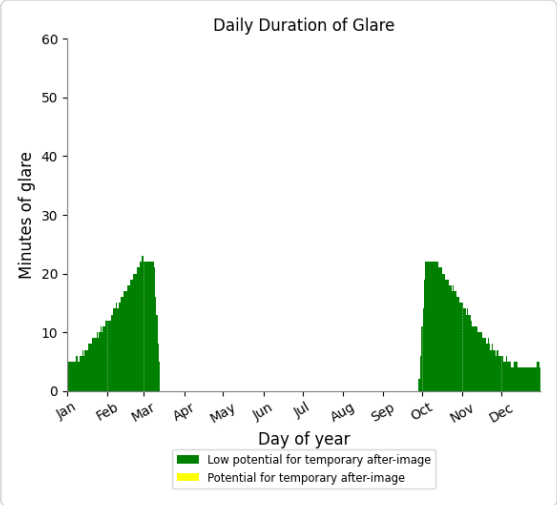
PV array 1 and C KC Rwy 32 Downwind

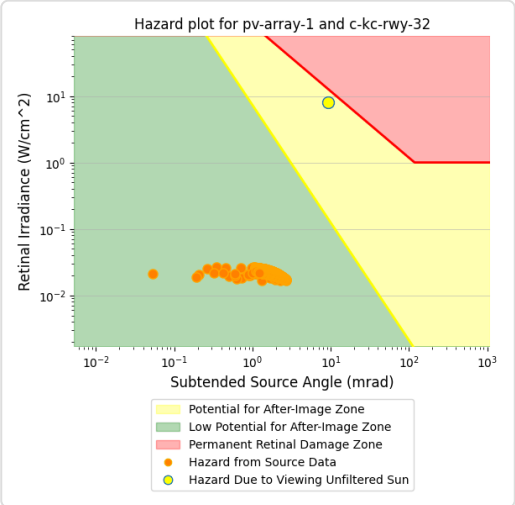
Receptor type: Route

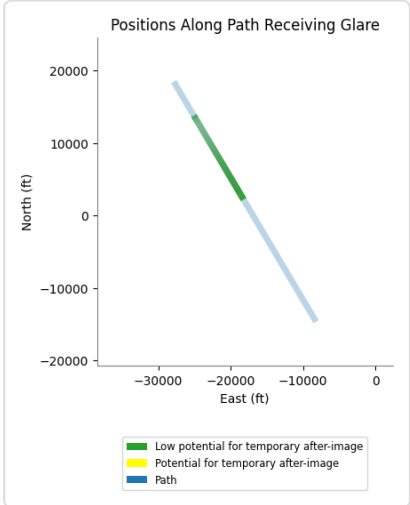
0 minutes of yellow glare

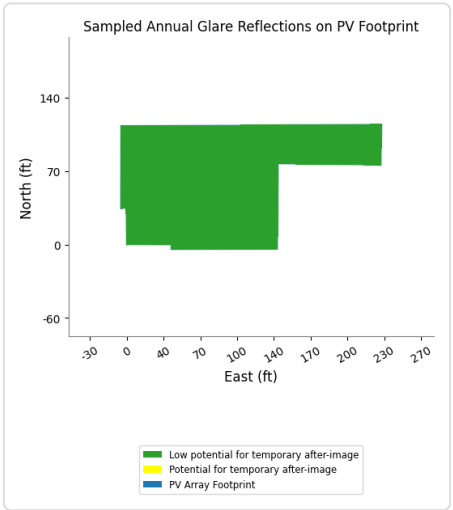
1,983 minutes of green glare









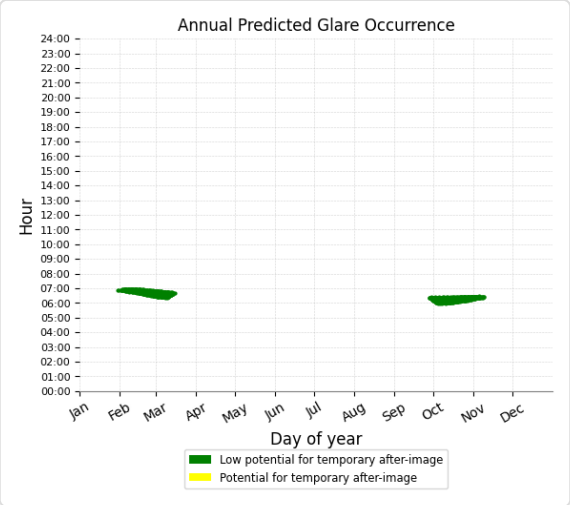


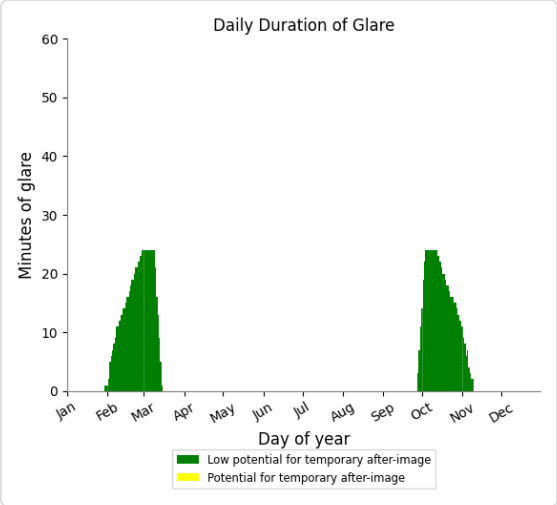
PV array 1 and C KC Rwy 32 Final

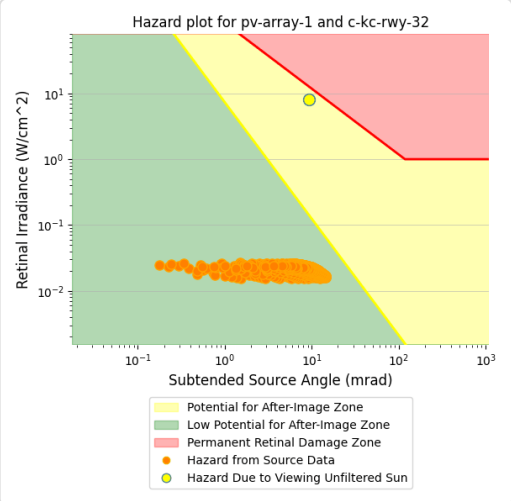
Receptor type: Route

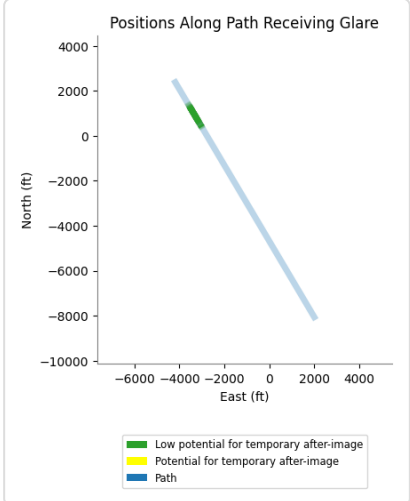
0 minutes of yellow glare

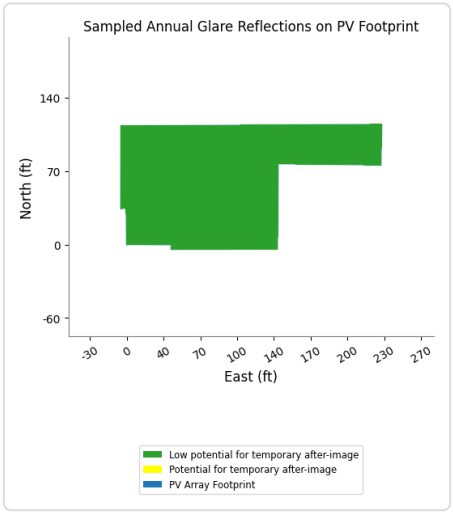
1,356 minutes of green glare











PV array 1 and C KC Rwy 14 Base

Receptor type: Route
No glare found

PV array 1 and C KC Rwy 14 Crosswind

Receptor type: Route
No glare found

PV array 1 and C KC Rwy 14 Final

Receptor type: Route
No glare found

PV array 1 and C KC Rwy 32 Base

Receptor type: Route
No glare found

PV array 1 and C KC Rwy 32 Crosswind

Receptor type: Route
No glare found

PV array 1 and C KC Rwy 32 Upwind

Receptor type: Route
No glare found

PV array 1 and GA Rwy 12 Base

Receptor type: Route
No glare found

PV array 1 and GA Rwy 12 Crosswind

Receptor type: Route
No glare found

PV array 1 and GA Rwy 12 Downwind

Receptor type: Route
No glare found

PV array 1 and GA Rwy 12 Final

Receptor type: Route
No glare found

PV array 1 and GA Rwy 12 Upwind

Receptor type: Route
No glare found

PV array 1 and GA Rwy 30 Base

Receptor type: Route
No glare found

PV array 1 and GA Rwy 30 Crosswind

Receptor type: Route
No glare found

PV array 1 and GA Rwy 30 Downwind

Receptor type: Route
No glare found

PV array 1 and GA Rwy 30 Final

Receptor type: Route
No glare found

PV array 1 and GA Rwy 30 Upwind

Receptor type: Route
No glare found

PV array 1 and FP 12

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and FP 14

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and FP 30

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and FP 32

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and 1-ATCT

Receptor type: Observation Point
No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FORGESOLAR GLARE ANALYSIS

Project: **Triad - Stellar Solar**
Site configuration: **Overhead Analysis**

Created 21 Mar, 2023
Updated 24 Mar, 2023
Time-step 1 minute
Timezone offset UTC-8
Site ID 86692.15305
Category 1 MW to 5 MW
DNI peaks at 1,000.0 W/m^2
Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	5.0	180.0	11,457	190.9	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OHead Rwy 14 Downwind	2,680	44.7	0	0.0
OHead Rwy 14 Final	0	0.0	0	0.0
OHead Rwy 14 Initial	0	0.0	0	0.0
OHead Rwy 32 Downwind	112	1.9	0	0.0
OHead Rwy 32 Final	2,494	41.6	0	0.0
OHead Rwy 32 Initial	6,171	102.8	0	0.0
FP 12	0	0.0	0	0.0
FP 14	0	0.0	0	0.0
FP 30	0	0.0	0	0.0
FP 32	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

Component Data

PV Arrays

Name: PV array 1
Axis tracking: Fixed (no rotation)
Tilt: 5.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.858429	-117.234492	1467.90	34.25	1502.15
2	33.858428	-117.234361	1467.24	34.25	1501.49
3	33.858417	-117.234362	1467.24	34.25	1501.49
4	33.858418	-117.234049	1465.68	34.25	1499.93
5	33.858627	-117.234047	1465.69	34.25	1499.94
6	33.858624	-117.233745	1464.44	34.25	1498.69
7	33.858724	-117.233743	1464.45	34.25	1498.70
8	33.858720	-117.234509	1468.06	34.25	1502.31
9	33.858517	-117.234510	1468.19	34.25	1502.44
10	33.858518	-117.234494	1468.05	34.25	1502.30

Route Receptors

Name: OHead Rwy 14 Downwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.863564	-117.293808	1500.14	2000.20	3500.34
2	33.908131	-117.325528	1500.14	2000.20	3500.34

Name: OHead Rwy 14 Final
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.925156	-117.291061	1500.14	2000.20	3500.34
2	33.896431	-117.270636	1540.14	0.00	1540.14

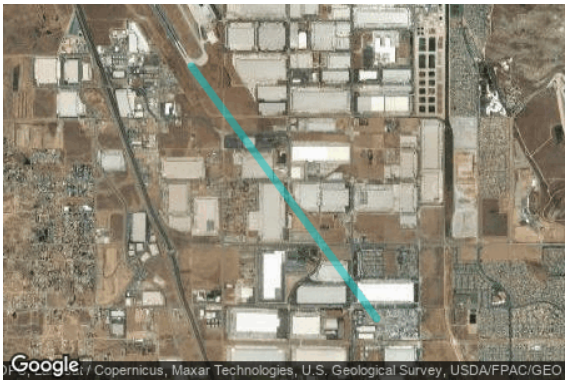
Name: OHead Rwy 14 Initial
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.968036	-117.322128	1500.14	2000.20	3500.34
2	33.880706	-117.259453	1500.14	2000.20	3500.34

Name: OHead Rwy 32 Downwind
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.863564	-117.293808	1500.14	2000.20	3500.34
2	33.819225	-117.262269	1500.14	2000.20	3500.34

Name: OHead Rwy 32 Final
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.836269	-117.222787	1500.14	2000.20	3500.34
2	33.864994	-117.248281	1500.14	0.00	1500.14

Name: OHead Rwy 32 Initial
Path type: Two-way
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.793375	-117.196878	1500.14	2000.20	3500.34
2	33.880706	-117.259453	1500.14	2000.20	3500.34

Flight Path Receptors

Name: FP 12
Description:
Threshold height: 50 ft
Direction: 135.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.890243	-117.260666	1517.92	50.00	1567.92
Two-mile	33.910687	-117.285323	1543.40	577.95	2121.35

Name: FP 14
Description:
Threshold height: 56 ft
Direction: 149.0°
Glide slope: 2.59°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.896436	-117.270631	1535.67	56.00	1591.67
Two-mile	33.921219	-117.288592	1524.58	544.77	2069.35

Name: FP 30
Description:
Threshold height: 50 ft
Direction: 315.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.884351	-117.253579	1505.92	50.00	1555.92
Two-mile	33.863907	-117.228923	1469.80	639.55	2109.35

Name: FP 32
Description:
Threshold height: 50 ft
Direction: 329.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.865319	-117.248518	1487.41	50.00	1537.41
Two-mile	33.840536	-117.230563	1461.13	629.71	2090.84

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	33.891563	-117.251182	1508.79	118.00

Map image of 1-ATCT

Glare Analysis Results

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	5.0	180.0	11,457	190.9	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OHead Rwy 14 Downwind	2,680	44.7	0	0.0
OHead Rwy 14 Final	0	0.0	0	0.0
OHead Rwy 14 Initial	0	0.0	0	0.0
OHead Rwy 32 Downwind	112	1.9	0	0.0
OHead Rwy 32 Final	2,494	41.6	0	0.0
OHead Rwy 32 Initial	6,171	102.8	0	0.0
FP 12	0	0.0	0	0.0
FP 14	0	0.0	0	0.0
FP 30	0	0.0	0	0.0
FP 32	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

PV: PV array 1 low potential for temporary after-image

Receptor results ordered by category of glare

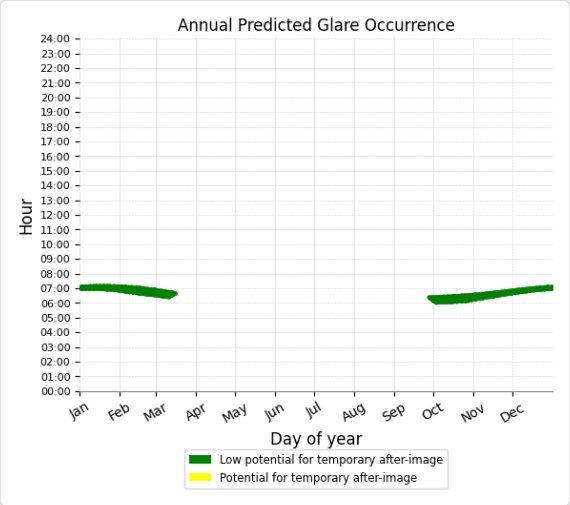
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OHead Rwy 14 Downwind	2,680	44.7	0	0.0
OHead Rwy 32 Downwind	112	1.9	0	0.0
OHead Rwy 32 Final	2,494	41.6	0	0.0
OHead Rwy 32 Initial	6,171	102.8	0	0.0
OHead Rwy 14 Final	0	0.0	0	0.0
OHead Rwy 14 Initial	0	0.0	0	0.0
FP 12	0	0.0	0	0.0
FP 14	0	0.0	0	0.0
FP 30	0	0.0	0	0.0
FP 32	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

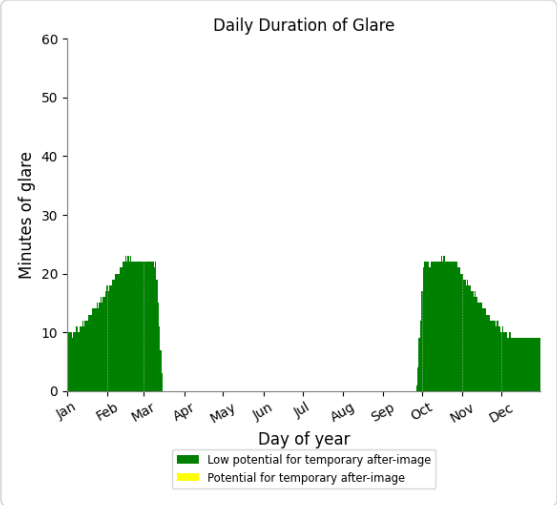
PV array 1 and OHead Rwy 14 Downwind

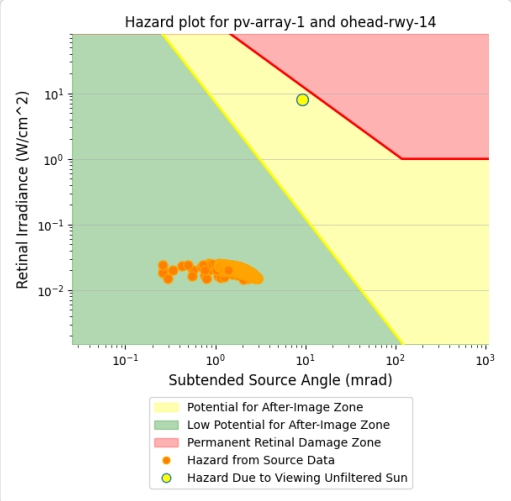
Receptor type: Route

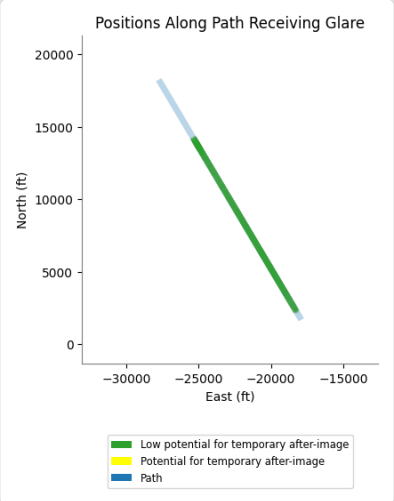
0 minutes of yellow glare

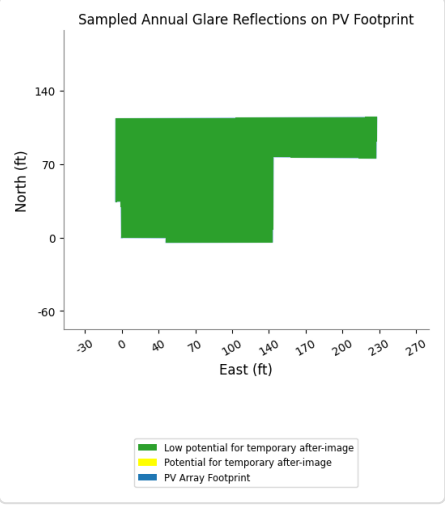
2,680 minutes of green glare









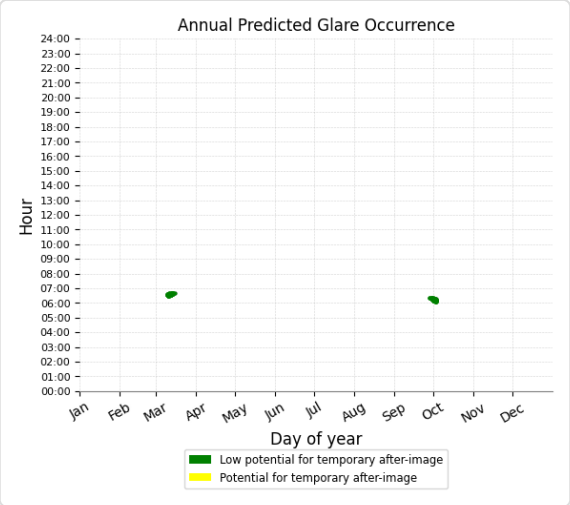


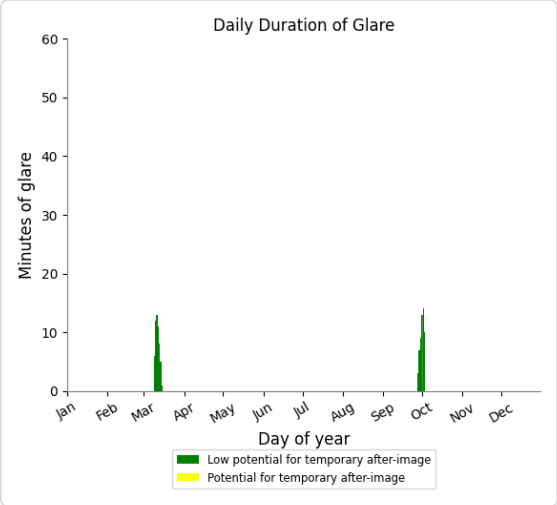
PV array 1 and OHead Rwy 32 Downwind

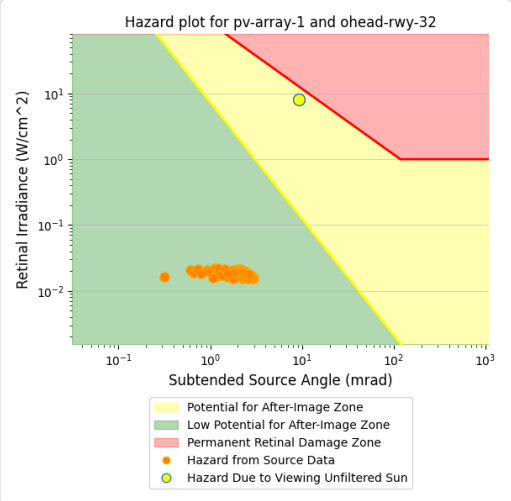
Receptor type: Route

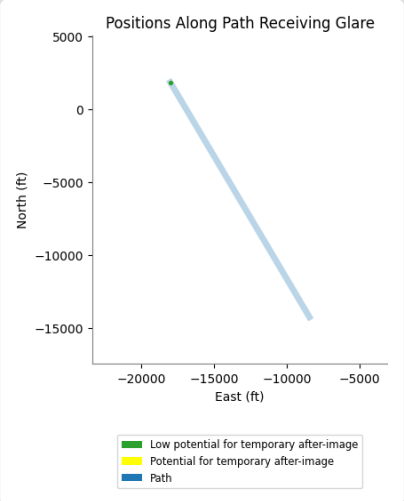
0 minutes of yellow glare

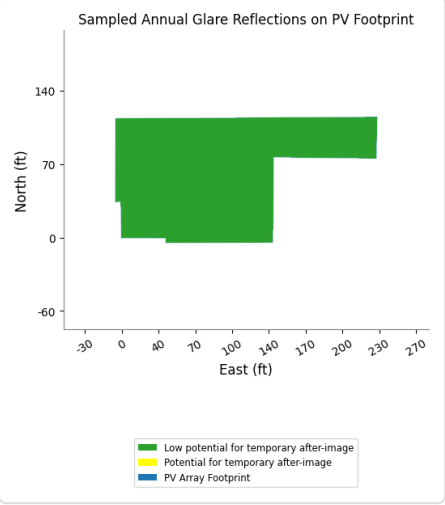
112 minutes of green glare









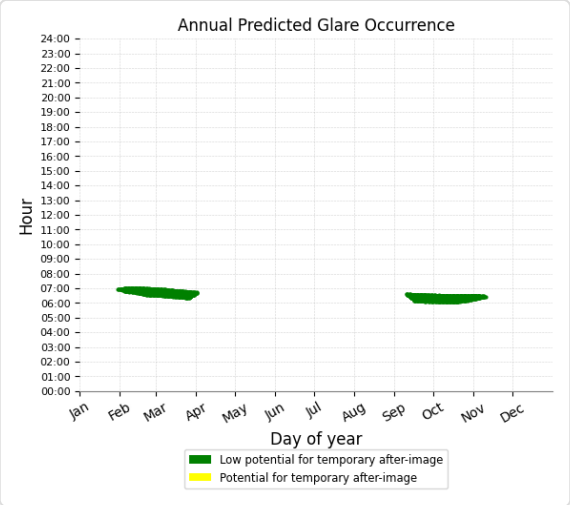


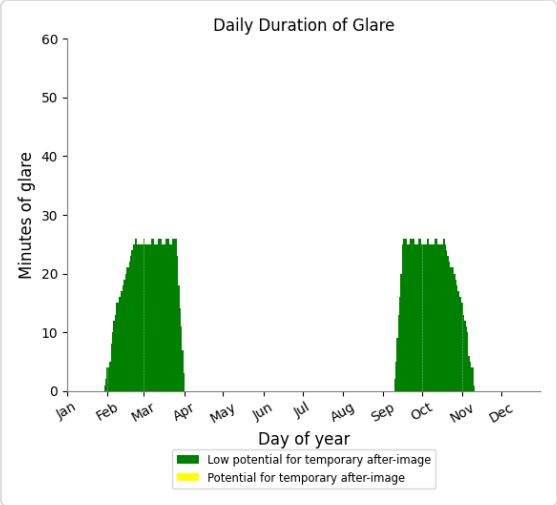
PV array 1 and OHead Rwy 32 Final

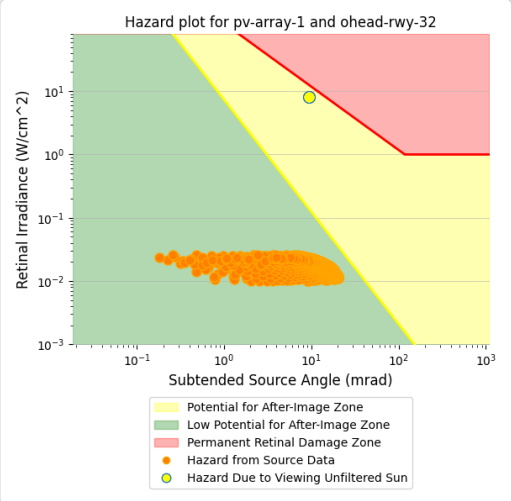
Receptor type: Route

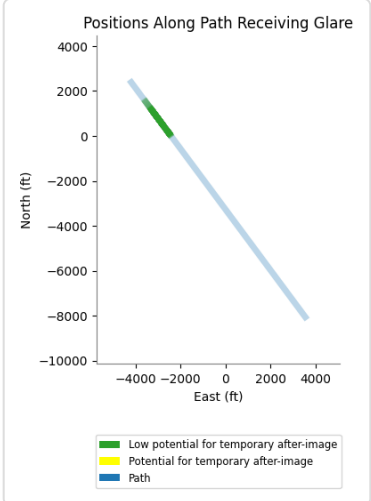
0 minutes of yellow glare

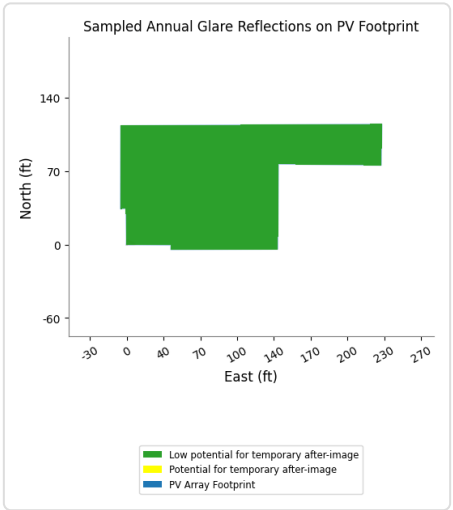
2,494 minutes of green glare









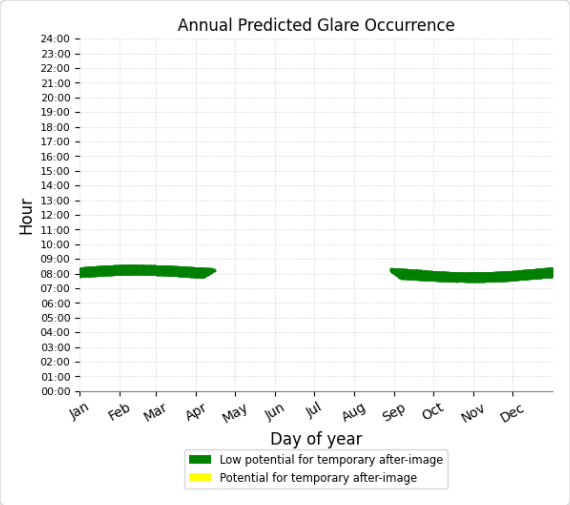


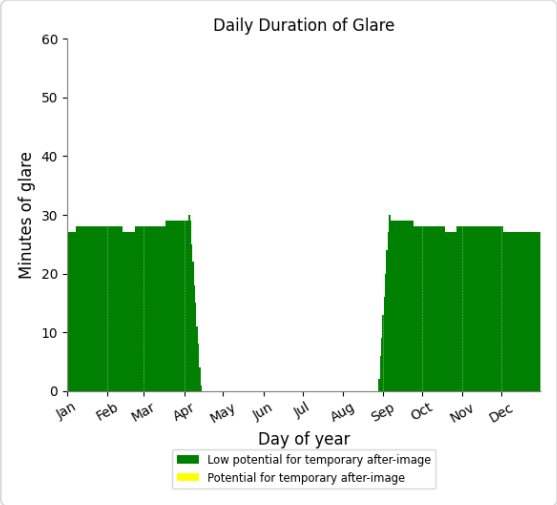
PV array 1 and OHead Rwy 32 Initial

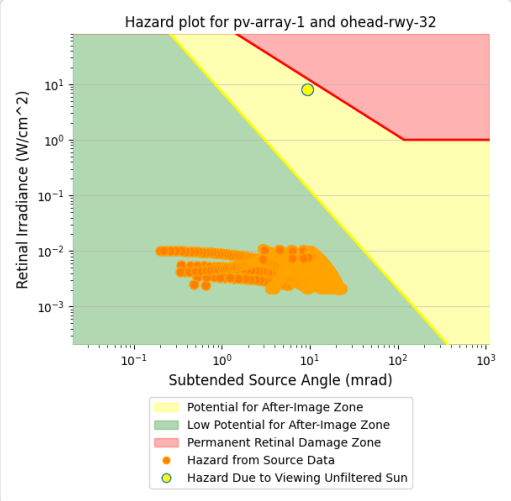
Receptor type: Route

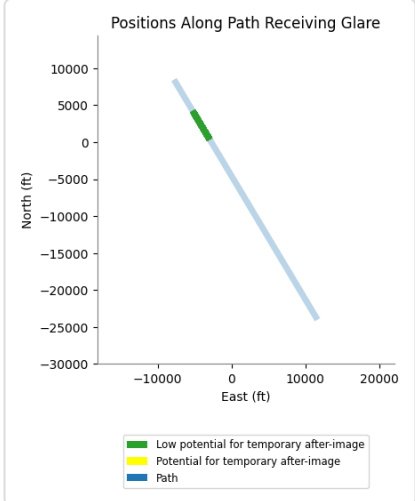
0 minutes of yellow glare

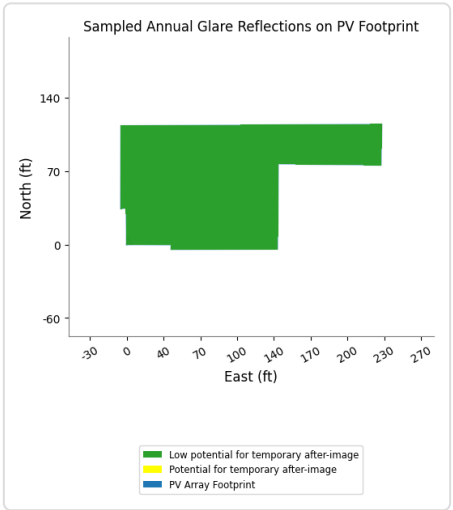
6,171 minutes of green glare











PV array 1 and OHead Rwy 14 Final

Receptor type: Route
No glare found

PV array 1 and OHead Rwy 14 Initial

Receptor type: Route
No glare found

PV array 1 and FP 12

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and FP 14

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and FP 30

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and FP 32

Receptor type: 2-mile Flight Path
No glare found

PV array 1 and 1-ATCT

Receptor type: Observation Point
No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

NOTICE OF PUBLIC HEARING

RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION

www.rcaluc.org

A PUBLIC HEARING has been scheduled before the Riverside County Airport Land Use Commission (ALUC) to consider the applications described below.

Any person may submit written comments to the ALUC before the hearing or may appear and be heard in support of or opposition to the project at the time of hearing. **Information on how to participate in the hearing will be available on the ALUC website at www.rcaluc.org.** The ALUC holds hearings for local discretionary permits within the Airport Influence Area, reviewing for aeronautical safety, noise and obstructions. ALUC reviews a proposed plan or project solely to determine whether it is consistent with the applicable Airport Land Use Compatibility Plan. For more information please contact **ALUC Planner Jackie Vega at (951) 955-0982**.

The City of Perris Planning Department should be contacted on non-ALUC issues. For more information, please contact City of Perris Planner Vanessa Hernandez at (951) 943-5003.

The proposed project application may be viewed by a prescheduled appointment and on the ALUC website www.rcaluc.org. Written comments may be submitted at the Riverside County Administrative Center, 4080 Lemon Street, 14th Floor, Riverside, California 92501, Monday through Friday from 8:00 a.m. to 3:30 p.m., or by e-mail to javega@rivco.org. Individuals with disabilities requiring reasonable modifications or accommodations, please contact Barbara Santos at (951) 955-5132.

PLACE OF HEARING: **Riverside County Administration Center**
4080 Lemon Street, 1st Floor Board Chambers
Riverside California

DATE OF HEARING: **May 11, 2023**

TIME OF HEARING: **9:30 A.M.**

CASE DESCRIPTION:

ZAP1564MA23 – Stellar Solar Electric (Representative: Frida Mock) – City of Perris Case No. PMT23-00627 (Building Permit). A proposal to construct a 4,910 square foot rooftop solar panel system on an existing 55,650 square foot industrial manufacturing building on 1.94 acres, located easterly of Indian Street, and northerly of Harley Knox Boulevard. (Airport Compatibility Zone C1 of the March Air Reserve Base/Inland Port Airport Influence Area).

RIVERSIDE COUNTY
AIRPORT LAND USE COMMISSION

APPLICATION FOR MAJOR LAND USE ACTION REVIEW

ALUC STAFF ONLY

ALUC Case Number: ZAP1564MA23 Date Submitted: 03/24/2023

AIA: March Zone: C1 Public Hearing ☑ Staff Review ☐

Applicant

Applicant Full Name: FRIDA MOCK (AGENT FOR STELLAR SOLAR ELECTRIC)

Applicant Address: 265 VIA DEL MONTE, OCEANSIDE, CA 92058

Phone: 760-412-1017 **Email:** FRIDAM@STELLARSOLAR.NET

Representative/ Property Owner Contact Information

Representative: FRIDA MOCK (AGENT FOR STELLAR SOLAR ELECTRIC) **Email:** FRIDAM@STELLARSOLAR.NET

Phone: 760-412-1017

Address: 265 VIA DEL MONTE, OCEANSIDE, CA 92058

Property Owner: TRIAD MAGNETICS **Email:**

Phone: 760-603-8500

Address: 460 HARLEY KNOX BLVD, PERRIS, CA 92571

Local Jurisdiction Agency

Agency Name: City of Perris Phone: 951.943.5003

Staff Contact: Vanessa Hernandez **Email:** vhernandez@cityofperris.org

Address: : :

Local Agency Case No.: PMT23-00627

Project Location

Street Address: 460 HARLEY KNOX BLVD, PERRIS, CA 92571 Gross Parcel Size.: 1.94 acre

Assessor's Parcel No.: 302-090-045

Solar

Is the project proposing solar Panels? Yes ☑ No ☐ If yes, please provide solar glare study. (only if in Zone C or higher)

Data

Site Elevation:(above mean sea level) 1466.5 feet

Height of Building or structures:

What type of drainage basins are being proposed and the square footage: N/A (EXISTING DRAINAGE)

Notice

A. NOTICE: Failure of an applicant to submit complete or adequate information pursuant to Sections 65940 to 65948 inclusive of the California Government Code, MAY constitute grounds for disapproval of actions, regulations, or permits.

B. REVIEW TIME: Estimated time for "staff level review" is approximately 30 days from date of submittal. Estimated time for "commission level review" is approximately 45 days from date of a complete application submittal to the next available commission hearing meeting.

C. SUBMISSION PACKAGE:

Please submit all application items DIGITALLY via USB or CD:

- Completed ALUC Application Form
- Plans Package: site plans, floor plans, building elevations, grading plans, subdivision maps
- Exhibits of change of zone, general plan amendment, specific plan amendment
- Project description of existing and proposed use

Additionally, please provide:

- ALUC fee payment (Checks made out to Riverside County ALUC)
- Gummed address labels of all surrounding property owners within a 300-foot radius of project site. (Only required if the project is scheduled for a public hearing).

Riverside County Airport Land Use Commission, County Administrative Center, 4080 Lemon Street, 14th Floor, Riverside, CA 92501, Phone: 951-955-5132 Fax: 951-955-5177 Website: www.rcaluc.org

RIVERSIDE COUNTY
AIRPORT LAND USE COMMISSION

STAFF REPORT

AGENDA ITEM:	3.2
HEARING DATE:	May 11, 2023
CASE NUMBER:	ZAP1566MA23 – Brew Enterprises II, LLC (Representative: Johnson Aviation Inc.)
APPROVING JURISDICTION:	City of Perris
JURISDICTION CASE NO:	SPA22-05375 (Specific Plan Amendment**),** PLN22-00036 (Development Plan Review)
LAND USE PLAN:	2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan
Airport Influence Area:	March Air Reserve Base/Inland Port Airport
Land Use Policy:	Compatibility Zone D
Noise Levels:	Below 60 CNEL from aircraft
MAJOR ISSUES:	None

RECOMMENDATION: Staff recommends that the Commission find the Specific Plan Amendment CONSISTENT with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, and also find the Development Plan Review CONSISTENT, subject to the conditions included herein.

PROJECT DESCRIPTION: A proposal to construct a 58,974 square foot industrial building with mezzanines on 4.01 acres. The applicant also proposes to construct a 42,000 square foot solar panel system on the proposed industrial building. The applicant also proposes to amend the Perris Valley Commerce Center Specific Plan Land Use Designation, changing the sites zoning from Commercial (C) to Light Industrial (LI).

PROJECT LOCATION: The site is located southerly of Harley Knox Boulevard, westerly of Perris Boulevard, and easterly of Indian Street, approximately 6,110 feet southeasterly of the southerly end of Runway 14-32 at March Air Reserve Base.

BACKGROUND:

Non-Residential Intensity: Pursuant to the Airport Land Use Compatibility Plan for the March Air Reserve Base/Inland Port Airport, the site is located within Compatibility Zone D, which does not restrict non-residential intensity.

March Air Reserve Base/United States Air Force Input: Although The Airport Land Use Compatibility Plan only requires glare review for projects located in Zone C or higher, the project is 6,110 feet away from the runway and immediately adjacent with Zone C1. Due to the close proximity, the March Air Reserve Base staff was notified of the proposal to add rooftop solar panels and sent a solar glare hazard analysis study for their review. On April 12, 2023, the Air Force provided comments concurring with the analysis and conclusions of the glare study.

Prohibited and Discouraged Uses: The applicant does not propose any uses prohibited or discouraged in Compatibility Zone D.

Flight Hazard Issues: Structure height, electrical interference, and reflectivity/glare are among the issues that solar panels in the airport influence area must address. The project's 42,000 square foot photovoltaic (PV) panel structures would be located on the rooftop of the existing industrial building within Compatibility Zone D.

Glint and Glare/Reflectivity

Based on the Federal Aviation Administration's Interim Policy for Review of Solar Energy System Projects on Federally Obligated Airports, no glare potential or low potential for temporary after-image ("green" level) are acceptable levels of glare on final approach (within 2 miles from end of runway) for solar facilities located on airport property. However, potential for temporary after-image" ("yellow" level) and potential for permanent eye damage ("red" level) are not acceptable levels of glare on final approach. No glare is permitted at air traffic control towers.

The project proposes 42,000 square feet of solar panels on the building rooftop with a fixed tilt of 10 degrees with no rotation, and an orientation of 180 degrees. The applicant has submitted a glare analysis utilizing the web-based Forge Solar. The analysis was based on a 2 mile straight in approach (as per FAA Interim Policy standards) to runways 14 and 32, and also based on the traffic patterns as identified by March Air Reserve Base staff (Runway 12/30 General Aviation, Runway 14/32 General Aviation, Runway 14/32 C-17/KC-135, Runway 14/32 Overhead). The analysis utilized a glide slope approach of 2.0 degrees. No glare would affect the Air Traffic Control Tower.

The analysis concluded that no glare would occur on the 2 mile approach to the runways, and some potential for glare was identified within the Air Force traffic pattern. Evaluation of the Air Force traffic patterns indicates that the panels would result in a low potential for temporary after-image ("green" level glare) or no glare. All times are in standard time.

Runway 14/32 General Aviation traffic pattern (total 5,399 minutes of 'green' level glare):

- Runway 14 General Aviation totaling 2,512 minutes of 'green' level glare, lasting up to 35 minutes a day, between January to March and September to December, from 7:00 a.m. to 7:30 a.m.

- Runway 32 General totaling 2,887 minutes of 'green' level glare, lasting up to 30 minutes a day, between January to March, June to July, and October to November, from 6:00 a.m. to 7:30 a.m.

Runway 14/32 C-17/KC-135 traffic pattern (totaling 1,573 minutes of 'green' level glare):

- Runway 14 C-17-KC-135, totaling 809 minutes of "green" level glare, lasting up to 25 minutes a day, between February to March and October to November, from 6:00 a.m. to

7:00 a.m.

- Runway 32 C-17-KC-135, totaling 764 minutes of "green" level glare, lasting up to 20 minutes a day, between February to March and October to November, from 6:00 a.m. to 7:00 a.m.

Runway 14/32 Overhead Aviation traffic pattern (totaling 478 minutes of 'green' level glare):

- Runway 32, totaling 478 minutes of "green" level glare, lasting up to 25 minutes a day, in March and October, from 6:00 a.m. to 7:00 a.m.

The total of 7,450 minutes of "green" level glare represents less than 3 percent of total day light time.

Electrical and Communication Interference

The applicant has indicated that they do not plan to utilize equipment that would interfere with aircraft communications. The PV panels themselves present little risk of interfering with radar transmission due to their low profiles. In addition, solar panels do not emit electromagnetic waves over distances that could interfere with radar signal transmissions, and any electrical facilities that do carry concentrated current will be buried beneath the ground and away from any signal transmission. There are no radar transmission or receiving facilities within the site.

Noise: The March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan depicts the site as being outside the 60 CNEL range from aircraft noise. Therefore, no special measures are required to mitigate aircraft-generated noise.

Part 77: The elevation of Runway 14-32 at its southerly terminus is 1,488 feet above mean sea level (1,488 feet AMSL). At a distance of approximately 6,110 feet from the runway to the site, Federal Aviation Administration (FAA) review would be required for any structures with top of roof elevation exceeding 1,549 feet AMSL. The site's finished floor elevation is 1,463 feet AMSL and the proposed building height is 45 feet, for a top point elevation of 1,508 feet AMSL. Therefore, review by the FAA Obstruction Evaluation Service (FAA OES) was not required.

Open Area: None of the Compatibility Zones for the March Air Reserve Base/Inland Port ALUCP require open area specifically.

Hazards to Flight: Land use practices that attract or sustain hazardous wildlife populations on or near airports significantly increase the potential of Bird Aircraft Strike Hazards (BASH). The FAA strongly recommends that storm water management systems located within 5,000 or 10,000 feet of the Airport Operations Area, depending on the type of aircraft, be designed and operated so as not to create above-ground standing water. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. All vegetation in and around detention basins that provide food or cover for hazardous wildlife should be eliminated. (FAA Advisory Circular 5200-33C). The project is located 6,110 feet from the runway, and therefore would be subject to the above requirement.

Although the nearest portion of the proposed project is located within 10,000 feet of the runway (approximately 6,110 feet), the project utilizes underground basins which will not contain surface water or attract wildlife and, therefore, would not constitute a hazard to flight.

Specific Plan Amendment: The applicant also proposes to amend the Perris Valley Commerce Center Specific Plan Land Use Designation, changing the sites zoning from Commercial (C) to Light Industrial (LI). The proposed amendments would be as, or more, consistent with the Compatibility Plan as the underlying compatibility zone does not restrict non-residential intensity.

CONDITIONS:

1. Any new outdoor lighting that is installed shall be hooded or shielded so as to prevent either the spillage of lumens or reflection into the sky. Outdoor lighting shall be downward facing.

2. The following uses/activities are not included in the proposed project and shall be prohibited at this site:

   (a) Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight or circling climb following takeoff or toward an aircraft engaged in a straight or circling final approach toward a landing at an airport, other than a DoD or FAA-approved navigational signal light or visual approach slope indicator.

   (b) Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight or circling climb following takeoff or towards an aircraft engaged in a straight or circling final approach towards a landing at an airport.

   (c) Any use which would generate smoke or water vapor, or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area. (Such uses include landscaping utilizing water features, aquaculture, production of cereal grains, sunflower, and row crops, composting operations, wastewater management facilities, artificial marshes, trash transfer stations that are open on one or more sides, recycling centers containing putrescible wastes, construction and demolition debris facilities, fly ash disposal, and incinerators.)

   (d) Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

   (e) Hazards to flight

3. The attached notice shall be provided to all prospective purchasers of the property and tenants of the building, and shall be recorded as a deed notice.

4. Any proposed detention basins or facilities shall be designed and maintained to provide for a maximum 48-hour detention period following the design storm, and remain totally dry between rainfalls. Vegetation in and around the detention basins that would provide food or cover for birds would be incompatible with airport operations and shall not be utilized in project landscaping. Trees shall be spaced so as to prevent large expanses of contiguous canopy, when mature. Landscaping in and around the detention basin(s) shall not include trees or shrubs that produce seeds, fruits, or berries.

   Landscaping in the detention basin, if not rip-rap, should be in accordance with the

guidance provided in ALUC "LANDSCAPING NEAR AIRPORTS" brochure, and the "AIRPORTS, WILDLIFE AND STORMWATER MANAGEMENT" brochure available at RCALUC.ORG which list acceptable plants from Riverside County Landscaping Guide or other alternative landscaping as may be recommended by a qualified wildlife hazard biologist.

A notice sign, in a form similar to that attached hereto, shall be permanently affixed to the stormwater basin with the following language: "There is an airport nearby. This stormwater basin is designed to hold stormwater for only 48 hours and not attract birds. Proper maintenance is necessary to avoid bird strikes". The sign will also include the name, telephone number or other contact information of the person or entity responsible to monitor the stormwater basin.

5. March Air Reserve Base must be notified of any land use having an electromagnetic radiation component to assess whether a potential conflict with Air Base radio communications could result. Sources of electromagnetic radiation include radio wave transmission in conjunction with remote equipment inclusive of irrigation controllers, access gates, etc.

6. The project has been evaluated to construct a proposal to construct a 58,974 square foot industrial building with mezzanines. Any increase in building area, change in use to any higher intensity use, change in building location, or modification of the tentative parcel map lot lines and areas will require an amended review to evaluate consistency with the ALUCP compatibility criteria**,** at the discretion of the ALUC Director.

7. All solar arrays installed on the project site shall consist of smooth glass photovoltaic solar panels without anti-reflective coating, a fixed tilt of 10 degrees and orientation of 180 degrees. Solar panels shall be limited to a total of 42,000 square feet, and the locations and coordinates shall be as specified in the glare study. Any deviation from these specifications (other than reduction in square footage of panels), including change in orientation, shall require a new solar glare analysis to ensure that the amended project does not result in any glare impacting the air traffic control tower or creation of any "yellow" or "red" level glare in the flight paths, and shall require a new hearing by the Airport Land Use Commission.

8. In the event that any glint, glare, or flash affecting the safety of air navigation occurs as a result of project operation, upon notification to the airport operator of an event, the airport operator shall notify the project operator in writing. Within 30 days of written notice, the project operator shall be required to promptly take all measures necessary to eliminate such glint, glare, or flash. An "event" includes any situation that results in an accident, incident, "near-miss," or specific safety complaint regarding an in-flight experience to the airport operator or to federal, state, or county authorities responsible for the safety of air navigation. The project operator shall work with the airport operator to prevent recurrence of the incidence. Suggested measures may include, but are not limited to, changing the orientation and/or tilt of the source, covering the source at the time of day when events of glare occur, or wholly removing the source to diminish or eliminate the source of the glint, glare, or flash. For each such event made known to the project operator, the necessary remediation shall only be considered to have been fulfilled when the airport operator states in writing that the situation has been remediated to the airport operator's satisfaction.

9. In the event that any electrical interference affecting the safety of air navigation occurs as a result of project operation, upon notification to the airport operator of an event, the airport operator shall notify the project operator in writing. Within 30 days of written notice, the project operator shall be required to promptly take all measures necessary to eliminate such interference. An “event” includes any situation that results in an accident, incident, “near-miss,” report by airport personnel, or specific safety complaint to the airport operator or to federal, state, or county authorities responsible for the safety of air navigation. The project operator shall work with the airport operator to prevent recurrence of the event. For each such event made known to the project operator, the necessary remediation shall only be considered to have been fulfilled when the airport operator states in writing that the situation has been remediated to the airport operator’s satisfaction.

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NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances [can vary from person to person. You may wish to consider what airport annoyances], if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you. Business & Professions Code Section 11010 (b)(13)(A)

NOTICE

THERE IS AN AIRPORT NEARBY.

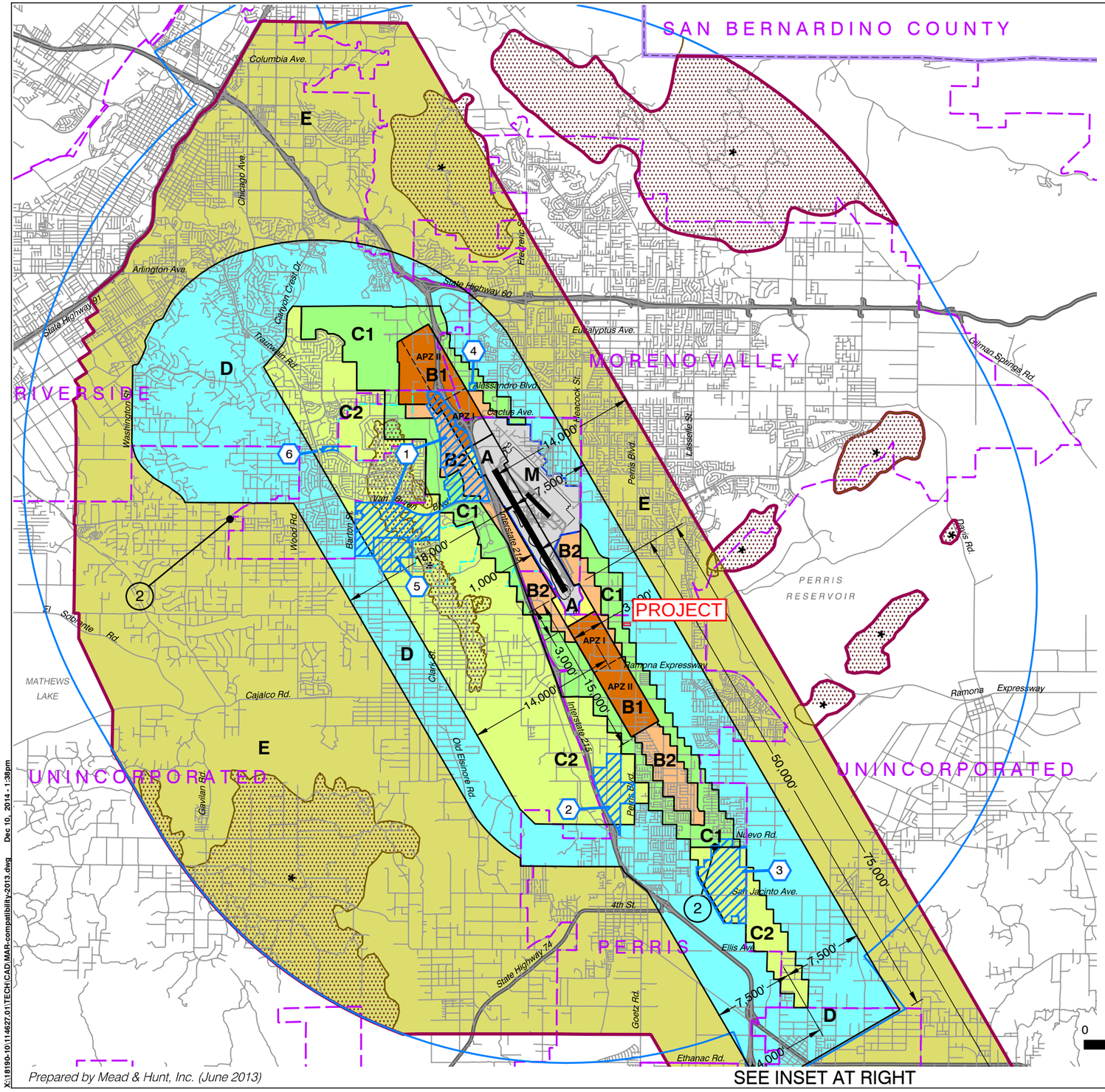
THIS STORM WATER BASIN IS DESIGNED TO HOLD STORM WATER FOR ONLY 48 HOURS AND NOT TO ATTRACT BIRDS

PROPER MAINTENANCE IS NECESSARY TO AVOID BIRD STRIKES

RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION ALUC

IF THIS BASIN IS OVERGROWN, PLEASE CONTACT:

Name: _____ Phone: _____



LEGEND

Compatibility Zones

- Airport Influence Area Boundary
- Zone A
- Zone B1
- Zone B2
- Zone C1
- Zone C2
- Zone D
- Zone E
- Zone M
- High Terrain Zone
- FAR Part 77 Military Outer Horizontal Surface Limits
- FAR Part 77 Notification Area

Boundary Lines

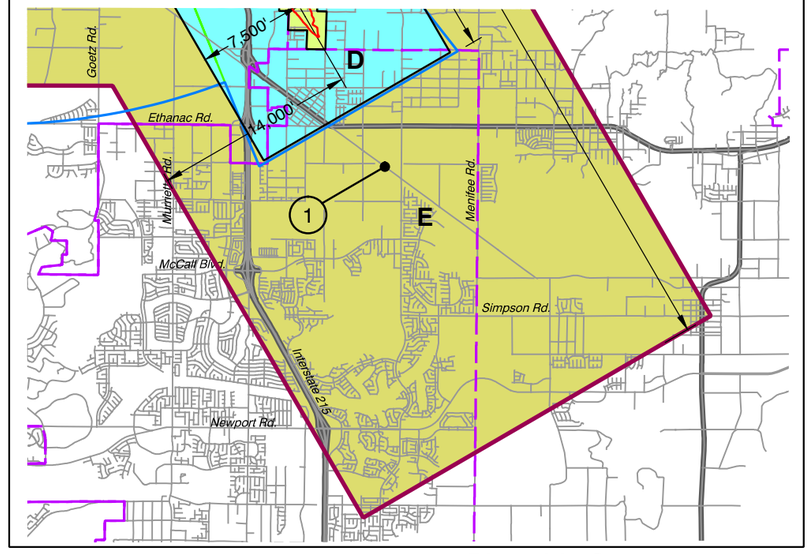
- March Air Reserve Base / Air Force Property
- March Joint Powers Authority Property Line
- County Boundary
- City Limits
- Site-Specific Exceptions (existing local agency commitments to development projects)

1. March JPA: March Business Center/Meridian
2. Perris: Harvest Landing
3. Perris: Park West
4. Moreno Valley: Affordable Housing
5. March JPA: Ben Clark Training Center
6. Riverside: Ridge Crest Subdivision

(1) Point at which aircraft on Runway 32 ILS approach descend below 3,000 feet above runway end. Airport Elevation is 1,535 feet MSL.

(2) Point at which departing aircraft typically reach 3,000 feet above runway end.

INSET



Note:
All dimensions are measured from runway ends and centerlines.

N

0 2 4 MILES

Base map source: County of Riverside 2013

Riverside County
Airport Land Use Commission

March Air Reserve Base / Inland Port Airport
Land Use Compatibility Plan

(Adopted November 13, 2014)

Map MA-1

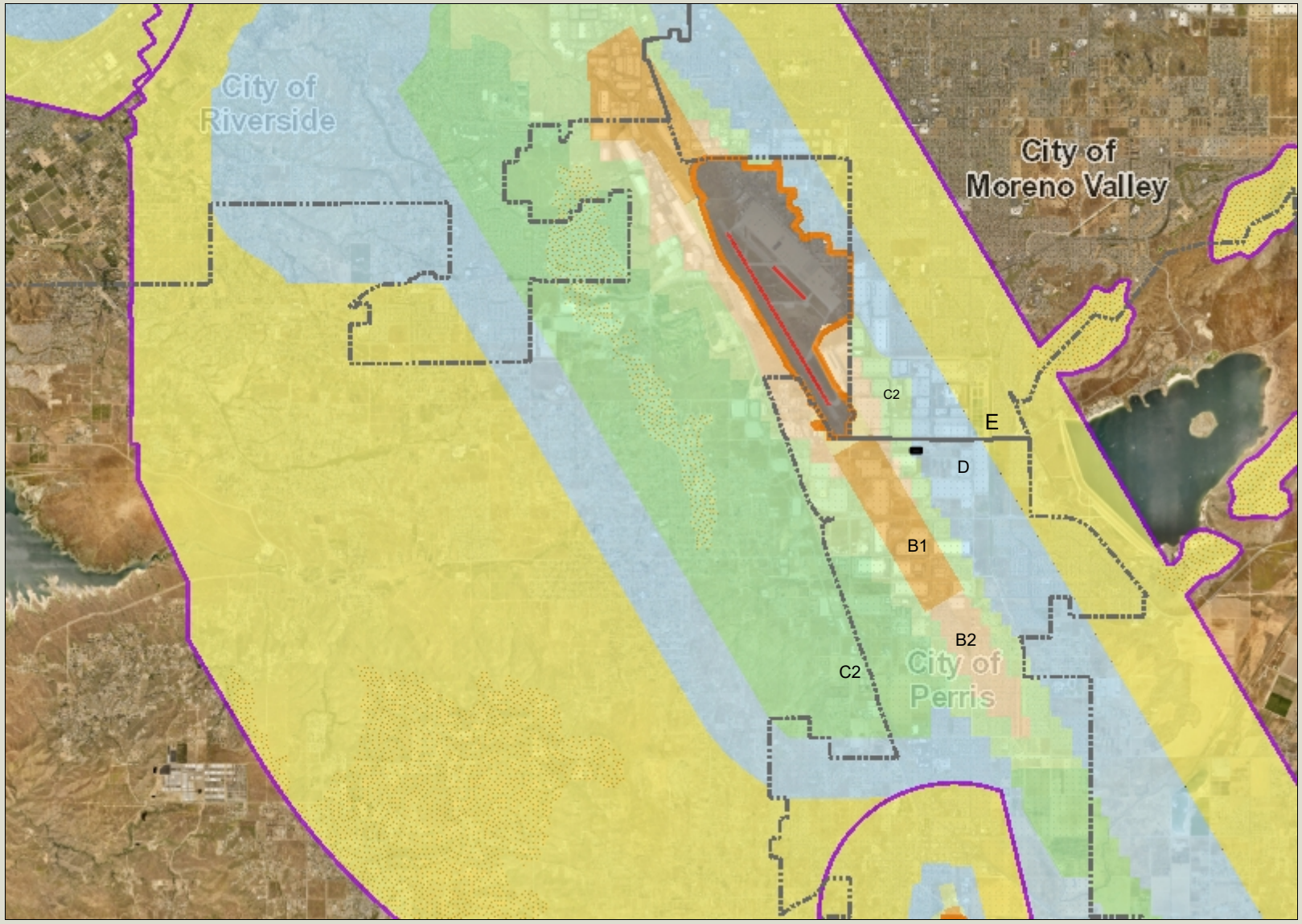
Compatibility Map

March Air Reserve Base / Inland Port Airport

Prepared by Mead & Hunt, Inc. (June 2013)

X:\18190-10\114627.01\TECH\CAD\MAR-compatibility2013.dwg Dec 10, 2014 - 1:38pm

Map My County Map



Legend

- Runways
- Airports
- Airport Influence Areas
- Airport Compatibility Zones
  - OTHER COMPATIBILITY ZONE
  - A
  - A-EXC1
  - B1
  - B1-APZ I
  - B1-APZ I-EXC1
  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5
  - C2-EXC6

0 12,314 24,629 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

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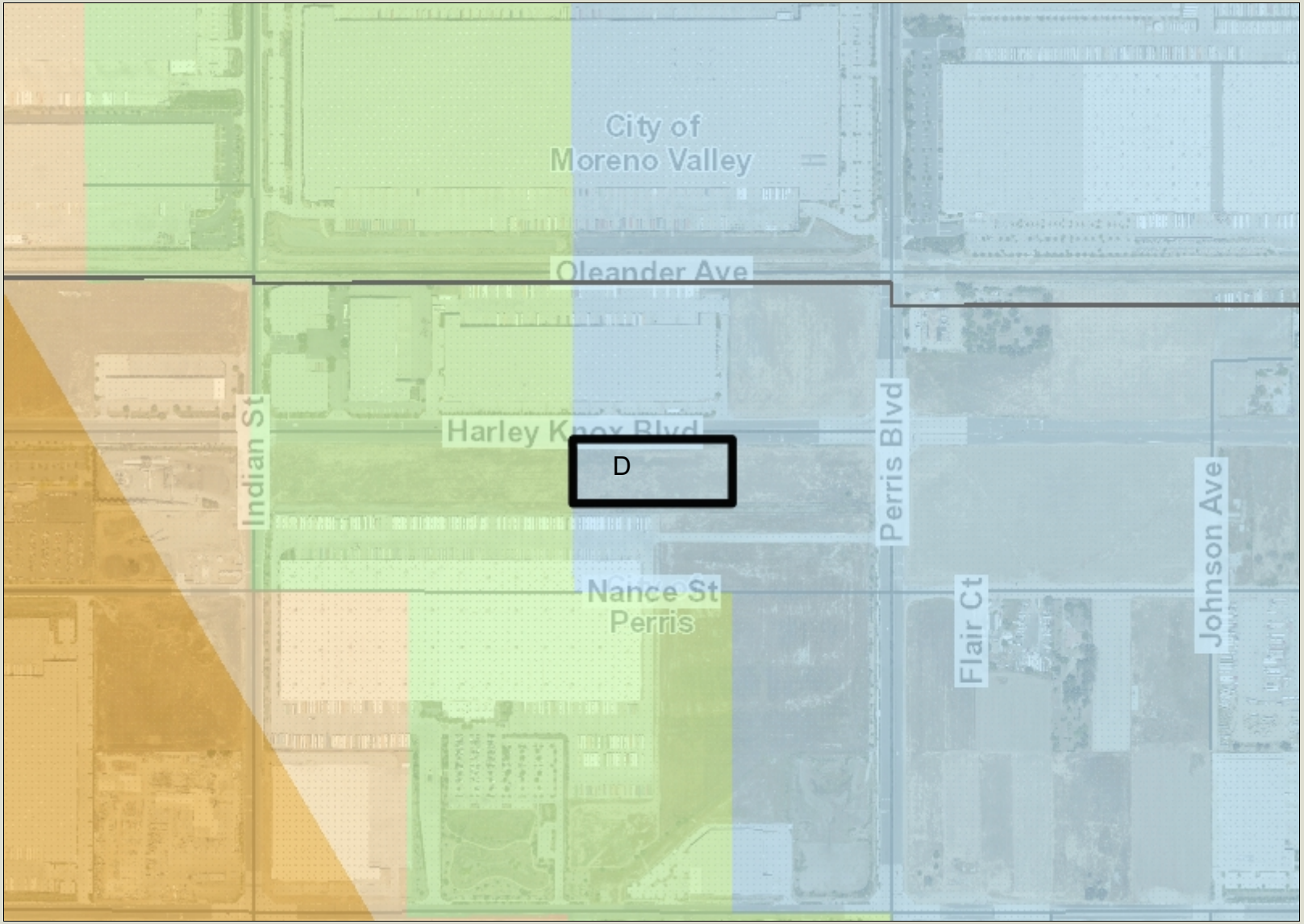
Notes

Map My County Map



Legend

- Runways
- Airports
- Airport Influence Areas
- Airport Compatibility Zones
  - OTHER COMPATIBILITY ZONE
  - A
  - A-EXC1
  - B1
  - B1-APZ I
  - B1-APZ I-EXC1
  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5
  - C2-EXC6

RCIT

0 770 1,539 Feet

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Notes

Map My County Map

Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 770 1,539 Feet

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REPORT PRINTED ON... 4/4/2023 9:11:31 AM

Notes

Map My County Map

Legend

- Blueline Streams
- City Areas
- World Street Map

0 3,079 6,157 Feet

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REPORT PRINTED ON... 4/4/2023 9:13:09 AM

Notes

Map My County Map

Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 1,539 3,079 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

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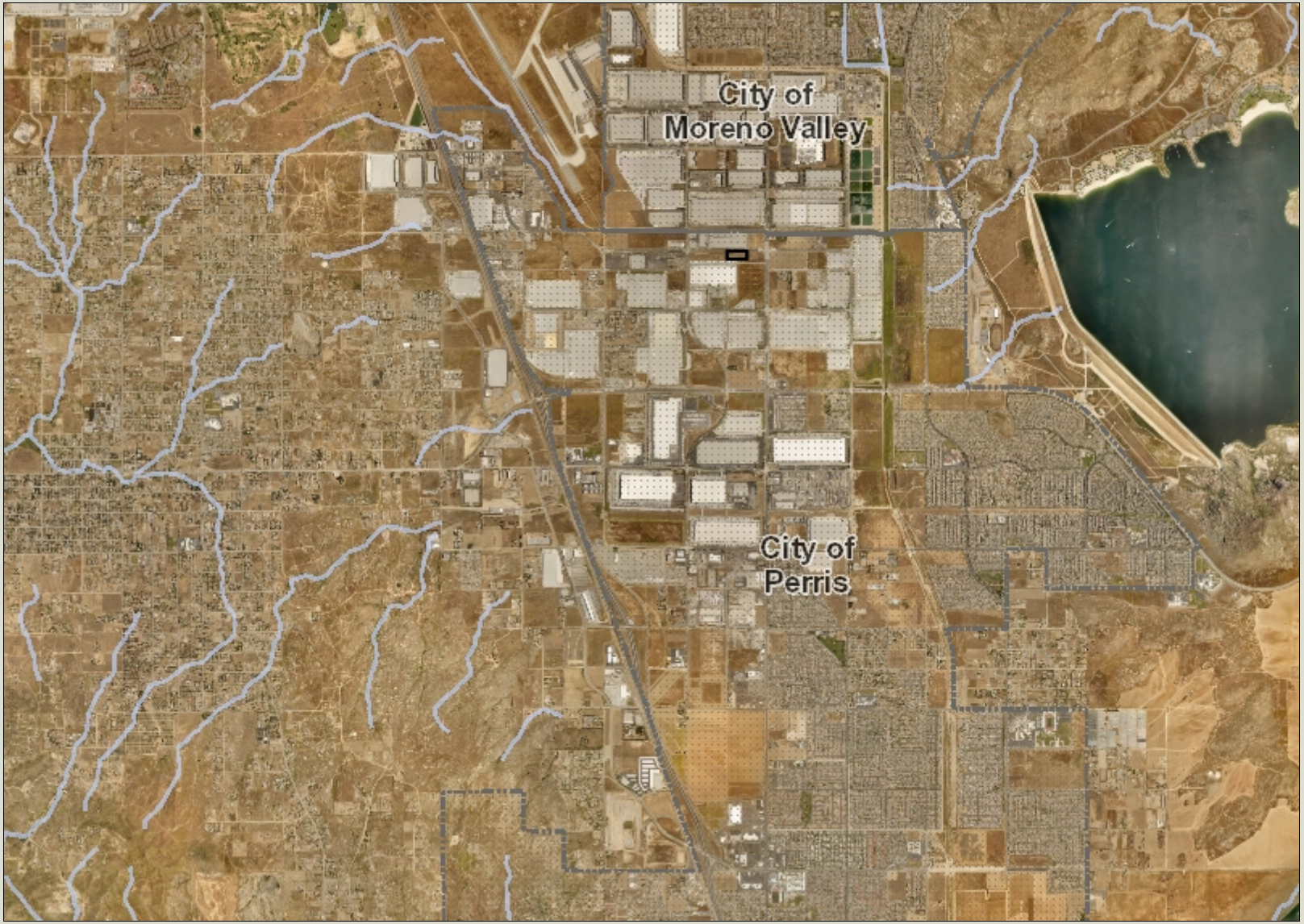
Notes

Map My County Map



Legend

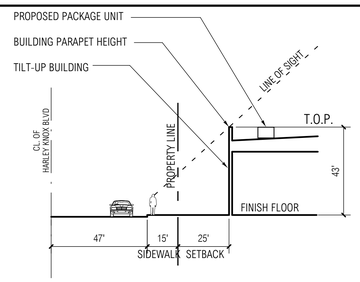
- Blueline Streams
- City Areas
- World Street Map

0 6, 12,314 Feet
157

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

REPORT PRINTED ON... 4/4/2023 9:12:48 AM

Notes



TYPICAL EQUIPMENT SCREEN LINE OF SIGHT

SCALE: 1" = 30'-0" NOTE: LINE OF SIGHT TAKEN FROM 6'-0" ABOVE FINISH GRADE

SITE LEGEND:

- ON-SITE LANDSCAPED AREA
- OFF-SITE LANDSCAPED AREA
- DECORATIVE AUTO / TRUCK DRIVEWAYS
- SITE PROPERTY LINES
- CITY CURB AND GUTTER LINES
- STREET CENTERLINES
- ON-SITE CURB LINES
- ON-SITE PARKING AND TRAILER STRIPPING

GENERAL NOTES

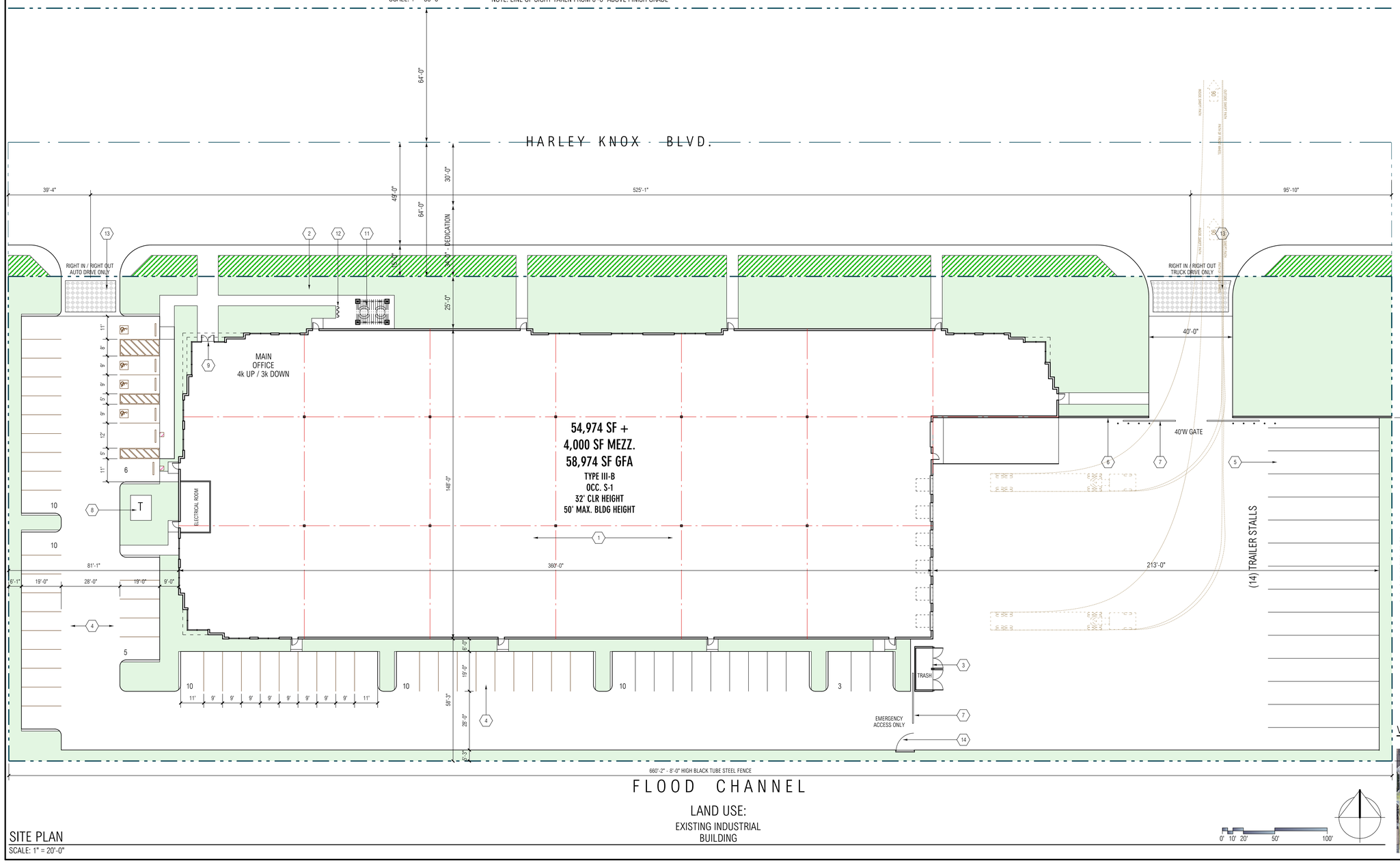
1. THE PROPOSED PROJECT SHALL COMPLY WITH THE PROVISIONS OF THE COUNTY RIVERSIDE, CITY OF PERRIS PLANNING PLAN
2. A LANDSCAPING PLAN SHALL BE SUBMITTED TO THE PLANNING DEPARTMENT FOR APPROVAL PRIOR TO ISSUANCE OF BUILDING PERMITS AND SHALL BE IMPLEMENTED PRIOR TO OCCUPANCY.
3. THE PROJECT DOES NOT PROPOSE ANY TENANT SIGNAGE AT THIS TIME.
4. THERE ARE NO PROTECTED PLANTS ON SITE.
5. ALL ROOF DRAINS AT STREET FRONTAGES SHALL BE IN THE INTERIOR OF THE BUILDING ENVELOPE.
6. ALL LANDSCAPE SHALL BE BOUND BY A 6" HIGH CONCRETE CURB.
7. A LIGHT PLAN SHALL BE SUBMITTED SHOWING CONFORMANCE WITH MINIMUM FOOTCANDLE LEVELS AND MARCH AIR BASE STANDARDS. FIXTURES SHALL BE SHIELDED HIGH PRESSURE SODIUM.
8. A SIGN PROGRAM SHALL BE DEVELOPED IN ACCORDANCE WITH MUNICIPAL CODE 19.75.190 FOR APPROVAL BY THE PLANNING DIVISION. THE SIGN PROGRAM SHALL BE INCLUDED AS PART OF THE CC&R'S.
9. FUTURE TENANT OFFICE BUILD-OUTS TO INCLUDE INDOOR EMPLOYEE AMENITY AREAS PER CITY GUIDELINES.
10. PROJECT WILL BE DESIGNED WITH LEED IN MIND, BUT WILL NOT REQUIRED CERTIFICATION.

SUBSTAINABILITY FEATURES

11. PROVIDE LIGHT COLORED ROOFING OVER THE OFFICE AREAS.
12. BUILDING WILL BE DESIGN TO ACHIEVE LEED POTENTIAL CERTIFICATION.
13. PROVIDE UP TO (2) ELECTRIC VEHICLE CHARGING FACILITIES
14. PROVIDE "TURN-OFF ENGINE" SIGNS WITHIN THE TRUCK COURT.
15. FORKLIFTS WITHIN THE BUILDING SHALL BE ELECTRIC OR COMPRESSED NATURAL GAS-POWERED.

LAND USE:
EXISTING INDUSTRIAL BUILDING

LAND USE:
EXISTING INDUSTRIAL BUILDING



SITE PLAN

SCALE: 1" = 20'-0"

PROJECT DATA

SITE AREA:	
GROSS SITE AREA	174,675 SF / 4.01 AC
STREET DEDICATION:	20,132 SF / 0.46 AC
NET SITE AREA:	154,543 SF / 3.55 AC
BUILDING AREA:	
FOOTPRINT	54,974 SF
FIRE PUMP HOUSE	00 SF
MEZZANINE	4,000 SF
GUARD HOUSE	00 SF
TOTAL	58,974 SF
TOTAL INCLUDED PLANNED OFFICE AREA	8,000 SF
LOT COVERAGE: (50% MAX)	35.57 %
FAR: (75% MAX)	38.16 %
AUTO PARKING REQUIRED:	
OFFICE (1/300 SF)	27 STALLS
1-20,000 SF (1/1000 SF)	20 STALLS
20,000 SF AND ABOVE (1/2,000 SF)	16 STALLS
TOTAL	63 STALLS
AUTO PARKING PROVIDED	
ACCESSIBLE STALLS	4 STALLS
STANDARD STALLS	63 STALLS
TOTAL PROVIDED	67 STALLS
REQUIRED BICYCLE PARKING (5% OF REQUIRED AUTO PARKING)	4 BIKE LOCATIONS
TRUCK DOCK POSITIONS	6 DOCKS
GRADE DOORS PROVIDED	1 DOOR
LANDSCAPE AREA PROVIDED ON DEVELOPED SITE (REQUIRED 12% MIN.)	29,692 SF / 19.21 %

ASSESSOR'S PARCEL NUMBERS

APN # 302-090-021

APPLICATION TYPE

DEVELOPMENT PLN REVIEW 00-00-0000
ZONING: "LI" LIGHT INDUSTRIAL - PVCC SP - PERRIS VALLEY COMMERCE CENTER
PERMITTED LAND USE: WAREHOUSE, OFFICE AS PERMITTED

PROJECT DESCRIPTION

NEW INDUSTRIAL WAREHOUSE BUILDING WITH AUTO AND TRAILER PARKING AREAS.

LAND OWNER

BREW ENTERPRISES II
3535 INLAND EMPIRE BLVD
ONTARIO, CA 9164

APPLICANT

BREW ENTERPRISES II
3535 INLAND EMPIRE BLVD
ONTARIO, CA 9164
PHONE: 909-373-2915
CONTACT: MIKE WOLFE

PLAN PREPARER

RGA, OFFICE OF ARCHITECTURAL DESIGN, INC.
15231 ALTON PARKWAY, SUITE 100
IRVINE, CA 92618
CONTACT: JACOB HUBER

UTILITIES & SERVICES

SEE CIVIL DRAWINGS

LEGAL DESCRIPTION

THE LAND REFRRED TO HEREON IS SITUATED IN THE CITY OF PERRIS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:
LOT 7 IN BLOCK 2 OF RIVERSIDE TRACT, AS SHOWN BY MAP ON FILE IN BOOK 14, PAGE 688 OF MAPS, RECORDS OF SAN DIEGO COUNTY, CALIFORNIA; EXCEPTING FROM SAID LOT 7 THE SOUTH 365 FEET MEASURED FROM THE CENTER LINE OF NANCE STREET, 60 FEET WIDE.

KEYNOTES

1. PAINTED CONCRETE TILT-UP WAREHOUSE / OFFICE / MANUFACTURING FACILITY.
2. SHADED AREA: PROPOSED IRRIGATED LANDSCAPING PER CC&R GUIDELINES WITH MIN 6" CONCRETE CURBS AT ALL PERIMETERS.
3. PAINTED CONCRETE TRASH ENCLOSURE. SCREEN WALLS SHALL BE MIN. 6'-0" HIGH WITH CANOPY TOP. SEE SHEET A2-1P FOR ELEVATIONS AND SECTIONS
4. TYPICAL STANDARD PARKING STALL MIN. 9' X 19' - STRIPE PER CITY STANDARDS.
5. TRUCK TRAILER PARKING
6. NEW 14'-0" CONCRETE TILT-UP SCREEN WALLS AT TRUCK YARD. SEE PLAN FOR MINIMUM HEIGHTS AS MEASURED FROM INSIDE THE TRUCK YARD.
7. ROLLING 8'-0" HIGH WROUGHT IRON FENCE INTO THE TRUCK COURT.
8. TRANSFORMER PAD LOCATION.
9. ACCESSIBLE PRIMARY ENTRANCE TO THE BUILDING WITH BIKE RACKS.
10. PROVIDE BOCCE COURT AND KIT AREA.
11. CONCRETE COVERED LUNCH PATIO WITH LANDSCAPE FURNITURE, SEE SHEET A3-1P
12. CALGREEN REQUIRED BIKE RACKS, SEE TABULATIONS FOR NUMBER OF BIKE RACKS
13. DECORATIVE PAVING AT ENTRY DRIVEWAY.
14. 8'-0" TUBE STEEL SWING GATE WITH KNOX LOCK FOR EMERGENCY TRUCKS ONLY.

VICINITY MAP

PREPARED BY:
RGA
Office of Architectural Design
15231 Alton Parkway, Suite 100
Irvine, CA 92618
T 949-341-0920
FX 949-341-0922

BREW HARLEY KNOX

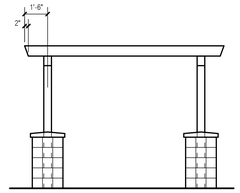
0000 HARLEY KNOX BLVD., PERRIS, CA

SITE PLAN

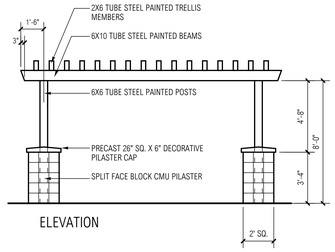
MARK	DATE	DESCRIPTION
	10/24/22	SCHEMATIC DESIGN

RGA PROJECT NO:	22007.00
CAD FILE NAME:	22007-00-A1-01
DRAWN BY:	JH
CHK'D BY:	JH
COPYRIGHT: RGA, OFFICE OF ARCHITECTURAL DESIGN	
SHEET TITLE	

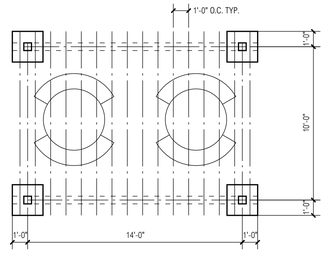
A1-01



ELEVATION



ELEVATION



PLAN

TYPICAL LUNCH PATIO TRELLIS

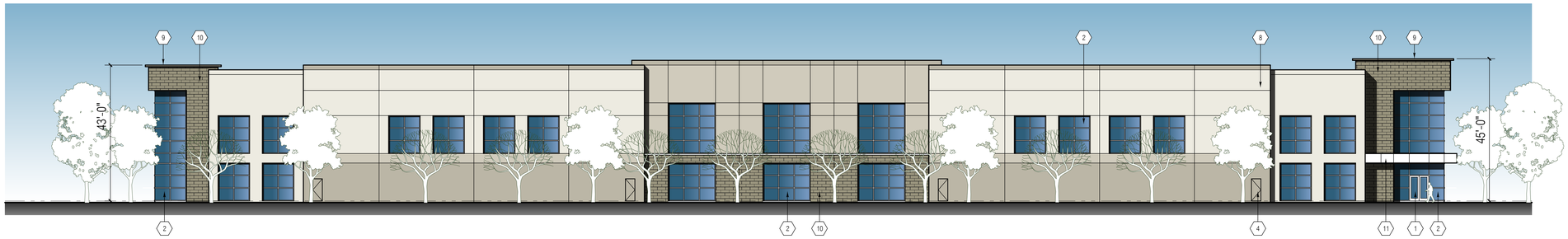
SCALE: 1/4" = 1'-0"

FINISH SCHEDULE

1. FIELD COLOR - GLIDDEN - CHINA WHITE - A1865
2. ACCENT COLOR - GLIDDEN - BURMESE BEIGE - A1838
3. BASE ACCENT COLOR - GLIDDEN - MEADOWLARK - A1867
4. BRICK MATERIAL - RUSHMORE - GRAY
5. GLAZING - SEE KEYNOTE 2 - PPG SOLARCOOL PACIFICA REFLECTIVE #2.

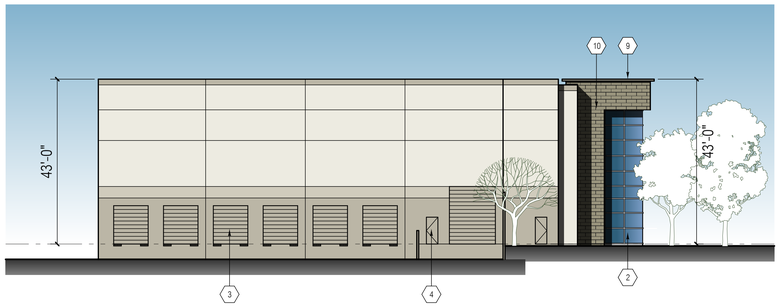
KEYNOTES (000)

1. PRIMARY ACCESSIBLE BUILDING ENTRY
2. BLUE GLAZING IN CLEAR ANODIZED ALUMINUM STOREFRONT. ALL GLASS TO BE AS NON-REFLECTIVE AS POSSIBLE TO ALLOW FOR INTERIOR NATURAL LIGHT. THE BUILDING ENVELOPE WITH CONFORM TO CALGREEN AND TITLE 24 REQUIREMENTS.
3. PAINTED DOCK HIGH TRUCK LOADING DOOR.
4. 3' X 7' PAINTED METAL MAN DOOR.
5. DOWNSPOUTS ON NORTH ELEVATION SHALL BE EXTERNAL PAINTED TO MATCH BUILDING. PAINTED OVERFLOW SCUPPERS ARE ACCEPTABLE
6. ROOF DRAINS AT THE OFFICE CORNERS SHALL BE INTERNAL, BOTH ROOF AND OVERFLOOE DRAINS.
7. NEW 14' HIGH MINIMUM CONCRETE TILT-UP SCREEN WALLS AT TRUCK YARD WITH AN 9'-0" TUBE STEEL SLIDING GATE WITH 80% SCREENING MESH. WALLS TO BE PAINTED WITH ANTI-GRAFFITI PAINT.
8. BUILDING ADDRESS: 18" HIGH ADDRESS NUMBERS FIXED TO FACE OF CONCRETE WALL PANEL. MANUF: SIGNATURE SIGNS, PLASTIC FACE NUMBERS WITH CONTINUOUS ALUMINUM RETAINER. SIGN TO BE EXTERNALLY ILLUMINATED DURING THE HOURS OF DARKNESS.
9. CORNICE DETAIL AT ENTRY PANEL PARAPETS, PAINTED TO MATCH BUILDING
10. BRICK FACADE AT BUILDING ENTRIES AND EAST SIDE SET INTO CONCRETE PANEL.
11. PROVIDE 36" TALL ALUM CANOPY OVER PRIMARY ENTRY DOORS.



NORTH ELEVATION - HARLEY KNOX

SCALE: 1/16" = 1'-0"

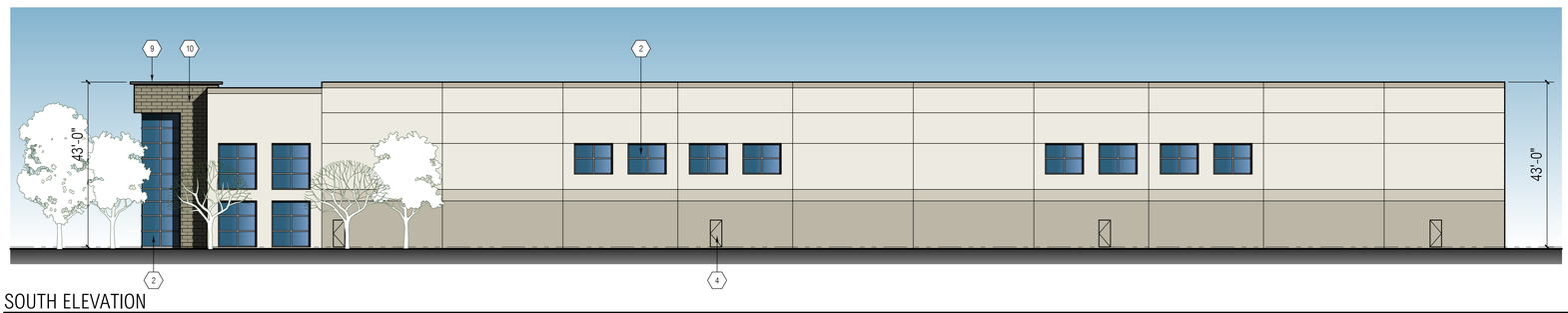


EAST ELEVATION

SCALE: 1/16" = 1'-0"

WEST ELEVATION

SCALE: 1/16" = 1'-0"



SOUTH ELEVATION

SCALE: 1/16" = 1'-0"

PREPARED BY:

RGA
Office of Architectural Design

15231 Alton Parkway, Suite 100
Irvine, CA 92618

T 949-341-0920
FX 949-341-0922

BREW HARLEY KNOX

0000 HARLEY KNOX BLVD., PERRIS, CA

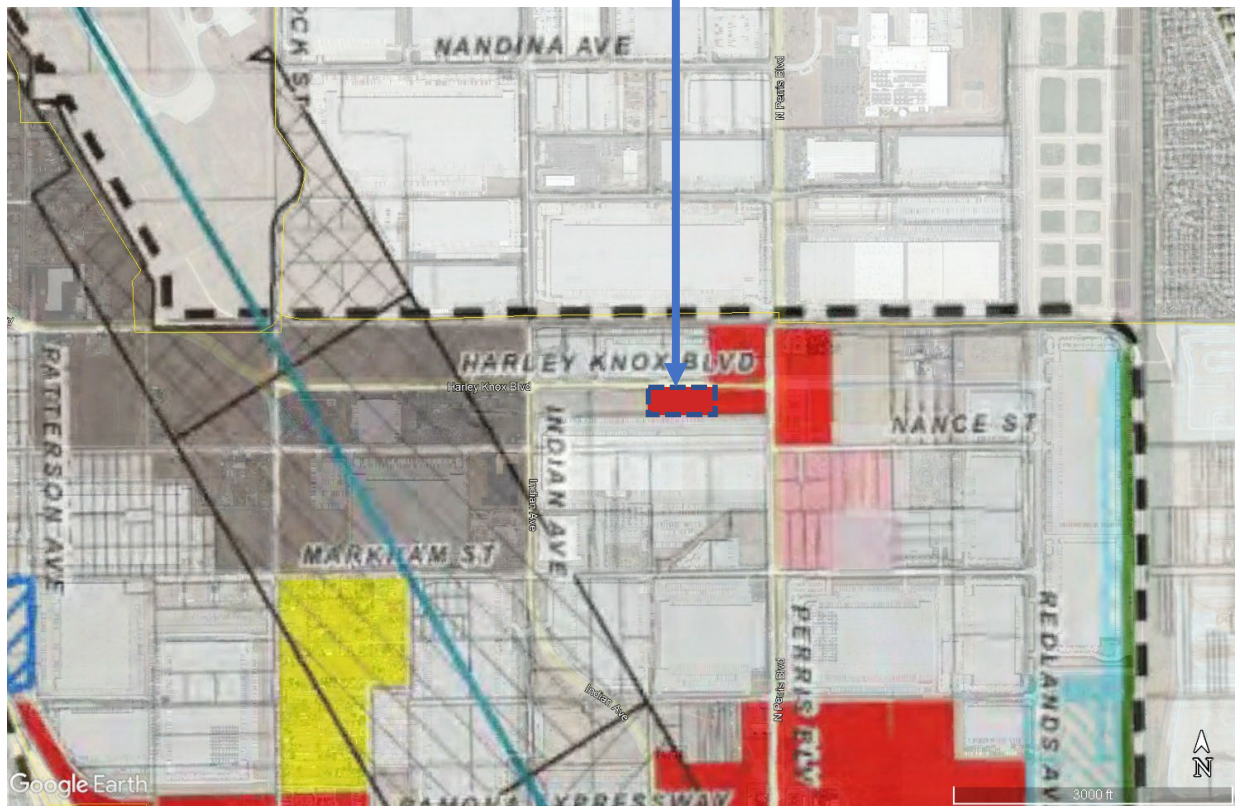
ELEVATION

MARK	DATE	DESCRIPTION
	05/26/22	SCHEMATIC DESIGN

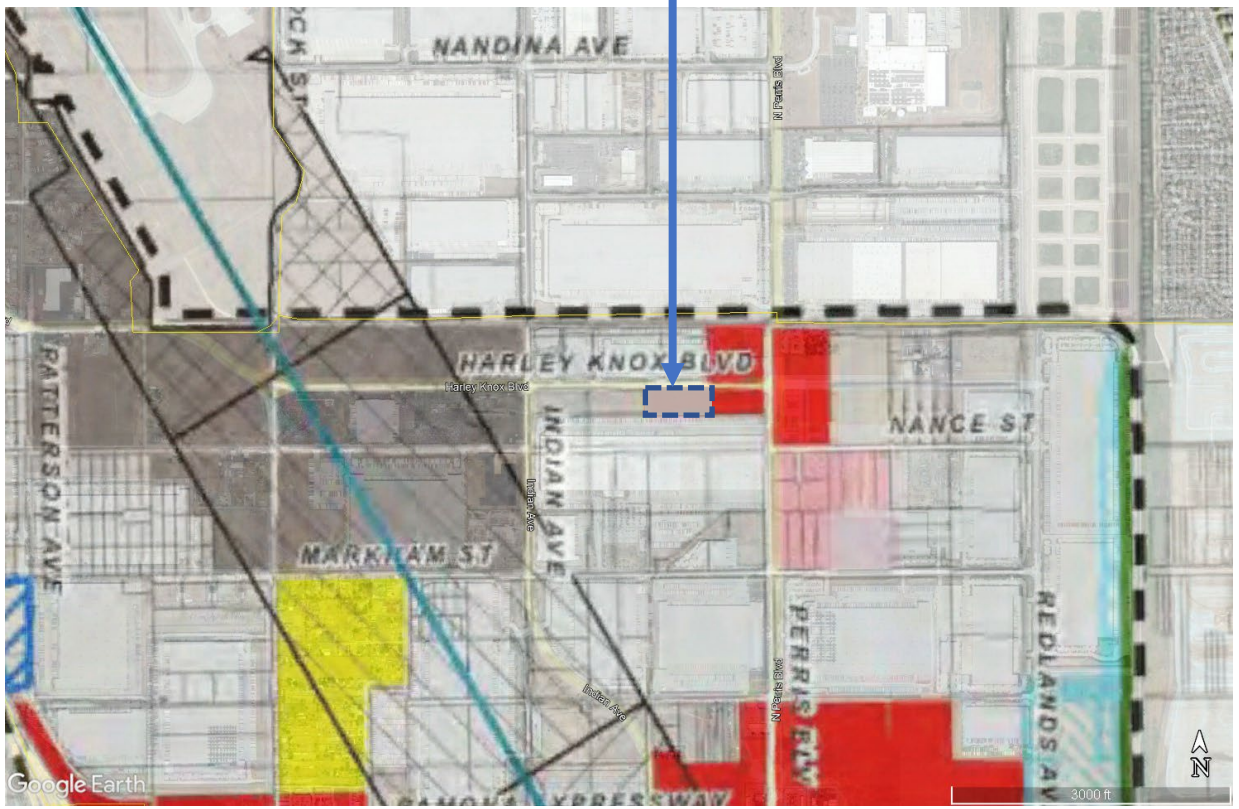
RGA PROJECT NO:	22007.00
CAD FILE NAME:	22007-00-A3-01
DRAWN BY:	JH
CHK'D BY:	JH
COPYRIGHT: RGA, OFFICE OF ARCHITECTURAL DESIGN	
SHEET TITLE	

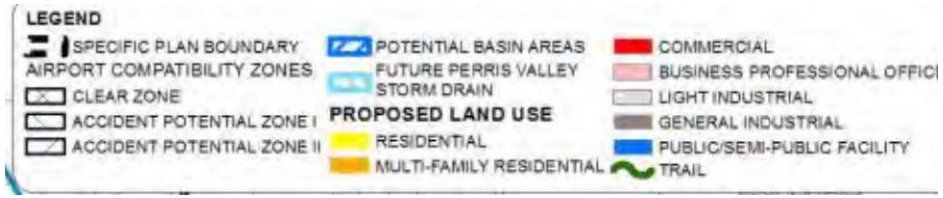
A3-01

Existing - Parcel Zoned Commercial



Future - Parcel Zoned Light Industrial





PVCC SP Existing/Proposed Use – Brew Enterprises II, LLC, Perris, CA

Technical Memorandum

To: Jacob Huber, RGA Office of Architectural Design
From: Nick Johnson, Johnson Aviation, Inc.
Date: March 29, 2023

Subject: Solar Glare Analysis – Solar Photovoltaic (PV) Installation, Brew Enterprises II, LLC Project

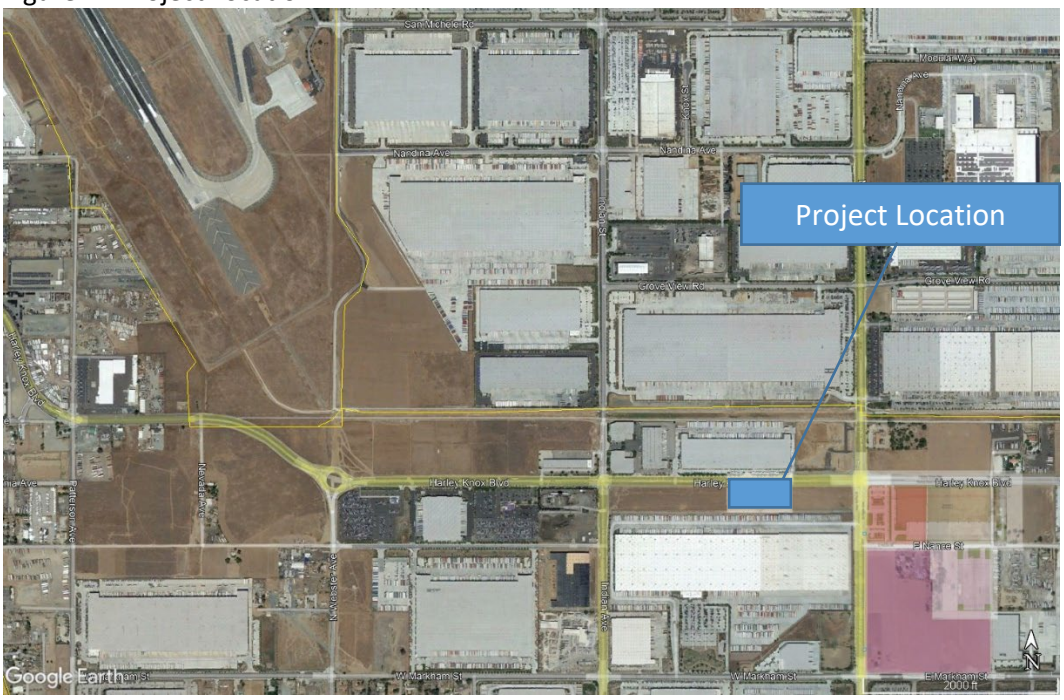
A. Findings

The findings of this Solar Glare Analysis are that the Proposed Project **PASSES** the FAA's recommended solar glare tests and **PASSES** these same tests for four critical flight paths required by the March Air Reserve Base. This Technical Memorandum outlines the study of the potential solar PV Project and substantiates these findings.

B. Introduction

The purpose of this technical memorandum is to assess the airport compatibility of a potential solar PV installation on the roof of the Brew Enterprises II, LLC Project (Project). The Project site is located west of Perris Boulevard, east of Indian Avenue, and south of Harley Knox Boulevard in the City of Perris (City) and within the March Air Reserve Base (March ARB) airport influence area (AIA) (See Figure 1). The analysis and findings of this memo are intended for review and acceptance by the City, Riverside County Airport Land Use Commission (ALUC) and the March ARB staff.

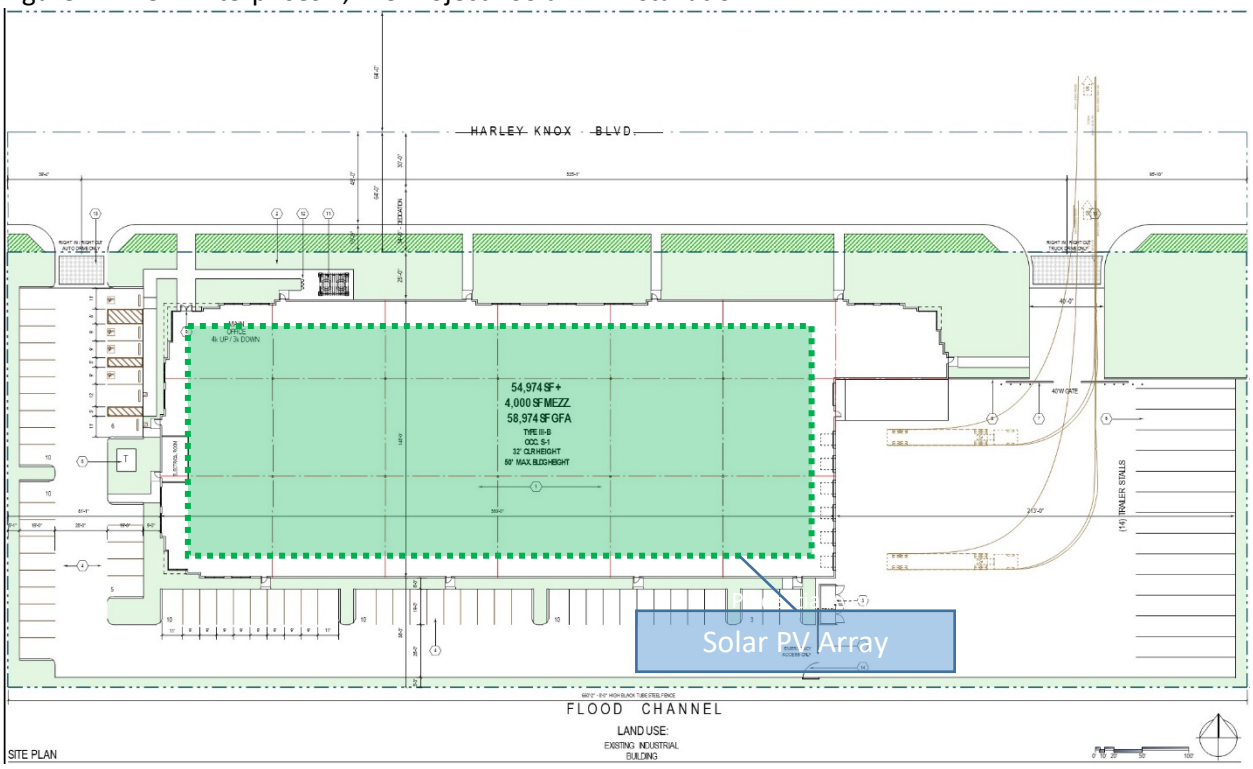
Figure 1: Project Location



C. Project Description

Brew Enterprises II, LLC, the Project Owner, is planning to develop a roof-top solar PV installation on the Project site. The building is planned for a total of 58,974 square feet. The potential solar PV installation is studied to cover approximately 42,000 square feet of the warehouse portion of the roof area to allow flexibility in the size and location of the array (See Figure 2).

Figure 2: Brew Enterprises II, LLC Project –Solar PV Installation



D. Standard of Review

This study and its findings have been prepared consistent with the Federal Aviation Administration's (FAA) policy to eliminate hazards to air navigation that may arise as the result of implementing solar energy facilities on and near airports. The FAA adopted an Interim Policy[1] for Solar PV project review in 2013 and completed a final solar glare policy in 2021[2]. In both the 2013 Interim Policy and the 2021 Final Policy, off-airport solar arrays are not required to meet the FAA's policies, but they are strongly encouraged to consider the requirements of this policy guidance when siting systems. Neither the FAA nor the US Department of Defense (DOD) control land use off airport or base property. Both entities encourage collaboration with local land use jurisdictions like the ALUC and the City.

As solar PV was being implemented on and near airports in recent years, the FAA was finding that solar PV reflections of sunlight glint and glare were affecting pilots' vision, particularly on final approach to runways, and was also impacting some air traffic controllers' vision when controlling aircraft near airports. In conjunction with Sandia National Laboratories, the FAA developed a computer analysis tool to measure the potential impact of reflected glint and glare from Solar PV installations. The analysis of this impact is achieved through use of the Solar Glare Hazard Assessment Tool (SGHAT). At the time of the Interim

[1] Background on the Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports, Federal Register, October 23, 2013.

[2] Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports, 86 Fed. Reg. 25801 (May 11, 2021), https://www.federalregister.gov/documents/2021/05/11/2021-09862/federal-aviation-administration-policy-review-of-solar-energy-system-projects-on-federally-obligated

Policy, Sandia Labs produced the tool to meet the analysis requirement. Since then, Sandia Labs has licensed the tool to other providers to sell commercially for solar glare analysis. ForgeSolar licensed the SGHAT tool and incorporated its software into their Glare Analysis tool. Johnson Aviation, Inc. uses the ForgeSolar Glare Analysis tool under subscription license from Sims Industries d/b/a ForgeSolar.

The following is the Standard for Measuring Ocular Impact from the FAA's 2013 Interim Policy:

> Standard for Measuring Ocular Impact
> FAA adopts the Solar Glare Hazard Analysis Plot as the standard for measuring the ocular impact of any proposed solar energy system on a federally obligated airport. To obtain FAA approval to revise an airport layout plan to depict a solar installation and/or a "no objection" to a Notice of Proposed Construction Form 7460-1, the airport sponsor will be required to demonstrate that the proposed solar energy system meets the following standards:
>
> 1. No potential for glint or glare in the existing or planned Airport Traffic Control Tower (ATCT) cab; and
> 2. No potential for glare or "low potential for after-image" along the final approach path for any existing landing threshold or future landing thresholds (including any planned interim phases of the landing thresholds) as shown on the current FAA-approved Airport Layout Plan (ALP). The final approach path is defined as two (2) miles from fifty (50) feet above the landing threshold using a standard three (3) degree glidepath.
> 3. Ocular impact must be analyzed over the entire calendar year in one (1) minute intervals from when the sun rises above the horizon until the sun sets below the horizon.

After significant additional study of the issue, the FAA concluded in its final 2021 Policy that less restrictive analysis can achieve the same goals for limiting solar PV glare. The following are the revised FAA 2021 Policy limitations:

> This policy does not apply to:
>
> 1. Solar energy systems on airports that do not have an ATCT,
>
> 2. Airports that are not federally-obligated, or
>
> 3. Solar energy systems not located on airport property.
>
> Though this policy does not apply to proponents of solar energy systems located off airport property, they are encouraged to consider ocular impact for proposed systems in proximity to airports with ATCTs. In these cases, solar energy system proponents should coordinate with the local airport sponsor.

In addition to the FAA's standards for runway final approach paths and air traffic control tower visibility, the March ARB staff in conjunction with the Riverside County ALUC staff have established a series of air traffic patterns for the two runways located at the Base. Their concern is to ensure that land uses around the base are compatible with its air operations and that solar PV installations will not create a hazard to air navigation as a result of reflected sunlight and the associated potential glare. March ARB staff have provided four sets of geographic coordinates to define the standard traffic patterns listed below:

- FAA 2013 Policy Review (See Attachment A-1)
- FAA 2021 Policy Review (See Attachment A-2)
- Runway 12/30 General Aviation Traffic Pattern (See Attachment B)
- Runway 14/32 General Aviation Traffic Pattern (See Attachment C)
- Runway 14/32 C-17/KC-135 Traffic Pattern (See Attachment D)
- Runway 14/32 Overhead Traffic Pattern (See Attachment E)

E. Solar Glare Analysis Reports

The following pages of this Technical Memorandum provide the solar glare analysis reports for each of the suggested and required studies. The FAA standard study of the final approach paths to the runway ends and the Air Traffic Control Tower analysis is included in each individual report. The six reports are grouped by the flight path studies required by the March ARB and ALUC staff using the SGHAT program.

Attachment A-1
2013 FAA Policy Review

FORGESOLAR GLARE ANALYSIS

Project: **Brew Enterprises II, LLC**
Proposed rooftop solar PV installation for project located along south side of Harley Knox Blvd., west of Perris Boulevard in the City of Perris, CA.

Site configuration: **Brew Ent II-All Final Approaches**
Analysis conducted by Nick Johnson (nick.johnson@johnson-aviation.com) at 21:59 on 29 Mar, 2023.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	PASS	Flight path receptor(s) do not receive yellow glare
ATCT(s)	PASS	Receptor(s) marked as ATCT do not receive glare

Default glare analysis parameters and observer eye characteristics (for reference only):

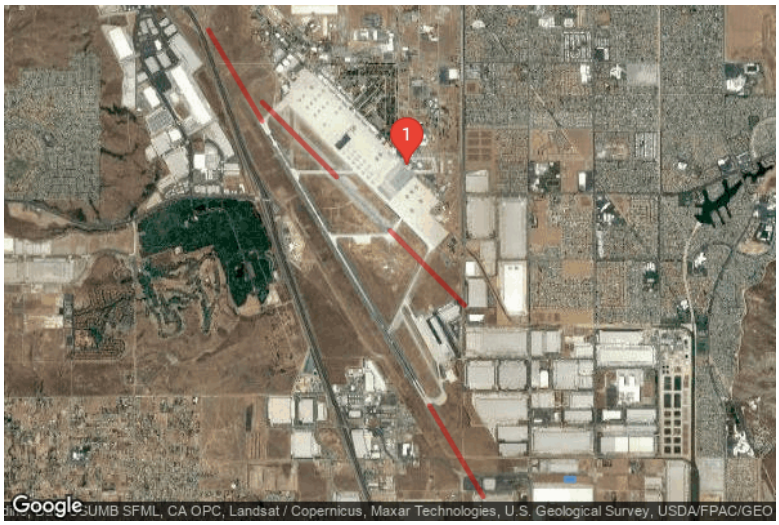
- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 87282.15425
Methodology: V2



PV Array(s)

Name: Rooftop Solar PV
Axis tracking: Fixed (no rotation)
Tilt: 10.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.857000	-117.230100	1464.00	50.00	1514.00
2	33.857000	-117.229000	1462.00	50.00	1512.00
3	33.856700	-117.229000	1462.00	50.00	1512.00
4	33.856700	-117.230100	1464.00	50.00	1514.00

Flight Path Receptor(s)

Name: RWY 12 Final
Description: None
Threshold height: 50 ft
Direction: 135.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.890258	-117.260681	1500.00	50.00	1550.00
Two-mile	33.898508	-117.270608	1500.00	1300.00	2800.00

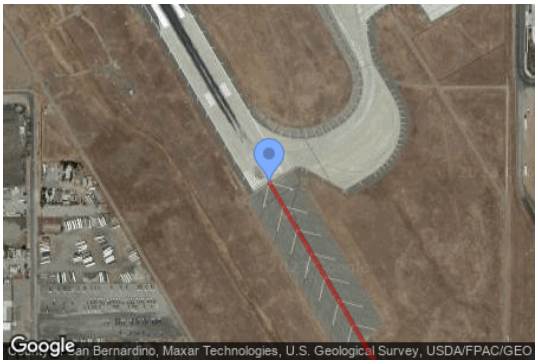
Name: RWY 14 Final
Description: None
Threshold height: 50 ft
Direction: 149.5°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.896431	-117.270636	1500.00	50.00	1550.00
Two-mile	33.906486	-117.277783	1500.00	1500.00	3000.00

Name: RWY 30 Final
Description: None
Threshold height: 50 ft
Direction: 315.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.884319	-117.253536	1500.00	50.00	1550.00
Two-mile	33.876069	-117.243611	1500.00	1300.00	2800.00

Name: RWY 32 Final
Description: None
Threshold height: 50 ft
Direction: 329.5°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.864994	-117.248281	1500.00	50.00	1550.00
Two-mile	33.854942	-117.241136	1500.00	1500.00	3000.00

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	33.891572	-117.251203	1511.00	118.00

Map image of 1-ATCT

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
Rooftop Solar PV	10.0	180.0	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
RWY 12 Final	0	0
RWY 14 Final	0	0
RWY 30 Final	0	0
RWY 32 Final	0	0
1-ATCT	0	0

Results for: Rooftop Solar PV

Receptor	Green Glare (min)	Yellow Glare (min)
RWY 12 Final	0	0
RWY 14 Final	0	0
RWY 30 Final	0	0
RWY 32 Final	0	0
1-ATCT	0	0

Flight Path: RWY 12 Final

0 minutes of yellow glare
0 minutes of green glare

Flight Path: RWY 14 Final

0 minutes of yellow glare
0 minutes of green glare

Flight Path: RWY 30 Final

0 minutes of yellow glare
0 minutes of green glare

Flight Path: RWY 32 Final

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: 1-ATCT

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to V1 algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Attachment A-2
2021 FAA Policy Review

FORGESOLAR GLARE ANALYSIS

Project: **Brew Enterprises II, LLC**

Proposed rooftop solar PV installation for project located along south side of Harley Knox Blvd., west of Perris Boulevard in the City of Perris, CA.

Site configuration: **Brew Ent II-All Final Approaches**

Created 29 Mar, 2023
Updated 29 Mar, 2023
Time-step 1 minute
Timezone offset UTC-8
Site ID 87282.15425
DNI peaks at 1,000.0 W/m^2
Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Glare Policy Adherence

The following table estimates the policy adherence of this glare analysis according to the **2021** U.S. Federal Aviation Administration Policy:

Review of Solar Energy System Projects on Federally-Obligated Airports

This policy may require the following criteria be met for solar energy systems on airport property:

- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics, including 1-minute time step.

ForgeSolar is not affiliated with the U.S. FAA and does not represent or speak officially for the U.S. FAA. ForgeSolar cannot approve or deny projects - results are informational only. Contact the relevant airport and FAA district office for information on policy and requirements.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
ATCT(s)	PASS	Receptor(s) marked as ATCT do not receive glare

The referenced policy can be read at https://www.federalregister.gov/d/2021-09862

Component Data

This report includes results for PV arrays and Observation Point ("OP") receptors marked as ATCTs. Components that are not pertinent to the policy, such as routes, flight paths, and vertical surfaces, are excluded.

PV Arrays

Name: Rooftop Solar PV
Axis tracking: Fixed (no rotation)
Tilt: 10.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.857000	-117.230100	1464.00	50.00	1514.00
2	33.857000	-117.229000	1462.00	50.00	1512.00
3	33.856700	-117.229000	1462.00	50.00	1512.00
4	33.856700	-117.230100	1464.00	50.00	1514.00

Observation Point ATCT Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	33.891572	-117.251203	1511.00	118.00

Map image of 1-ATCT

Glare Analysis Results

Summary of Results No glare predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Rooftop Solar PV	10.0	180.0	0	0.0	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
1-ATCT	0	0.0	0	0.0

PV: Rooftop Solar PV

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
1-ATCT	0	0.0	0	0.0

Rooftop Solar PV and 1-ATCT

Receptor type: ATCT Observation Point

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

Attachment B
March ARB Runway 12/30 General Aviation Traffic Pattern Analysis

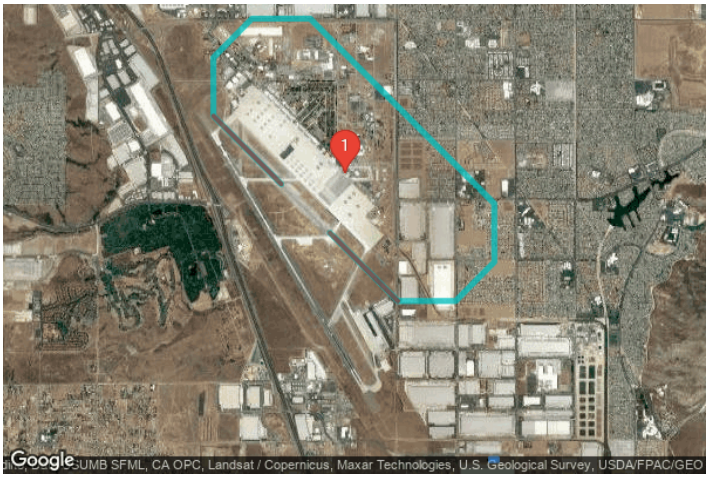
FORGESOLAR GLARE ANALYSIS

Project: **Brew Enterprises II, LLC**

Proposed rooftop solar PV installation for project located along south side of Harley Knox Blvd., west of Perris Boulevard in the City of Perris, CA.

Site configuration: **Brew Ent II-MARB Runway 12-30 GA Analysis**

Created 29 Mar, 2023
Updated 29 Mar, 2023
Time-step 1 minute
Timezone offset UTC-8
Site ID 87287.15425
Category 500 kW to 1 MW
(1,000 kW / 8 acre limit)
DNI peaks at 1,000.0 W/m^2
Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2



Summary of Results No glare predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Rooftop Solar PV	10.0	180.0	0	0.0	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 12 GA Pattern Route	0	0.0	0	0.0
RWY 30 GA Pattern Route	0	0.0	0	0.0
RWY 12 Final	0	0.0	0	0.0
RWY 30 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

Component Data

PV Arrays

Name: Rooftop Solar PV
Axis tracking: Fixed (no rotation)
Tilt: 10.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.857000	-117.230100	1464.00	50.00	1514.00
2	33.857000	-117.229000	1462.00	50.00	1512.00
3	33.856700	-117.229000	1462.00	50.00	1512.00
4	33.856700	-117.230100	1464.00	50.00	1514.00

Route Receptors

Name: RWY 12 GA Pattern Route
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.884319	-117.253536	1500.00	50.00	1550.00
2	33.876069	-117.243611	1500.00	1300.00	2800.00
3	33.876081	-117.235119	1500.00	1300.00	2800.00
4	33.880814	-117.229467	1500.00	1300.00	2800.00
5	33.887897	-117.229483	1500.00	1300.00	2800.00
6	33.910333	-117.256469	1500.00	1300.00	2800.00
7	33.910322	-117.264967	1500.00	1300.00	2800.00
8	33.905592	-117.270622	1500.00	1300.00	2800.00
9	33.898508	-117.270608	1500.00	1300.00	2800.00
10	33.890258	-117.260681	1500.00	50.00	1550.00

Name: RWY 30 GA Pattern Route
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.890258	-117.260681	1500.00	50.00	1550.00
2	33.898508	-117.270608	1500.00	1300.00	2800.00
3	33.905592	-117.270622	1500.00	1300.00	2800.00
4	33.910322	-117.264967	1500.00	1300.00	2800.00
5	33.910333	-117.256469	1500.00	1300.00	2800.00
6	33.887897	-117.229483	1500.00	1300.00	2800.00
7	33.880814	-117.229467	1500.00	1300.00	2800.00
8	33.876081	-117.235119	1500.00	1300.00	2800.00
9	33.876069	-117.243611	1500.00	1300.00	2800.00
10	33.884319	-117.253536	1500.00	50.00	1550.00

Flight Path Receptors

Name: RWY 12 Final
Description: None
Threshold height: 50 ft
Direction: 135.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.890258	-117.260681	1500.00	50.00	1550.00
Two-mile	33.898508	-117.270608	1500.00	1300.00	2800.00

Name: RWY 30 Final
Description: None
Threshold height: 50 ft
Direction: 315.0°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.884319	-117.253536	1500.00	50.00	1550.00
Two-mile	33.876069	-117.243611	1500.00	1300.00	2800.00

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	33.891572	-117.251203	1511.00	118.00

Map image of 1-ATCT

Glare Analysis Results

Summary of Results No glare predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Rooftop Solar PV	10.0	180.0	0	0.0	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 12 GA Pattern Route	0	0.0	0	0.0
RWY 30 GA Pattern Route	0	0.0	0	0.0
RWY 12 Final	0	0.0	0	0.0
RWY 30 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

PV: Rooftop Solar PV no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 12 GA Pattern Route	0	0.0	0	0.0
RWY 30 GA Pattern Route	0	0.0	0	0.0
RWY 12 Final	0	0.0	0	0.0
RWY 30 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

Rooftop Solar PV and RWY 12 GA Pattern Route

Receptor type: Route

No glare found

Rooftop Solar PV and RWY 30 GA Pattern Route

Receptor type: Route

No glare found

Rooftop Solar PV and RWY 12 Final

Receptor type: 2-mile Flight Path

No glare found

Rooftop Solar PV and RWY 30 Final

Receptor type: 2-mile Flight Path

No glare found

Rooftop Solar PV and 1-ATCT

Receptor type: Observation Point

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

Attachment C
March ARB Runway 14/32 General Aviation Traffic Pattern Analysis

FORGESOLAR GLARE ANALYSIS

Project: **Brew Enterprises II, LLC**

Proposed rooftop solar PV installation for project located along south side of Harley Knox Blvd., west of Perris Boulevard in the City of Perris, CA.

Site configuration: **Brew Ent II-MARB Runway 14-32 GA Analysis**

Created 29 Mar, 2023
Updated 29 Mar, 2023
Time-step 1 minute
Timezone offset UTC-8
Site ID 87288.15425
Category 500 kW to 1 MW
(1,000 kW / 8 acre limit)
DNI peaks at 1,000.0 W/m^2
Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Rooftop Solar PV	10.0	180.0	5,399	90.0	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 14 GA Pattern Route	2,512	41.9	0	0.0
RWY 32 GA Pattern Route	2,887	48.1	0	0.0
RWY 14 Final	0	0.0	0	0.0
RWY 32 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

Component Data

PV Arrays

Name: Rooftop Solar PV
Axis tracking: Fixed (no rotation)
Tilt: 10.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.857000	-117.230100	1464.00	50.00	1514.00
2	33.857000	-117.229000	1462.00	50.00	1512.00
3	33.856700	-117.229000	1462.00	50.00	1512.00
4	33.856700	-117.230100	1464.00	50.00	1514.00

Route Receptors

Name: RWY 14 GA Pattern Route
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.864994	-117.248281	1500.00	50.00	1550.00
2	33.854942	-117.241136	1500.00	1500.00	3000.00
3	33.848078	-117.243236	1500.00	1500.00	3000.00
4	33.844669	-117.250119	1500.00	1500.00	3000.00
5	33.846422	-117.258344	1500.00	1500.00	3000.00
6	33.897972	-117.295011	1500.00	1500.00	3000.00
7	33.904833	-117.292903	1500.00	1500.00	3000.00
8	33.908242	-117.286017	1500.00	1500.00	3000.00
9	33.906486	-117.277783	1500.00	1500.00	3000.00
10	33.896431	-117.270636	1500.00	50.00	1550.00

Name: RWY 32 GA Pattern Route
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.896431	-117.270636	1500.00	50.00	1550.00
2	33.906486	-117.277783	1500.00	1500.00	3000.00
3	33.908242	-117.286017	1500.00	1500.00	3000.00
4	33.904833	-117.292903	1500.00	1500.00	3000.00
5	33.897972	-117.295011	1500.00	1500.00	3000.00
6	33.846422	-117.258344	1500.00	1500.00	3000.00
7	33.844669	-117.250119	1500.00	1500.00	3000.00
8	33.848078	-117.243236	1500.00	1500.00	3000.00
9	33.854942	-117.241136	1500.00	1500.00	3000.00
10	33.864994	-117.248281	1500.00	50.00	1550.00

Flight Path Receptors

Name: RWY 14 Final
Description: None
Threshold height: 50 ft
Direction: 149.5°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.896431	-117.270636	1500.00	50.00	1550.00
Two-mile	33.906486	-117.277783	1500.00	1500.00	3000.00

Name: RWY 32 Final
Description: None
Threshold height: 50 ft
Direction: 329.5°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.864994	-117.248281	1500.00	50.00	1550.00
Two-mile	33.854942	-117.241136	1500.00	1500.00	3000.00

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	33.891572	-117.251203	1511.00	118.00

Map image of 1-ATCT

Glare Analysis Results

Summary of Results Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Rooftop Solar PV	10.0	180.0	5,399	90.0	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 14 GA Pattern Route	2,512	41.9	0	0.0
RWY 32 GA Pattern Route	2,887	48.1	0	0.0
RWY 14 Final	0	0.0	0	0.0
RWY 32 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

PV: Rooftop Solar PV low potential for temporary after-image

Receptor results ordered by category of glare

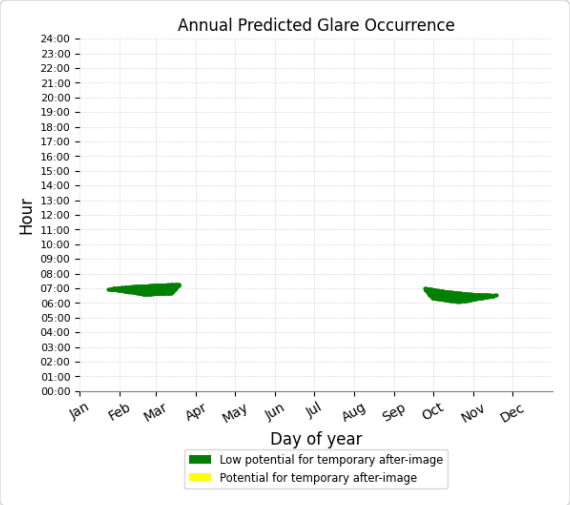
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 14 GA Pattern Route	2,512	41.9	0	0.0
RWY 32 GA Pattern Route	2,887	48.1	0	0.0
RWY 14 Final	0	0.0	0	0.0
RWY 32 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

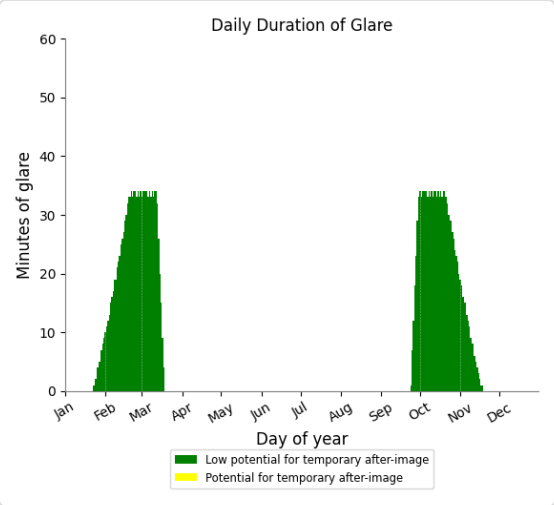
Rooftop Solar PV and RWY 14 GA Pattern Route

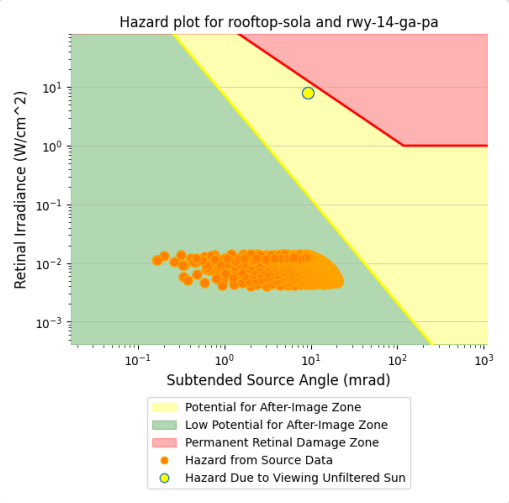
Receptor type: Route

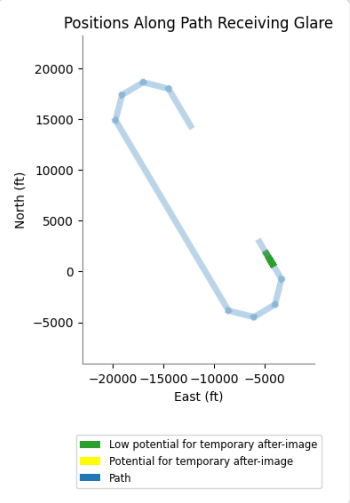
0 minutes of yellow glare

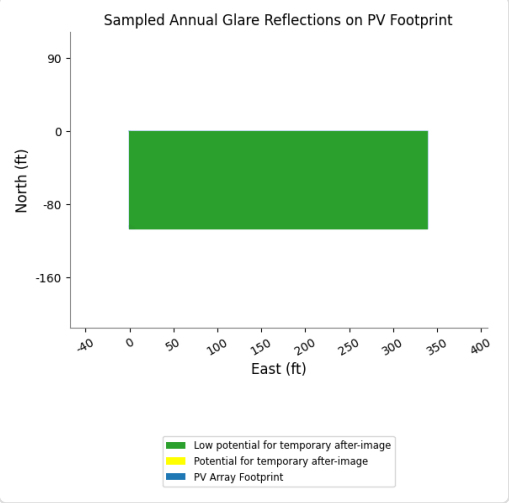
2,512 minutes of green glare









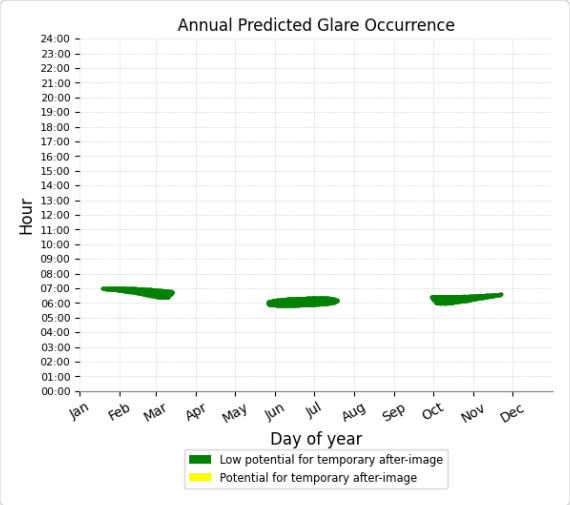


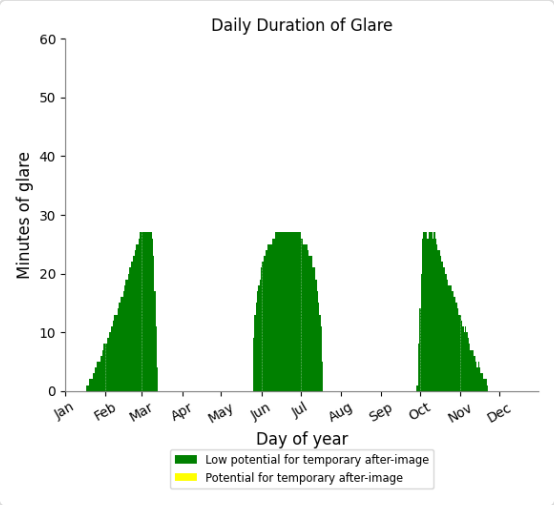
Rooftop Solar PV and RWY 32 GA Pattern Route

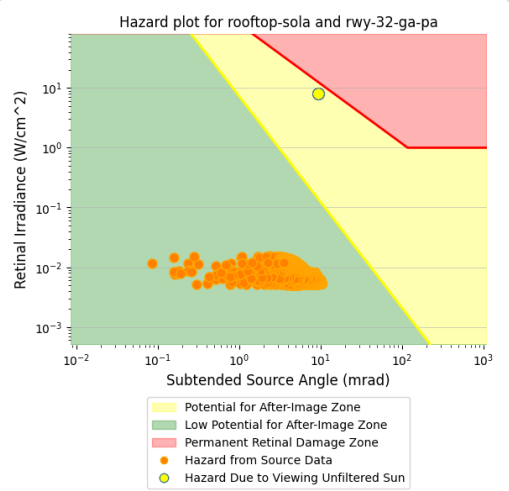
Receptor type: Route

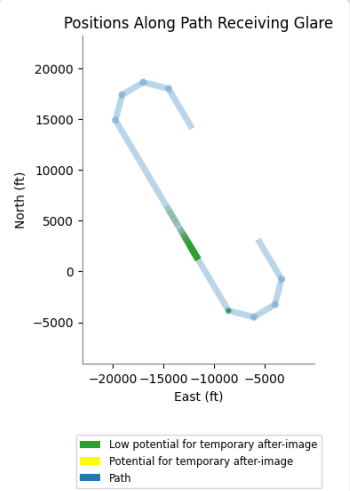
0 minutes of yellow glare

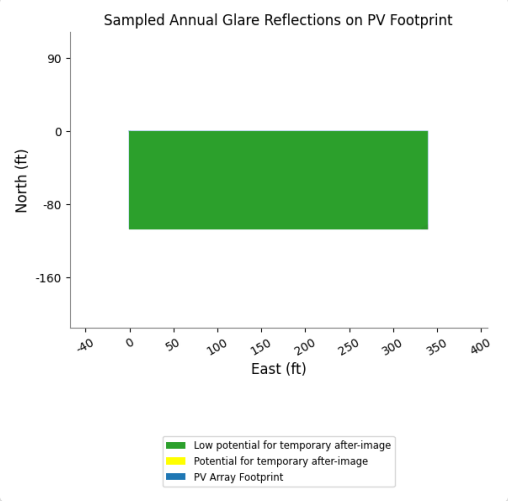
2,887 minutes of green glare











Rooftop Solar PV and RWY 14 Final

Receptor type: 2-mile Flight Path

No glare found

Rooftop Solar PV and RWY 32 Final

Receptor type: 2-mile Flight Path

No glare found

Rooftop Solar PV and 1-ATCT

Receptor type: Observation Point

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

Attachment D
March ARB Runway 14/32 C-17/KC-135 Traffic Pattern Analysis

FORGESOLAR GLARE ANALYSIS

Project: **Brew Enterprises II, LLC**

Proposed rooftop solar PV installation for project located along south side of Harley Knox Blvd., west of Perris Boulevard in the City of Perris, CA.

Site configuration: **Brew Ent II-MARB RWY 14-32 C-17 Analysis**

Created 29 Mar, 2023
Updated 29 Mar, 2023
Time-step 1 minute
Timezone offset UTC-8
Site ID 87290.15425
Category 500 kW to 1 MW
(1,000 kW / 8 acre limit)
DNI peaks at 1,000.0 W/m^2
Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Rooftop Solar PV	10.0	180.0	1,573	26.2	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 14 C-17 - KC-135 Pattern Route	809	13.5	0	0.0
RWY 32 C-17 - KC-135 Pattern Route	764	12.7	0	0.0
RWY 14 Final	0	0.0	0	0.0
RWY 32 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

Component Data

PV Arrays

Name: Rooftop Solar PV
Axis tracking: Fixed (no rotation)
Tilt: 10.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.857000	-117.230100	1464.00	50.00	1514.00
2	33.857000	-117.229000	1462.00	50.00	1512.00
3	33.856700	-117.229000	1462.00	50.00	1512.00
4	33.856700	-117.230100	1464.00	50.00	1514.00

Route Receptors

Name: RWY 14 C-17 - KC-135 Pattern Route
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.864994	-117.248281	1500.00	50.00	1550.00
2	33.836269	-117.227869	1500.00	1500.00	3000.00
3	33.821961	-117.228367	1500.00	1500.00	3000.00
4	33.813147	-117.244350	1500.00	1500.00	3000.00
5	33.819225	-117.262269	1500.00	1500.00	3000.00
6	33.908131	-117.325528	1500.00	1500.00	3000.00
7	33.922394	-117.325047	1500.00	1500.00	3000.00
8	33.931244	-117.309014	1500.00	1500.00	3000.00
9	33.925156	-117.291061	1500.00	1500.00	3000.00
10	33.896431	-117.270636	1500.00	50.00	1550.00

Name: RWY 32 C-17 - KC-135 Pattern Route
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.896431	-117.270636	1500.00	50.00	1550.00
2	33.925156	-117.291061	1500.00	1500.00	3000.00
3	33.931244	-117.309014	1500.00	1500.00	3000.00
4	33.922394	-117.325047	1500.00	1500.00	3000.00
5	33.908131	-117.325528	1500.00	1500.00	3000.00
6	33.819225	-117.262269	1500.00	1500.00	3000.00
7	33.813147	-117.244350	1500.00	1500.00	3000.00
8	33.821961	-117.228367	1500.00	1500.00	3000.00
9	33.836269	-117.227869	1500.00	1500.00	3000.00
10	33.864994	-117.248281	1500.00	50.00	1550.00

Flight Path Receptors

Name: RWY 14 Final
Description: None
Threshold height: 50 ft
Direction: 149.5°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.896431	-117.270636	1500.00	50.00	1550.00
Two-mile	33.906486	-117.277783	1500.00	1500.00	3000.00

Name: RWY 32 Final
Description: None
Threshold height: 50 ft
Direction: 329.5°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.864994	-117.248281	1500.00	50.00	1550.00
Two-mile	33.854942	-117.241136	1500.00	1500.00	3000.00

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	33.891572	-117.251203	1511.00	118.00

Map image of 1-ATCT

Glare Analysis Results

Summary of Results Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Rooftop Solar PV	10.0	180.0	1,573	26.2	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 14 C-17 - KC-135 Pattern Route	809	13.5	0	0.0
RWY 32 C-17 - KC-135 Pattern Route	764	12.7	0	0.0
RWY 14 Final	0	0.0	0	0.0
RWY 32 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

PV: Rooftop Solar PV low potential for temporary after-image

Receptor results ordered by category of glare

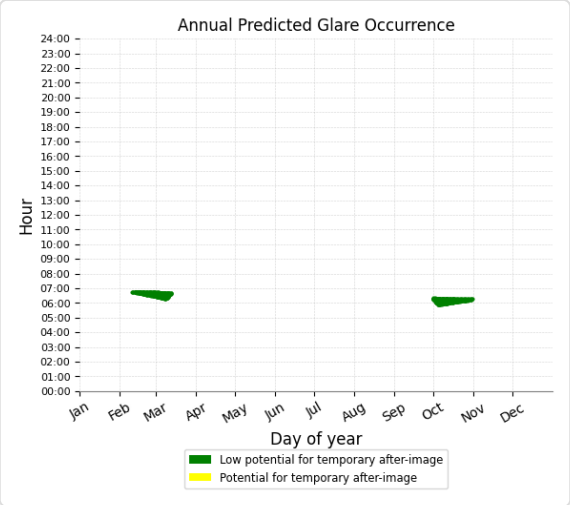
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 14 C-17 - KC-135 Pattern Route	809	13.5	0	0.0
RWY 32 C-17 - KC-135 Pattern Route	764	12.7	0	0.0
RWY 14 Final	0	0.0	0	0.0
RWY 32 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

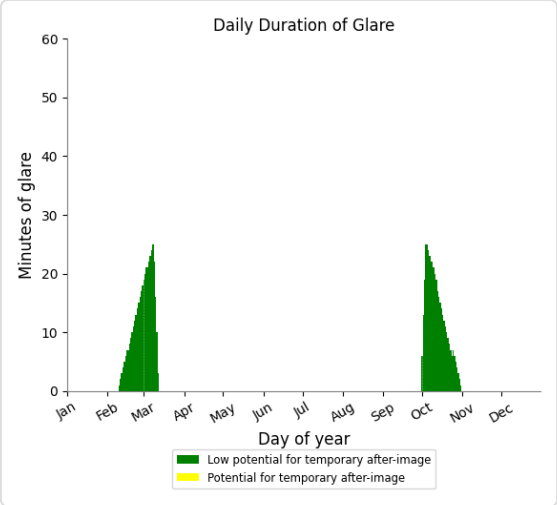
Rooftop Solar PV and RWY 14 C-17 - KC-135 Pattern Route

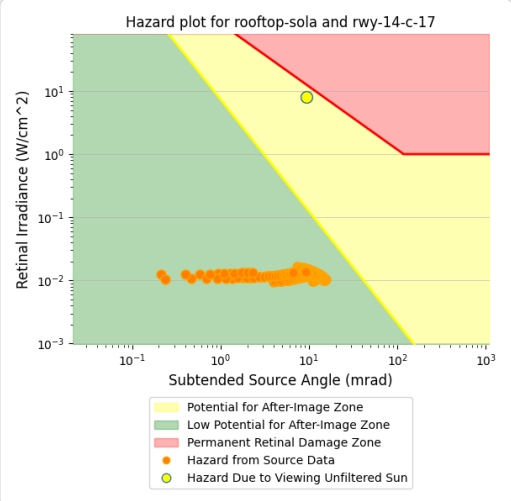
Receptor type: Route

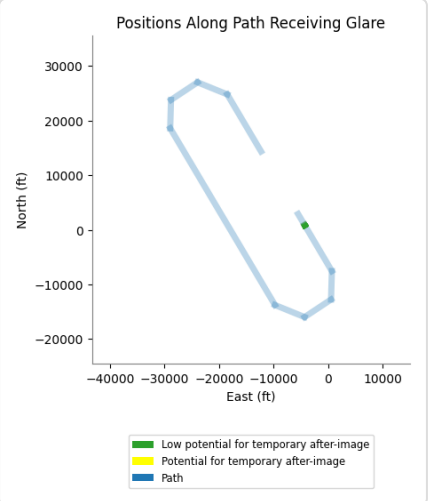
0 minutes of yellow glare

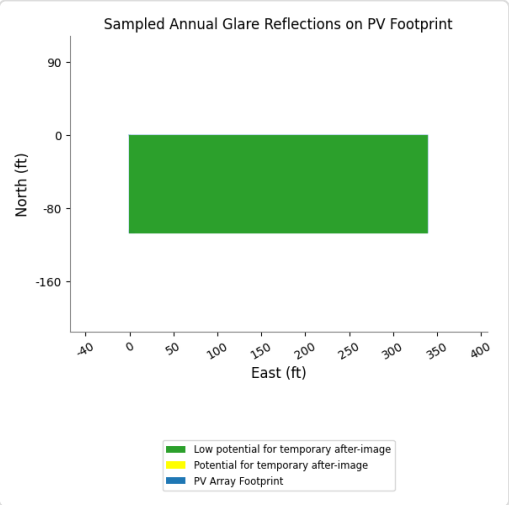
809 minutes of green glare









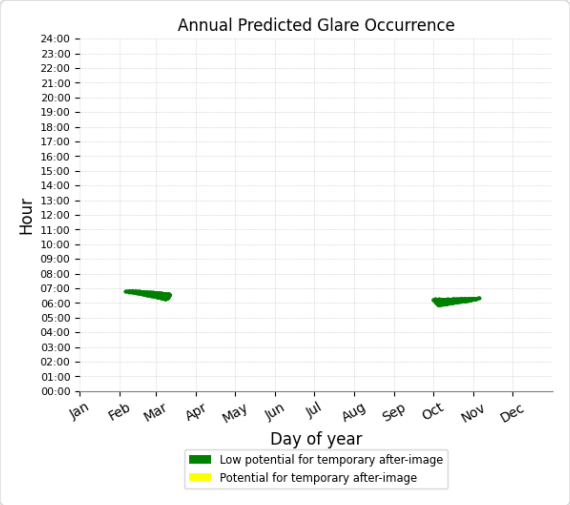


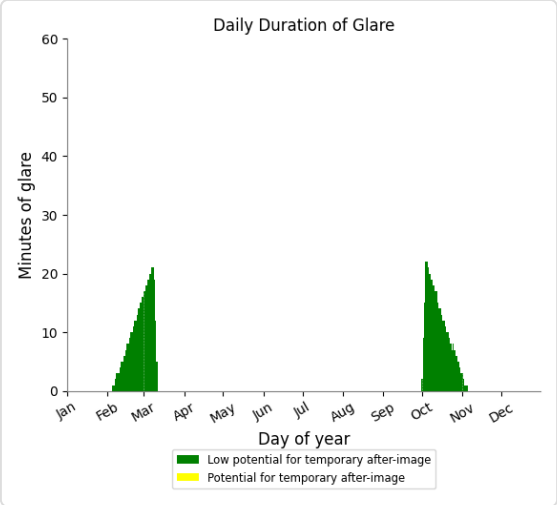
Rooftop Solar PV and RWY 32 C-17 - KC-135 Pattern Route

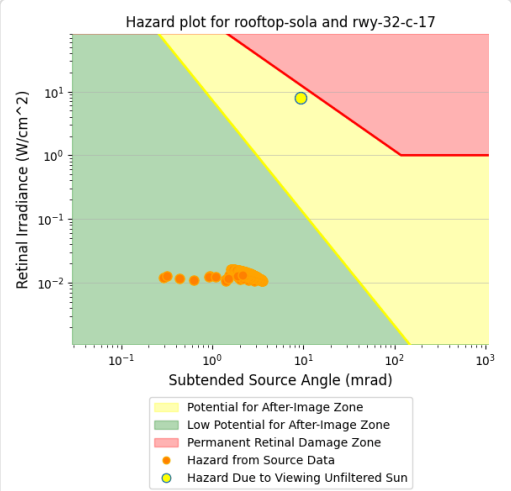
Receptor type: Route

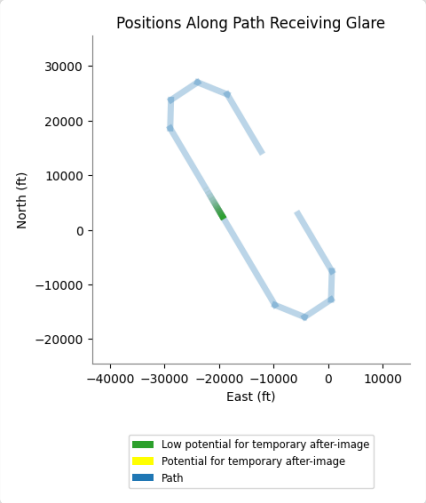
0 minutes of yellow glare

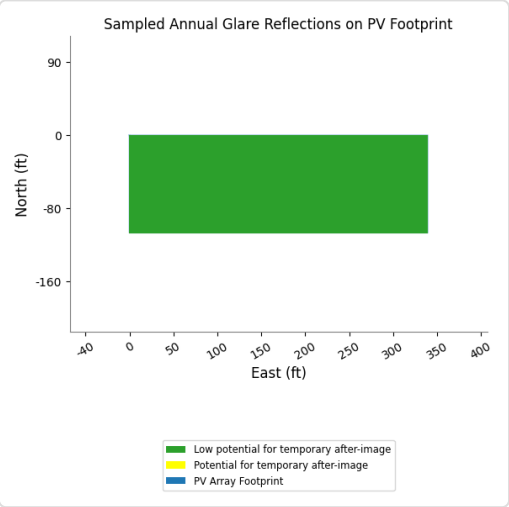
764 minutes of green glare











Rooftop Solar PV and RWY 14 Final

Receptor type: 2-mile Flight Path

No glare found

Rooftop Solar PV and RWY 32 Final

Receptor type: 2-mile Flight Path

No glare found

Rooftop Solar PV and 1-ATCT

Receptor type: Observation Point

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

Attachment E
March ARB Runway 14/32 Overhead Traffic Pattern Analysis

FORGESOLAR GLARE ANALYSIS

Project: **Brew Enterprises II, LLC**

Proposed rooftop solar PV installation for project located along south side of Harley Knox Blvd., west of Perris Boulevard in the City of Perris, CA.

Site configuration: **Brew Ent II-MARB RWY 14-32 Overhead Analysis**

Created 29 Mar, 2023
Updated 29 Mar, 2023
Time-step 1 minute
Timezone offset UTC-8
Site ID 87292.15425
Category 500 kW to 1 MW
(1,000 kW / 8 acre limit)
DNI peaks at 1,000.0 W/m^2
Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Rooftop Solar PV	10.0	180.0	478	8.0	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 14 Overhead Route	0	0.0	0	0.0
RWY 32 Overhead Route	478	8.0	0	0.0
RWY 14 Final	0	0.0	0	0.0
RWY 32 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

Component Data

PV Arrays

Name: Rooftop Solar PV
Axis tracking: Fixed (no rotation)
Tilt: 10.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.857000	-117.230100	1464.00	50.00	1514.00
2	33.857000	-117.229000	1462.00	50.00	1512.00
3	33.856700	-117.229000	1462.00	50.00	1512.00
4	33.856700	-117.230100	1464.00	50.00	1514.00

Route Receptors

Name: RWY 14 Overhead Route
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.968036	-117.322128	1500.00	2000.00	3500.00
2	33.880706	-117.259453	1500.00	2000.00	3500.00
3	33.863564	-117.293808	1500.00	2000.00	3500.00
4	33.908131	-117.325528	1500.00	2000.00	3500.00
5	33.925156	-117.291061	1500.00	2000.00	3500.00
6	33.896431	-117.270636	1500.00	50.00	1550.00

Name: RWY 32 Overhead Route
Path type: One-way (toward increasing index)
Observer view angle: 50.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	33.793375	-117.196878	1500.00	2000.00	3500.00
2	33.880706	-117.259453	1500.00	2000.00	3500.00
3	33.863564	-117.293808	1500.00	2000.00	3500.00
4	33.819225	-117.262269	1500.00	2000.00	3500.00
5	33.836269	-117.227869	1500.00	2000.00	3500.00
6	33.864994	-117.248281	1500.00	50.00	1550.00

Flight Path Receptors

Name: RWY 14 Final
Description: None
Threshold height: 50 ft
Direction: 149.5°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.896431	-117.270636	1500.00	50.00	1550.00
Two-mile	33.906486	-117.277783	1500.00	2000.00	3500.00

Name: RWY 32 Final
Description: None
Threshold height: 50 ft
Direction: 329.5°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	33.864994	-117.248281	1500.00	50.00	1550.00
Two-mile	33.854942	-117.241136	1500.00	2000.00	3500.00

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
1-ATCT	1	33.891572	-117.251203	1511.00	118.00

Map image of 1-ATCT

Glare Analysis Results

Summary of Results

Glare with low potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Rooftop Solar PV	10.0	180.0	478	8.0	0	0.0	-

Total annual glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 14 Overhead Route	0	0.0	0	0.0
RWY 32 Overhead Route	478	8.0	0	0.0
RWY 14 Final	0	0.0	0	0.0
RWY 32 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

PV: Rooftop Solar PV

low potential for temporary after-image

Receptor results ordered by category of glare

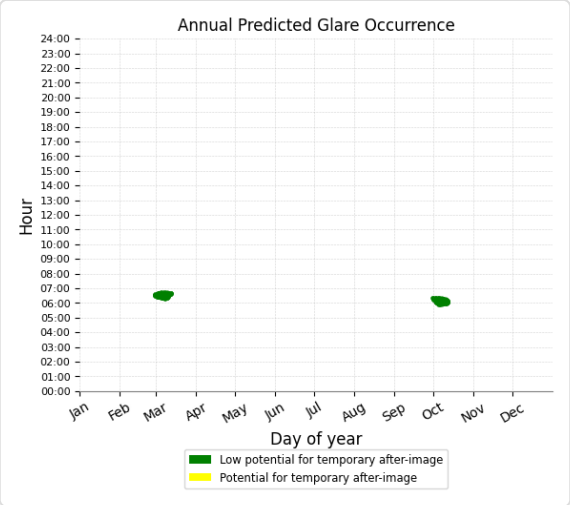
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
RWY 32 Overhead Route	478	8.0	0	0.0
RWY 14 Overhead Route	0	0.0	0	0.0
RWY 14 Final	0	0.0	0	0.0
RWY 32 Final	0	0.0	0	0.0
1-ATCT	0	0.0	0	0.0

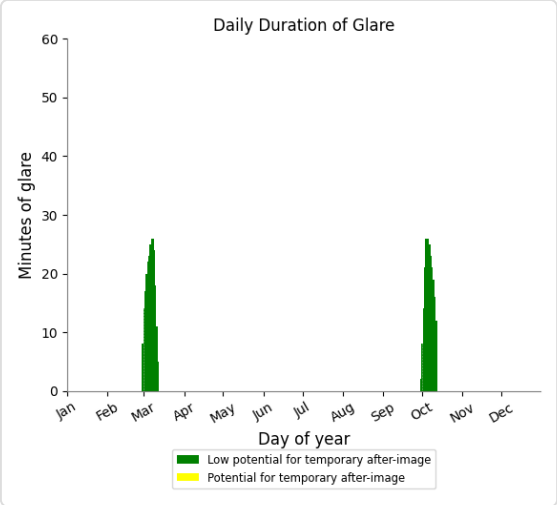
Rooftop Solar PV and RWY 32 Overhead Route

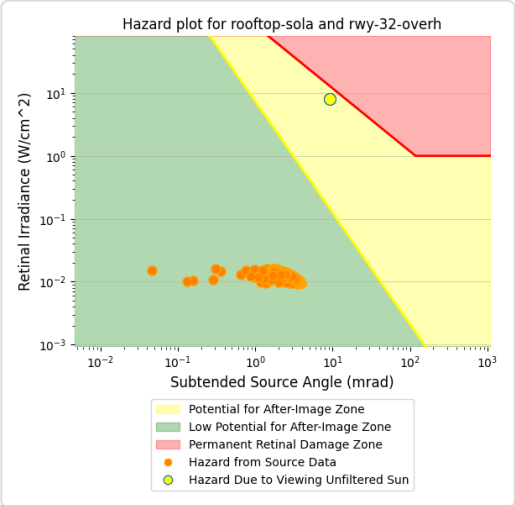
Receptor type: Route

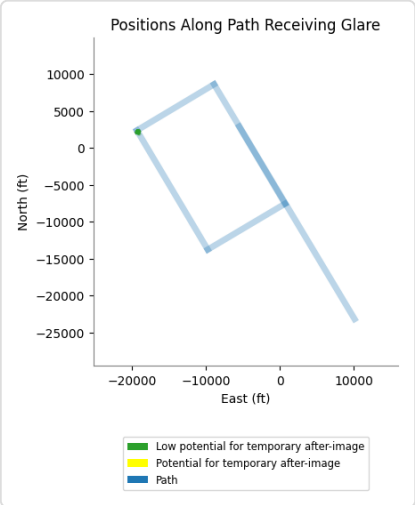
0 minutes of yellow glare

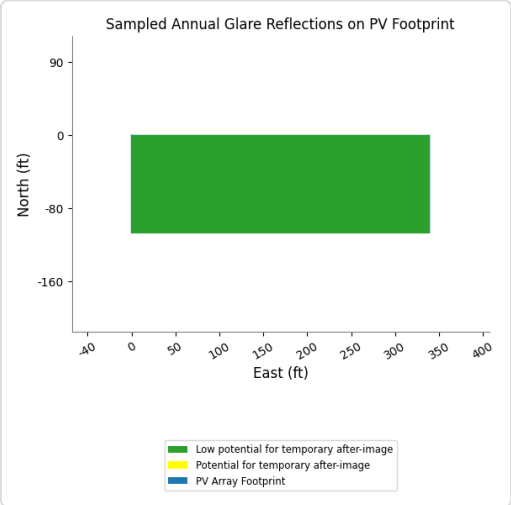
478 minutes of green glare











Rooftop Solar PV and RWY 14 Overhead Route

Receptor type: Route

No glare found

Rooftop Solar PV and RWY 14 Final

Receptor type: 2-mile Flight Path

No glare found

Rooftop Solar PV and RWY 32 Final

Receptor type: 2-mile Flight Path

No glare found

Rooftop Solar PV and 1-ATCT

Receptor type: Observation Point

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
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The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
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The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

NOTICE OF PUBLIC HEARING

RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION

www.rcaluc.org

A PUBLIC HEARING has been scheduled before the Riverside County Airport Land Use Commission (ALUC) to consider the applications described below.

Any person may submit written comments to the ALUC before the hearing or may appear and be heard in support of or opposition to the project at the time of hearing. **Information on how to participate in the hearing will be available on the ALUC website at www.rcaluc.org.** The ALUC holds hearings for local discretionary permits within the Airport Influence Area, reviewing for aeronautical safety, noise and obstructions. ALUC reviews a proposed plan or project solely to determine whether it is consistent with the applicable Airport Land Use Compatibility Plan. For more information please contact **ALUC Planner Jackie Vega at (951) 955-0982**.

The City of Perris Planning Department should be contacted on non-ALUC issues. For more information, please contact City of Perris Planner Alfredo Garcia at 951-943-5003.

The proposed project application may be viewed by a prescheduled appointment and on the ALUC website www.rcaluc.org. Written comments may be submitted at the Riverside County Administrative Center, 4080 Lemon Street, 14th Floor, Riverside, California 92501, Monday through Friday from 8:00 a.m. to 3:30 p.m., or by e-mail to javega@rivco.org. Individuals with disabilities requiring reasonable modifications or accommodations, please contact Barbara Santos at (951) 955-5132.

PLACE OF HEARING:	**Riverside County Administration Center** **4080 Lemon Street, 1st Floor Board Chambers** **Riverside California**
DATE OF HEARING:	**May 11, 2023**
TIME OF HEARING:	**9:30 A.M.**

CASE DESCRIPTION:

ZAP1566MA23 – Brew Enterprises II, LLC (Representative: Johnson Aviation Inc.) – City of Perris Case Nos. SPA22-05375 (Specific Plan Amendment**),** PLN22-00036 (Development Plan Review). A proposal to construct a 58,974 square foot industrial building with mezzanines on 4.01 acres, located southerly of Harley Knox Boulevard, westerly of Perris Boulevard, and easterly of Indian Street. The applicant also proposes to construct a 42,000 square foot solar panel system on the proposed industrial building. The applicant also proposes to amend the Perris Valley Commerce Center Specific Plan Land Use Designation, changing the sites zoning from Commercial (C) to Light Industrial (LI). (Airport Compatibility Zone D of the March Air Reserve Base/Inland Port Airport Influence Area).

RIVERSIDE COUNTY
AIRPORT LAND USE COMMISSION

APPLICATION FOR MAJOR LAND USE ACTION REVIEW

ALUC STAFF ONLY

ALUC Case Number: ZAP1566MA23 Date Submitted: 3/29/23

AIA: March Zone: D Public Hearing ☑ Staff Review ☐

Applicant

Applicant Full Name: Brew Enterprises II, LLC

Applicant Address: 3535 INLAND EMPIRE BLVD ONTARIO, CA 9164

Phone: 909-373-2915 **Email:** mwolfe@lee-assoc.com

Representative/ Property Owner Contact Information

Representative: Nick Johnson **Email:** nick@jacair.com

Phone: 818-606-3560

Address: 6524 Deerbrook Road Oak Park, CA 91377

Property Owner: Brew Enterprises II, LLC **Email:** mwolfe@lee-assoc.com

Phone: 909-373-2915

Address: 3535 INLAND EMPIRE BLVD ONTARIO, CA 9164

Local Jurisdiction Agency

Agency Name: City of Perris - Planning Phone: (951) 943-5003 ext. 287

Staff Contact: Alfredo Garcia **Email:** algarcia@cityofperris.org

Address: 135 N D St, Perris, CA 92570 : :

Local Agency Case No.: Specific Plan Amendment (SPA) 22-05375 and Development Plan Review (DPR) PLN22-00036

Project Location

Street Address: South of Harley Knox Boulevard; West of Perris Boulevard Gross Parcel Size.: 4.01 gross acres

Assessor's Parcel No.: 302-090-021

Solar

Is the project proposing solar Panels? Yes ☑ No ☐ If yes, please provide solar glare study. (only if in Zone C or higher)

Data

Site Elevation:(above mean sea level)	1,463 feet above mean sea level (AMSL)
Height of Building or structures:	43 feet to 45 feet to parapet
What type of drainage basins are being proposed and the square footage:	Underground modular wetlands system BMPs (all underground chambers, no above ground basins)

Notice

A. NOTICE: Failure of an applicant to submit complete or adequate information pursuant to Sections 65940 to 65948 inclusive of the California Government Code, MAY constitute grounds for disapproval of actions, regulations, or permits.

B. REVIEW TIME: Estimated time for "staff level review" is approximately 30 days from date of submittal. Estimated time for "commission level review" is approximately 45 days from date of a complete application submittal to the next available commission hearing meeting.

C. SUBMISSION PACKAGE:

Please submit all application items DIGITALLY via USB or CD:

- Completed ALUC Application Form
- Plans Package: site plans, floor plans, building elevations, grading plans, subdivision maps
- Exhibits of change of zone, general plan amendment, specific plan amendment
- Project description of existing and proposed use

Additionally, please provide:

- ALUC fee payment (Checks made out to Riverside County ALUC)
- Gummed address labels of all surrounding property owners within a 300-foot radius of project site. (Only required if the project is scheduled for a public hearing).

Riverside County Airport Land Use Commission, County Administrative Center, 4080 Lemon Street, 14th Floor, Riverside, CA 92501, Phone: 951-955-5132 Fax: 951-955-5177 Website: www.rcaluc.org

RIVERSIDE COUNTY
AIRPORT LAND USE COMMISSION

STAFF REPORT

ADMINISTRATIVE ITEMS

5.1 Director's Approvals

A. During the period of March 16, 2023, through April 15, 2023, as authorized pursuant to Section 1.5.2(d) of the 2004 Riverside County Airport Land Use Compatibility Plan, ALUC Director Paul Rull reviewed one non-legislative case and issued a determination of consistency.

ZAP1567MA23 (Zone E) pertains to County of Riverside Case No. TPM 38101 (Parcel Map), a proposal to divide 4.93 acres into four residential lots, located on the northerly of Olympia Avenue, southerly of Steele Peak Drive, easterly of Springs Street, and westerly of Theda Street. The project is located within Compatibility Zone E of March Air Reserve Base/Inland Port Airport Influence Area, where Zone E does not restrict residential density. Although the project is located within the March Air Reserve Base/Inland Port Airport Influence Area, the nearest runway is actually Runway 15-33 at Perris Valley Airport. The elevation of Runway 15-33 at Perris Valley Airport is approximately 1,413 feet above mean sea level (AMSL) at its northerly terminus. At a distance of 17,070 feet from the project to the nearest point on the runway, Federal Aviation Administration Obstruction Evaluation Service (FAA OES) review would be required for any structures with an elevation at top of roof exceeding 1,588 feet AMSL. The project site elevation is 1,602 feet AMSL. No building permits for new structures are in process at this time, and review by the Federal Aviation Administration Obstruction Evaluation Services (FAA OES) is not a prerequisite to land division. Therefore, FAA OES review for height/elevation reasons was not required. However, a condition has been included that any future buildings will require FAA OES review before permit issuance.

ALUC Director Paul Rull issued a determination of consistency for this project on April11, 2023.

B. Additionally, ALUC Director Paul Rull reviewed one local jurisdiction non-impact legislative cases pursuant to ALUC Resolution No. 2011-02, and issued a determination of consistency.

ZAP1071RG23 (Citywide) pertains to City of Menifee General Plan Amendment (LR23-0013), a proposal amending the City's General Plan Circulation and Safety Elements to remove and realign various roadway segments and add clarifying language to the Local Hazard Mitigation Plan to be consistent with State Assembly Bill (AB) 2140

ALUC Director Paul Rull issued a determination of consistency for this project on March 24, 2023.

C. Additionally, as authorized pursuant to ALUC Resolution No. 2015-01, as extended by Resolution No. 2020-01, ALUC Director Paul Rull reviewed two legislative cases in Zone E within March Air Reserve Base/Inland Port Airport Influence Area and issued determinations of consistency.

ZAP1563MA23 (Zone E) pertains to County Case Nos. GPA210220 (General Plan Amendment), CZ210236 (Change of Zone), TTM38272 (Tentative Tract Map), PP210248 (Plot Plan), a proposal to divide 29.11 gross acres into two lots in conjunction with condominium ownership of 221 residential units located northerly of Matthews Road and easterly of Briggs Road. The applicant also proposes to amend the site's General Plan land use designation from Light Industrial to Medium High Density Residential, and also change the site's zoning from A-P (Light Agriculture with Poultry) to R-4 (Planned Residential).The site is located within Airport Compatibility Zone E of the March Air Reserve Base/Inland Port Airport Influence Area (AIA). Within Compatibility Zone E of the March Air Reserve Base/Inland Port Airport Land Use

Compatibility Plan, residential density is not restricted. Although the project is located within the March Air Reserve Base/Inland Port Airport Influence Area, the nearest runway is actually Runway 15-33 at Perris Valley Airport. The elevation of Runway 15-33 at Perris Valley Airport is approximately 1,413 feet above mean sea level (AMSL) at its southerly terminus. At a distance of 28,000 feet from the project to the nearest point on the runway, Federal Aviation Administration Obstruction Evaluation Service (FAA OES) review would be required for any structures taller than 200 feet in height. The project proposes a maximum structure height of 38 feet. Therefore, FAA OES review for height/elevation is not required.

ALUC Director Paul Rull issued a determination of consistency for this project on March 16, 2023.

****

ZAP1565MA23 (Zone E) pertains to City of Riverside Case No. PR-2023-001469 (General Plan Amendment, Specific Plan Amendment, Rezone, Plot Plan, Tentative Tract Map), a proposal to construct a mixed-use development consisting of 363 apartment units and a 2,000 square foot retail building on 8.48 acres located southerly of 4th street, easterly of Commerce Street, westerly of Park Avenue, and northerly of Mission Inn Avenue. The applicant also proposes amending the site's General Plan land use designation from Business/Office Park to Mixed-Use Urban, and change its zoning from BMP-SP Business and Manufacturing Park and Specific Plan (Riverside Marketplace) overlay zones and BMP-SP-CR Business and Manufacturing Park, Specific Plan (Riverside Marketplace), and cultural resource overlay zone to MU-U Mixed Use-Urban and Specific Plan (Riverside Marketplace) overlay zone. The applicant also proposes amending the Riverside Marketplace Specific Plan to expand the Mixed-Use Marketplace Sub Area to include the subject property. The applicant also proposes to combine 13 parcels into 2 parcels. The project is located within Compatibility Zone E of March Air Reserve Base/Inland Port Airport Influence Area (March AIA), where Zone E does not restrict residential density or non-residential intensity. Although the project is located within the March AIA, the nearest runway is Flabob Airport, which its easterly runway elevation is 768 feet above mean sea level (AMSL). Due to the runway length (3,200 feet), the relevant slope for notice purpose is a 50:1 surface. At a distance of approximately 12,300 feet from the project to the nearest point on the runway, Federal Aviation Administration (FAA) review would be required for any structures with top of roof exceeding 1,014 feet AMSL. The project's site elevation is 874 feet AMSL with a proposed building height of 49 feet, resulting in a top point elevation of 923 feet AMSL. Therefore, review of the building for height/elevation reasons by the FAA Obstruction Evaluation Service (FAAOES) was not required.

ALUC Director Paul Rull issued a determination of consistency for this project on April 14, 2023.

5.2 Update March Air Reserve Base Compatibility Use Study (CUS)
Presentation by Project Director Simon Housman or his designee.

X:\ALUC Administrative Items\Admin. 2023\ADmin Item 5-11-23.doc

RIVERSIDE COUNTY
AIRPORT LAND USE COMMISSION

April 11, 2023

Rene Aguilar, Project Planner
County of Riverside Planning Department
4080 Lemon Street, 12th Floor
Riverside CA 92501

County Administrative Center
4080 Lemon St.,14th Floor.
Riverside, CA 92501
(951) 955-5132

www.rcaluc.org

RE: AIRPORT LAND USE COMMISSION (ALUC) DEVELOPMENT REVIEW – DIRECTOR'S DETERMINATION

File No.:	ZAP1567MA23
Related File No.:	TPM 38101 (Tentative Parcel Map)
APN:	343-220-016
Airport Zone:	Zone E

Dear Mr. Aguilar:

Under the delegation of the Riverside County Airport Land Use Commission (ALUC) as authorized pursuant to Section 1.5.2(d) of the 2004 Riverside County Airport Land Use Compatibility Plan , staff reviewed County of Riverside Case No. TPM 38101 (Parcel Map), a proposal to divide 4.93 acres into four residential lots, located on the northerly of Olympia Avenue, southerly of Steele Peak Drive, easterly of Springs Street, and westerly of Theda Street.

The project is located within Compatibility Zone E of March Air Reserve Base/Inland Port Airport Influence Area, where Zone E does not restrict residential density.

Although the project is located within the March Air Reserve Base/Inland Port Airport Influence Area, the nearest runway is actually Runway 15-33 at Perris Valley Airport. The elevation of Runway 15-33 at Perris Valley Airport is approximately 1,413 feet above mean sea level (AMSL) at its northerly terminus. At a distance of 17,070 feet from the project to the nearest point on the runway, Federal Aviation Administration Obstruction Evaluation Service (FAA OES) review would be required for any structures with an elevation at top of roof exceeding 1,588 feet AMSL. The project site elevation is 1,602 feet AMSL. No building permits for new structures are in process at this time, and review by the Federal Aviation Administration Obstruction Evaluation Services (FAA OES) is not a prerequisite to land division. Therefore, FAA OES review for height/elevation reasons was not required. However, a condition has been included that any future buildings will require FAA OES review before permit issuance.

As ALUC Director, I hereby find the above-referenced project **CONSISTENT**, with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, subject to the following conditions:

CONDITIONS:

1. Any new outdoor lighting that is installed shall be hooded or shielded so as to prevent either the spillage of lumens or reflection into the sky. Outdoor lighting shall be downward facing.

2. The following uses/activities are not included in the proposed project and shall be

prohibited at this site:

(a) Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA-approved navigational signal light or visual approach slope indicator.

(b) Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport.

(c) Any use which would generate smoke or water vapor or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area. (Such uses include landscaping utilizing water features, aquaculture, outdoor production of cereal grains, sunflower, and row crops, composting operations, wastewater management facilities, artificial marshes, trash transfer stations that are open on one or more sides, recycling centers containing putrescible wastes, construction and demolition debris facilities, fly ash disposal, and incinerators

(d) Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

(e) Highly noise-sensitive outdoor nonresidential uses.

(f) Any use which results in a hazard to flight, including physical (e.g., tall objects), visual, and electronic forms of interference with the safety of aircraft operations.

3. The attached “Notice of Airport in Vicinity” shall be provided to all prospective purchasers and occupants of the property.

4. Any proposed stormwater basins or facilities shall be designed and maintained to provide for a maximum 48-hour detention period following the design storm, and remain totally dry between rainfalls. Vegetation in and around the stormwater basins that would provide food or cover for birds would be incompatible with airport operations and shall not be utilized in project landscaping. Trees shall be spaced so as to prevent large expanses of contiguous canopy, when mature. Landscaping in and around the stormwater basin(s) shall not include trees or shrubs that produce seeds, fruits, or berries.

   Landscaping in the stormwater basin, if not rip-rap, should be in accordance with the guidance provided in ALUC “LANDSCAPING NEAR AIRPORTS” brochure, and the “AIRPORTS, WILDLIFE AND STORMWATER MANAGEMENT” brochure available at RCALUC.ORG which list acceptable plants from Riverside County Landscaping Guide or other alternative landscaping as may be recommended by a qualified wildlife hazard biologist.

   A notice sign, in a form similar to that attached hereto, shall be permanently affixed to the stormwater basin with the following language: “There is an airport nearby. This stormwater basin is designed to hold stormwater for only 48 hours and not attract birds. Proper maintenance is necessary to avoid bird strikes”. The sign will also include the name, telephone number or other contact information of the person or entity responsible to monitor the stormwater basin

5. Prior to issuance of building permits for any new buildings, the permittee shall provide to the Building and Safety a “Determination of No Hazard to Air Navigation” letter from the Federal Aviation Administration Obstruction Evaluation Service.

If you have any questions, please contact me at (951) 955-6893.

Sincerely,
RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION

Paul Rull, ALUC Director

Attachments: Notice of Airport in Vicinity

cc: Margarito Barragan (applicant/property owner)
Rod Arsalan (representative)
Gary Gosliga, March Inland Port Airport Authority
Major. David Shaw, Base Civil Engineer, March Air Reserve Base
ALUC Case File

X:\AIRPORT CASE FILES\March\ZAP1567MA23\ZAP1567MA23.LTR.doc

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances [can vary from person to person. You may wish to consider what airport annoyances], if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you. Business & Professions Code Section 11010 (b)(13)(A)

NOTICE

THERE IS AN AIRPORT NEARBY.

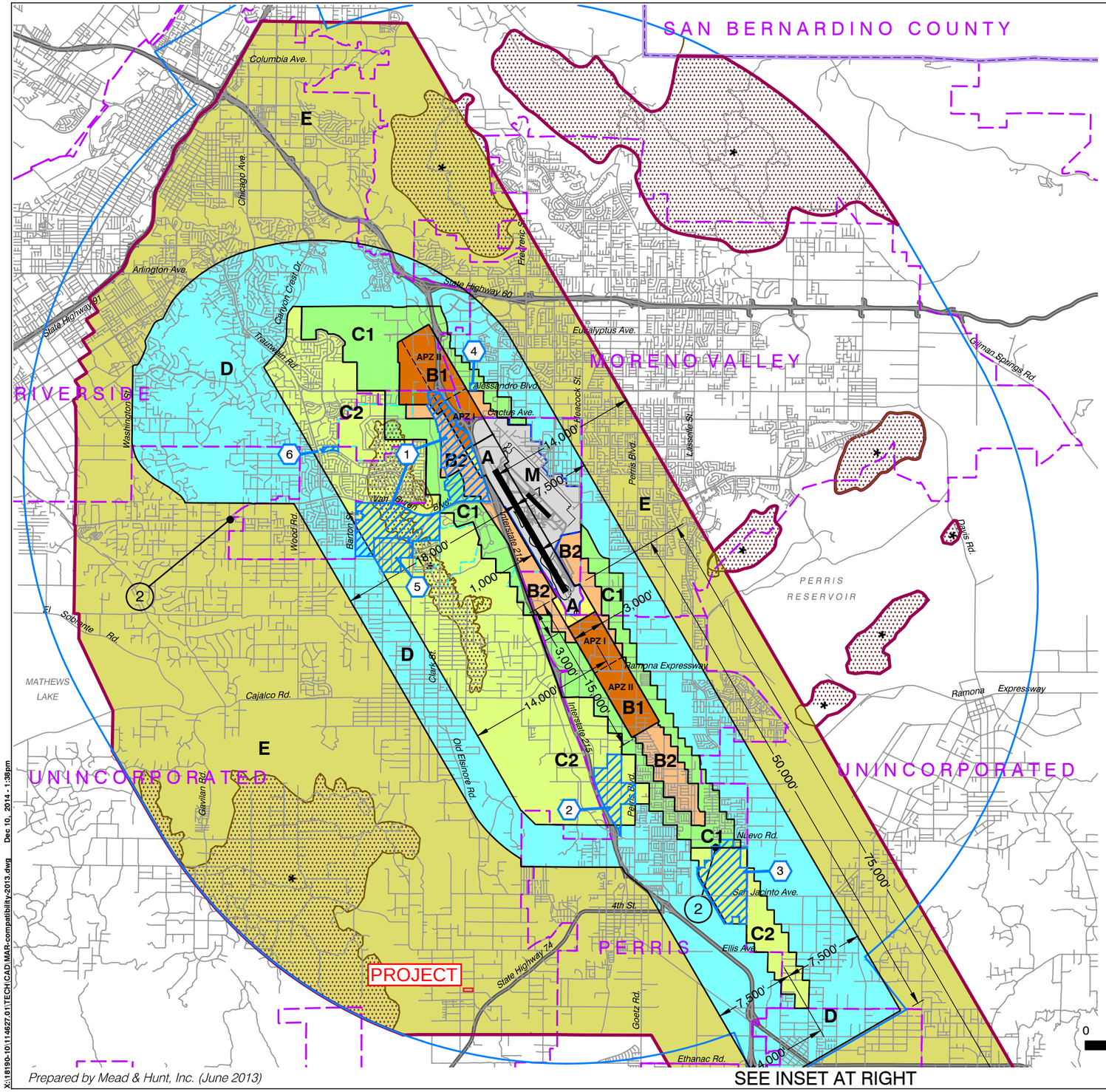
THIS STORM WATER BASIN IS DESIGNED TO HOLD STORM WATER FOR ONLY 48 HOURS AND NOT TO ATTRACT BIRDS

PROPER MAINTENANCE IS NECESSARY TO AVOID BIRD STRIKES

RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION ALUC

IF THIS BASIN IS OVERGROWN, PLEASE CONTACT:

Name: _____ Phone: _____



LEGEND

Compatibility Zones

- Airport Influence Area Boundary
- Zone A
- Zone B1
- Zone B2
- Zone C1
- Zone C2
- Zone D
- Zone E
- Zone M
- High Terrain Zone
- FAR Part 77 Military Outer Horizontal Surface Limits
- FAR Part 77 Notification Area

Boundary Lines

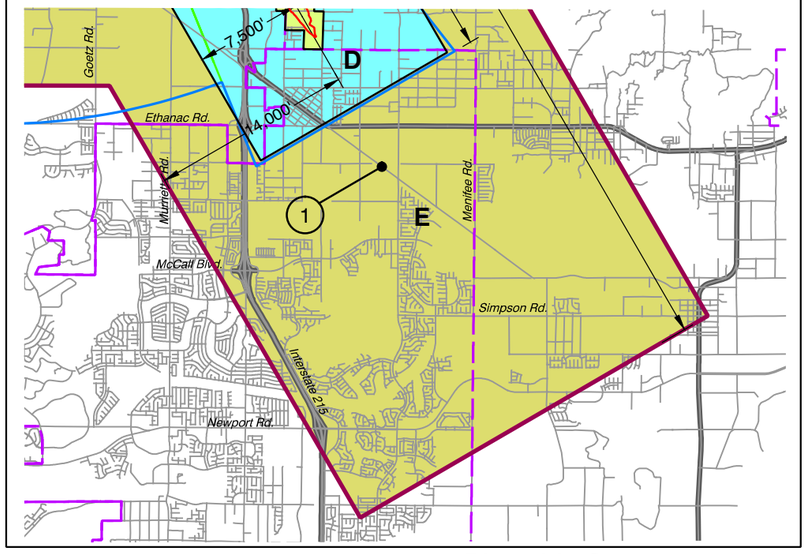
- March Air Reserve Base / Air Force Property
- March Joint Powers Authority Property Line
- County Boundary
- City Limits
- Site-Specific Exceptions (existing local agency commitments to development projects)

1. March JPA: March Business Center/Meridian
2. Perris: Harvest Landing
3. Perris: Park West
4. Moreno Valley: Affordable Housing
5. March JPA: Ben Clark Training Center
6. Riverside: Ridge Crest Subdivision

(1) Point at which aircraft on Runway 32 ILS approach descend below 3,000 feet above runway end. Airport Elevation is 1,535 feet MSL.

(2) Point at which departing aircraft typically reach 3,000 feet above runway end.

INSET



Note:
All dimensions are measured from runway ends and centerlines.

N

0 2 4 MILES

Base map source: County of Riverside 2013

Riverside County
Airport Land Use Commission

March Air Reserve Base / Inland Port Airport
Land Use Compatibility Plan

(Adopted November 13, 2014)

Map MA-1

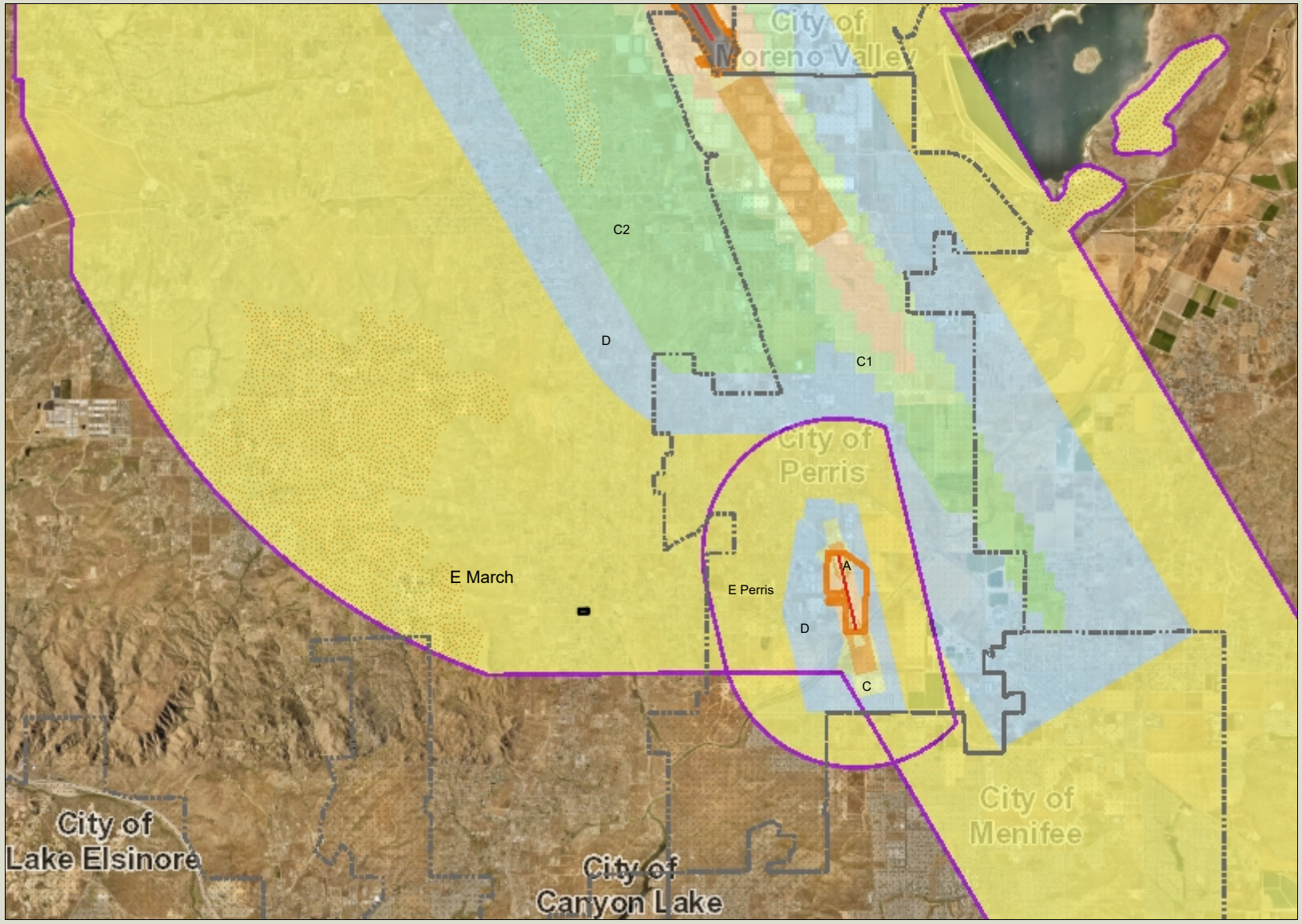
Compatibility Map

March Air Reserve Base / Inland Port Airport

Prepared by Mead & Hunt, Inc. (June 2013)

X:\18190-10\114627.01\TECH\CAD\MAR-compatibility2013.dwg Dec 10, 2014 - 1:38pm

Map My County Map



Legend

- Runways
- Airports
- Airport Influence Areas
- Airport Compatibility Zones
  - OTHER COMPATIBILITY ZONE
  - A
  - A-EXC1
  - B1
  - B1-APZ I
  - B1-APZ I-EXC1
  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5
  - C2-EXC6

0 12,314 24,629 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

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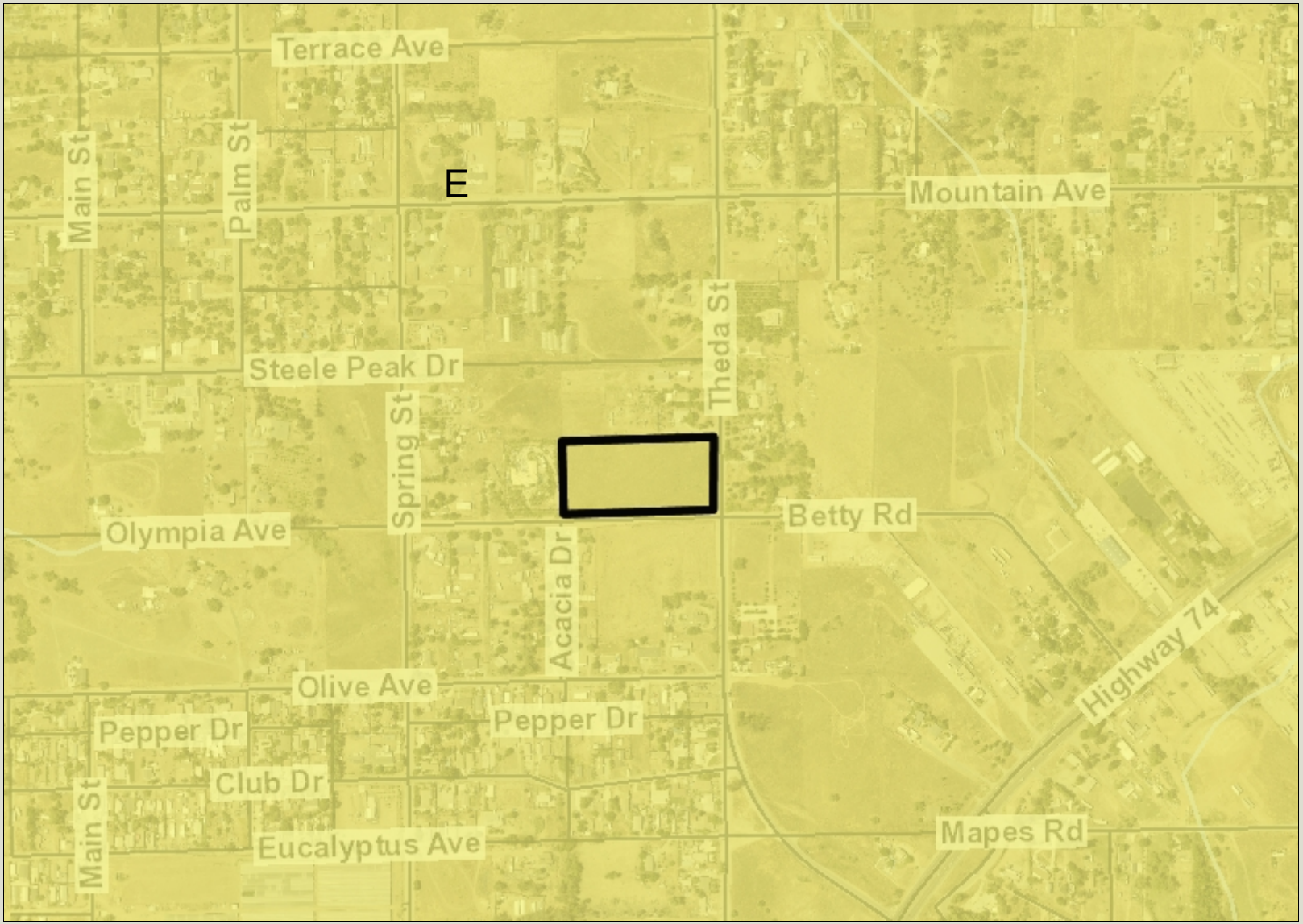
Notes

Map My County Map



Legend

- Runways
- Airports
- Airport Influence Areas
- Airport Compatibility Zones
  - OTHER COMPATIBILITY ZONE
  - A
  - A-EXC1
  - B1
  - B1-APZ I
  - B1-APZ I-EXC1
  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5
  - C2-EXC6

0 770 1,539 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

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Notes

Map My County Map

Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 770 1,539 Feet

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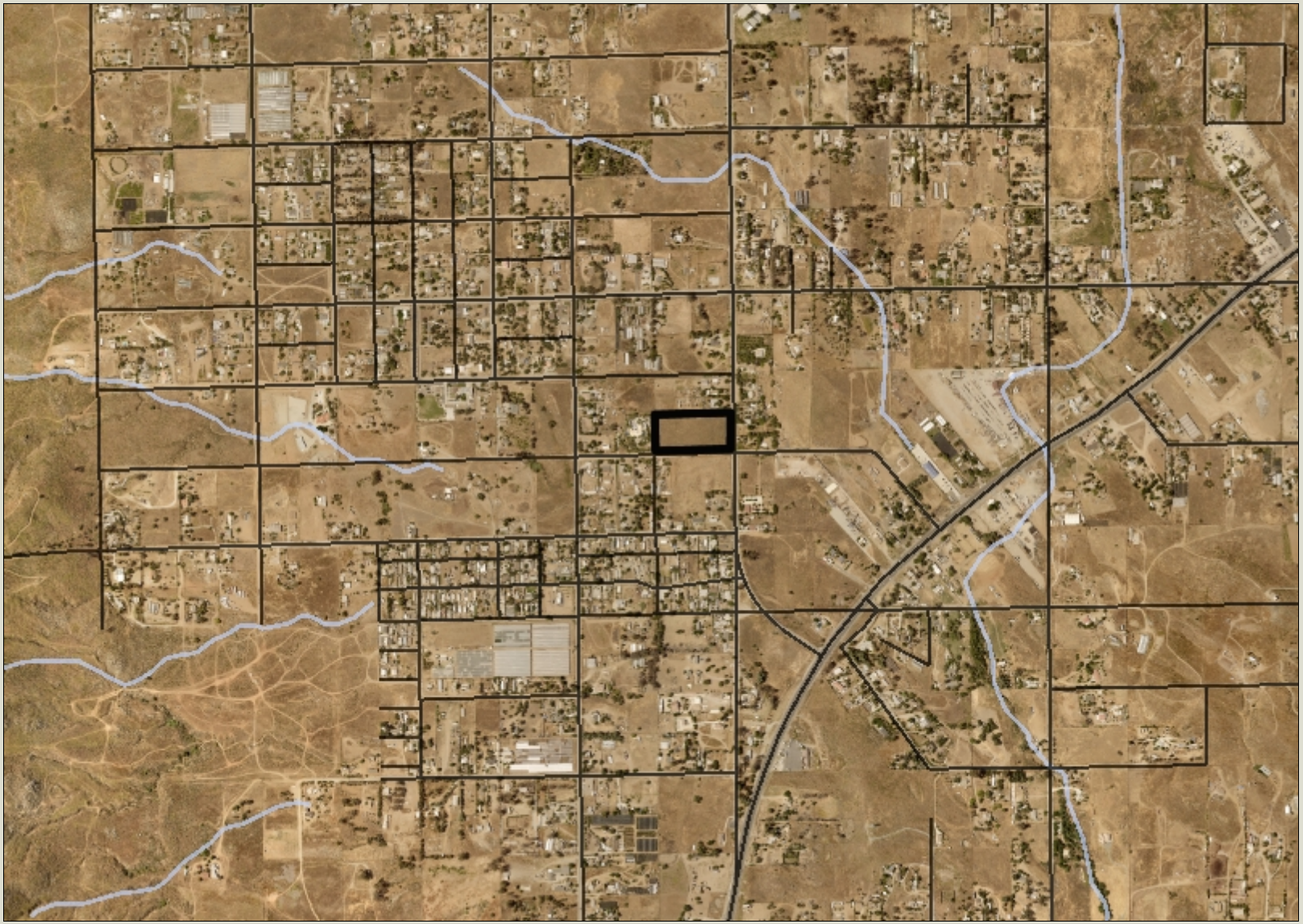
REPORT PRINTED ON... 4/6/2023 10:05:43 AM

Notes

Map My County Map



Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 1,539 3,079 Feet

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REPORT PRINTED ON... 4/6/2023 11:05:45 AM

Notes

Map My County Map

Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 770 1,539 Feet

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REPORT PRINTED ON... 4/6/2023 11:06:06 AM

Notes

Map My County Map

Legend

- Blueline Streams
- City Areas
- World Street Map

0 3,079 6,157 Feet

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REPORT PRINTED ON... 4/6/2023 11:05:27 AM

Notes

IN THE UNINCORPORATED TERRITORY OF THE COUNTY OF RIVERSIDE,STATE OF CALIFORNIA

TENTATIVE PARCEL MAP NO. 38101

BEING A DIVISION OF THE SOUTH ONE- HALF OF THE LOT 36, MOUNTAIN GLEN TRACT, MB 11/520,

SOUTHEAST QUARTER OF SECTION 3, T5S, R4W, S.B.B. & M. , COUNTY OF SAN DIEGO, STATE OF CALIFORNIA.

MARCH *2023*

UTILITY SERVICES:

THE GAS COMPANY
SOUTHERN CALIFORNIA GAS CO.
1-800-427-2200

ELECTRIC:
SOUTHERN CALIFORNIA EDISON
1-800-684-8123

WATER:
EMWD

SEWER:
ONSITE SEPTIC SYSTEM

CABLE COMPANY:
VERIZON

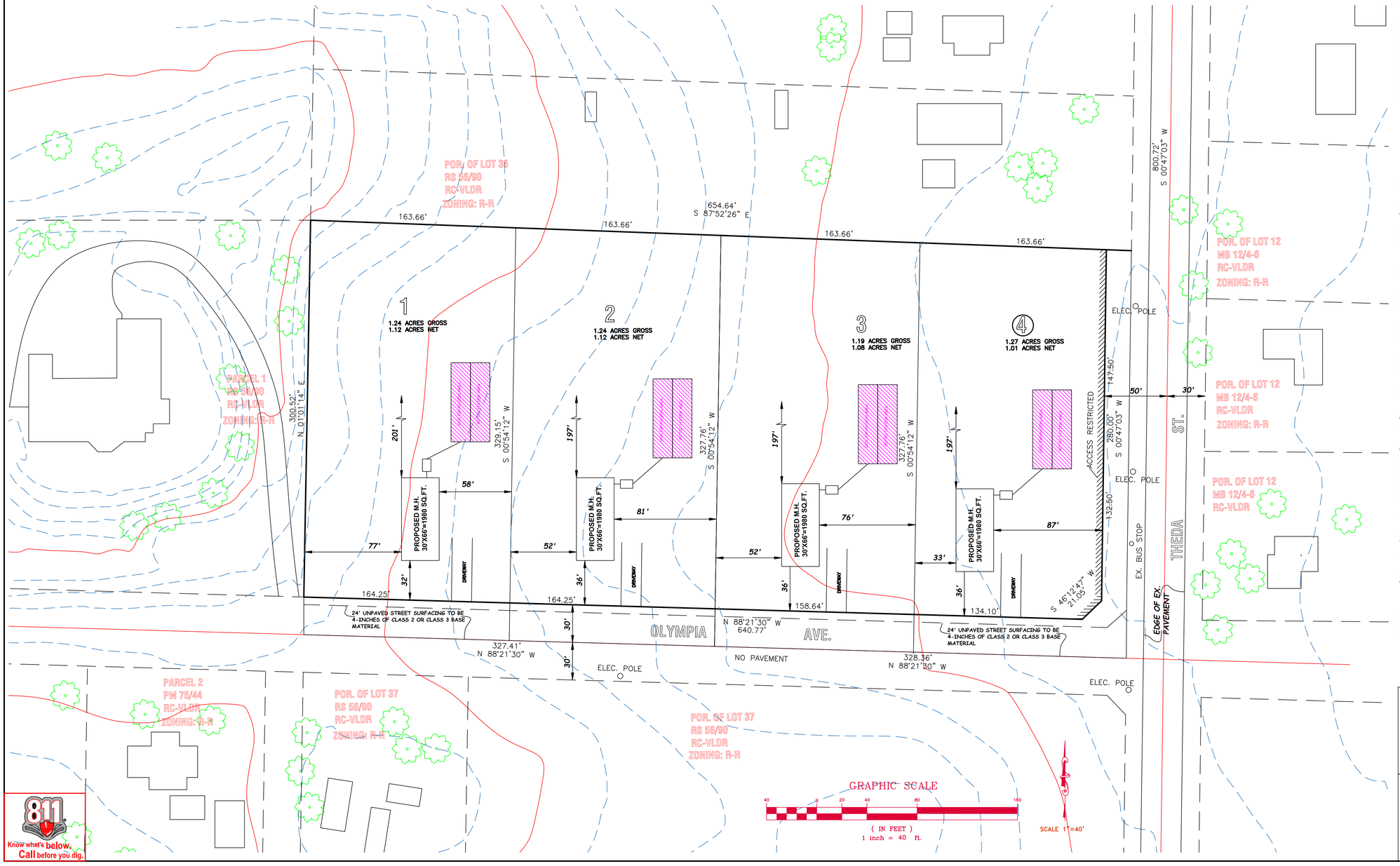
TRASH:
CR&R
1-800-755-8112

SCHOOLDISTRICT:
VAL VERDE UNIFIED
951-940-6155

TELEPHONE COMPANY:
VERIZON
1-800-483-5000

THERE IS NO EXISTING OR PROPOSED EASEMENT AND NO DRAINAGE FACILITIES.

VICINITY MAP
THOMAS 807-B6 (N.T.S.)



GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.
SCALE 1" =40'

811 Know what's below. Call before you dig.

PROPERTY DATA:

PARCEL : 4.93 ACRES GROSS
4.46ACRES NET
EXISTING LAND USE: RC-VLDR
NEW LAND USE: RC-VLDR
EXISTING ZONING: R-R
NEW ZONING: R-R
RESIDENTIAL
MINIMUM DEPTH: 150 FEET
MINIMUM PARCEL WIDTH 100 FEET
MINIMUM SIZE: 20,000 SQ.FT.
SETBACKS:
FRONT : 20 Ft.
SIDE (EACH) : 10 Ft.
STREET SIDE: 20 Ft.
REAR : 20 Ft.
MAX. PARCEL COVERAGE: 50%
MAX. HEIGHT LIMIT: 40 Ft.

ASSESSOR PARCEL NO.:
343-220-016, RIVERSIDE COUNTY

LEGAL DESCRIPTION:
LOT 36 OF THE MOUNTAIN GLEN TRACT, RECORDED IN BOOK 11 OF MAPS, PAGES 520, RECORD OFFICE OF SAN DIEGO COUNTY, CALIFORNIA

TOWNSHIP /RANGE:
T5S,R4W, SEC. 3 SE

FEMA FLOOD PLAIN:
NOT REQUIRED

FAULT ZONE:
NOT WITHIN A 1/2"

LIQUEFACTION POTENTIAL: NOT IN A LIQUEFACTION AREA

WATERSHED: SAN JACINTO VALLEY

PALEONTOLOGICAL SENSITIVITY:
UNDETERMIND POTENTIAL (U)

FIRE AREA:
HIGH FIRE HAZARD AREA

BASIS OF BEARINGS:
CENTER LINE OF OLYMPIA AVE., RS 56/90

S. 88°21'30"W

SURCE OF TOPO:
RIVERSIDE COUNTY FLOOD CONTROL
SCALE: 1"=200'

BENCH MARK :
Z 12217
FD NW/RIV CO TRANS
TAG DN. 0.20
E. 6,249,958.0
N. 2,226,077.0
EL. 1,607.08

24 HOUR POINT OF CONTACT
MARGARITO BARRAGAN
(951) 453-6263

OWNER:
MARGARITO BARRAGAN
22640 MOUNTAIN AVE.
PERRIS, CA 92570
951-453-6263

ASSESSOR PARCEL NO.:
343-220-016, RIVERSIDE COUNTY

THIS MAP PREPARED BY:
AC ENGINEERING GROUP, INC.
UNDER DIRECTION OF :
MOKSUDUR RAHMAN P.E. RCE # 69263 EXP. 6-30-2024
750 S. LINCOLN AVE. # 104-167
CORONA,CA 92882
951-272-8181 FAX: 951-272-8794
DATE OF PREPARATION: 3-16-2023

ACE Group, Inc.
750 S. LINCOLN AVE. #104-167
CORONA, CA 92882
(951) 272-8181, (951) 272-8794 FAX

REGISTERED PROFESSIONAL ENGINEER
MOKSUDUR RAHMAN
C 069263
EXP. 06- 30 - 24
CIVIL
STATE OF CALIFORNIA

THESE PLANS ARE PREPARED UNDER THE DIRECTION OF :

REVISIONS	APPD	DATE

TENTATIVE PARCEL MAP NO. 38104
18885 ALEXANDER ST.
PERRIS ,CA 92570

1001-1520-WO

DATE:3/16/23

SCALE: N.T.S.

SHEET 1 OF 1

RIVERSIDE COUNTY
AIRPORT LAND USE COMMISSION

March 24, 2023

Doug Darnell, Principal Planner
City of Menifee Community Development Department
29844 Haun Road
Menifee CA 92586

County Administrative Center
4080 Lemon St.,14th Floor.
Riverside, CA 92501
(951) 955-5132

www.rcaluc.org

RE: AIRPORT LAND USE COMMISSION (ALUC) DEVELOPMENT REVIEW – DIRECTOR'S DETERMINATION

File No.:	ZAP1071RG23
Related File No.:	LR23-0013 (General Plan Amendment)
APN:	Citywide

Dear Mr. Darnell,

As authorized by the Riverside County Airport Land Use Commission (ALUC) pursuant to its Resolution No. 2011-02, as ALUC Director, I have reviewed City of Menifee General Plan Amendment (LR23-0013), a proposal amending the City's General Plan Circulation and Safety Elements to remove and realign various roadway segments and add clarifying language to the Local Hazard Mitigation Plan to be consistent with State Assembly Bill (AB) 2140.

As ALUC Director, I hereby find the above-referenced project **CONSISTENT** with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan and the 2010/2011 Perris Valley Airport Land Use Compatibility Plan.

This determination of consistency relates to airport compatibility issues and does not necessarily constitute an endorsement of the proposed amendment.

If you have any questions, please contact me at (951) 955-6893.

Sincerely,
RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION

Paul Rull, ALUC Director

cc: ALUC Case File

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LR23-0013

Circulation Element Roadway Network Update Descriptions

1. **Goetz Road (Major) Realignment between Rouse and McLaughlin.** Clean-up/update the Goetz Road alignment. The current Goetz Road (4-lane Major Divided Roadway) alignment within Section 17, Township 5 South, Range 3 West, S.B.M., intersects Valley Blvd. (4-lane Arterial Divided Roadway) at an acute angle of approximately 20 degrees or less, which is not acceptable for engineering design purposes nor feasible for construction. The Cimmaron Ridge Residential Master-Planned Community, through its Subdivision Maps PM36657 & TM36658, has dedicated the right-of-way for the new Goetz Road alignment, which will intersect Valley Blvd. at about 1200 feet further south of the current Circulation Element intersection and at an engineering standard intersection angle of approximately 90 degrees. This update to the Circulation Element to realign Goetz Road is merely procedural so that the alignment is correctly and appropriately reflected in the Circulation Element. No other changes, besides the alignment, are recommended at this time.

2. **Chambers Avenue (Secondary) Realignment between Sherman Road and Encanto Drive.** The current Chambers Avenue (4-lane Secondary Undivided Roadway) alignment west of and proceeding from Sherman Road curves and sweeps to the north prior to intersecting Encanto Drive at a T-intersection. This segment is within Section 22, Township 5 South, Range 3 West, S.B.M. The Legado Master-Planned Community has been designed to keep Chambers Avenue within the current and existing right-of-way, which is a straight segment, without any curves or sweeps, between Sherman Road and Encanto Drive. This update to the Circulation Element to realign Chambers Avenue is merely procedural so that the alignment is correctly and appropriately reflected in the Circulation Element. No other changes, besides the alignment, are recommended at this time.

3. **Evans Road (Collector) Realignment between Troy Lane and Rouse Road.** The current Evans Road (2-lane Collector Roadway) alignment south of and proceeding from Troy Lane Road curves and sweeps to the East prior to intersecting Rouse Road to align with Presley Street. This segment is within Section 16, Township 5 South, Range 3 West, S.B.M. The proposed new alignment will keep Evans Road a straight segment between Troy Lane and Rouse Road, within the existing right-of-way that has been dedicated to the public and is currently in place.

4. **Presley Street (Collector) Removal between Rouse Road and Sun City Blvd.** Presley Street is shown on the Circulation Element as a Collector between Rouse Road and Sun City Blvd. within Section 21, Township 5 South, Range 3 West, S.B.M. Presley Street was constructed with a curb-to-curb width of 36 feet and many homes front this street. A Collector roadway has a 44-foot curb-to-curb width per the City Engineering Standards. Since Presley Street is only 36 feet wide and functions as a residential local street, it is not performing as a Circulation Element Collector roadway. This proposed update to the Circulation Element would downgrade Presley Street from a Collector to a local residential street and remove it from the Circulation Element.

5. **Watson Road (Secondary) Removal between Sherman and SR 74; 2. Sherman Road (Collector) Addition between Watson Road and SR 74; 3. Remove Watson Road (Collector) west of Trumble Road.**
    a. The current Watson Road (4-lane Secondary undivided roadway) alignment proceeding west from Sherman Road curves to the south and intersects SR74 at an angle close to 90 degrees. The existing alignment does not provide a straight tangent segment that meets engineering standards for the length of the intersecting tangent. Additionally, the curve radius of the alignment appears to be in the range of 200 feet, which would not accommodate design speeds typically associated with 4-lane Secondary undivided roadways. This update would remove Watson between Sherman Road and SR 74.

    b. The current Sherman Road (2-lane Collector) alignment proceeding south from Mapes Road stops at Watson Road. Due to the previously discussed update to remove Watson Road between Sherman Road and SR 74 from the Circulation Element, Sherman Road would need to be added as a Collector, between Watson Road and SR 74. The existing right-of-way to accommodate Sherman Road is partially in place and would require an additional approximately 17 feet.

    c. Watson Road (2-Lane Collector) west of Trumble Road is a cul-de-sac that serves only a few businesses and only accommodates low traffic volumes. This segment is a 2-lane Collector on the Circulation Element, but it functions as a local roadway. The proposed update to this segment would remove it from the Circulation Element roadway as a Collector and downgrade it to a local roadway.

6. **Realignments of Bradley Road (Major) and Garbani Road (Major) adjacent to their intersection.** Bradley Road is shown on the Circulation Element as a 4-lane Major Divided Roadway at its southern terminus at its intersection with Garbani Road within Sections 9 and 10, Township 6 South, Range 3 West, S.B.M. The current alignment of Bradley Road proceeding south from Tupelo Road curves to the east and merges/converts into Garbani Road East. Garbani Road east of Bradley Road is also a 4-lane Major Divided Roadway.

    The current alignment for Garbani Road, west of Bradley, proceeding from the west curves to the north and intersects the curved portion of Bradley Road at approximately 90 degrees. This segment of Garbani Road west of Bradley is a Collector.

    This proposed Circulation Element change will realign Bradley Road to keep it straight through its southern terminus and intersection with Garbani Road. This will keep Bradley Road within the existing right-of-way that the City has previously acquired. The Garbani Road segments will also be realigned to intersect Bradley Road with straight segments within the existing Garbani Road right-of-way.

7. **Removal of Rim Creek Path (Collector), Santa Rosalia Drive (Collector), San Quintin Road (Collector), and Puerto Vallarta Way (Collector) between Murietta Road and Winter Hawk Road; addition of Winter Hawk Road as Collector Roadway between Rim Creek Path and Newport Road.** This change will remove a Collector roadway, within the west half of Section 4, Township 6 South, Range 3 West, S.B.M., south of Newport Road between Winter Hawk Road and Murrieta Road consisting of several segments including Rim Creek Path, Santa Rosalia Drive, San Quintin Road, and Puerto

Vallarta Way. Winter Hawk Road will be added to the Circulation Element as a Collector between Rim Creek Path and Newport Road.

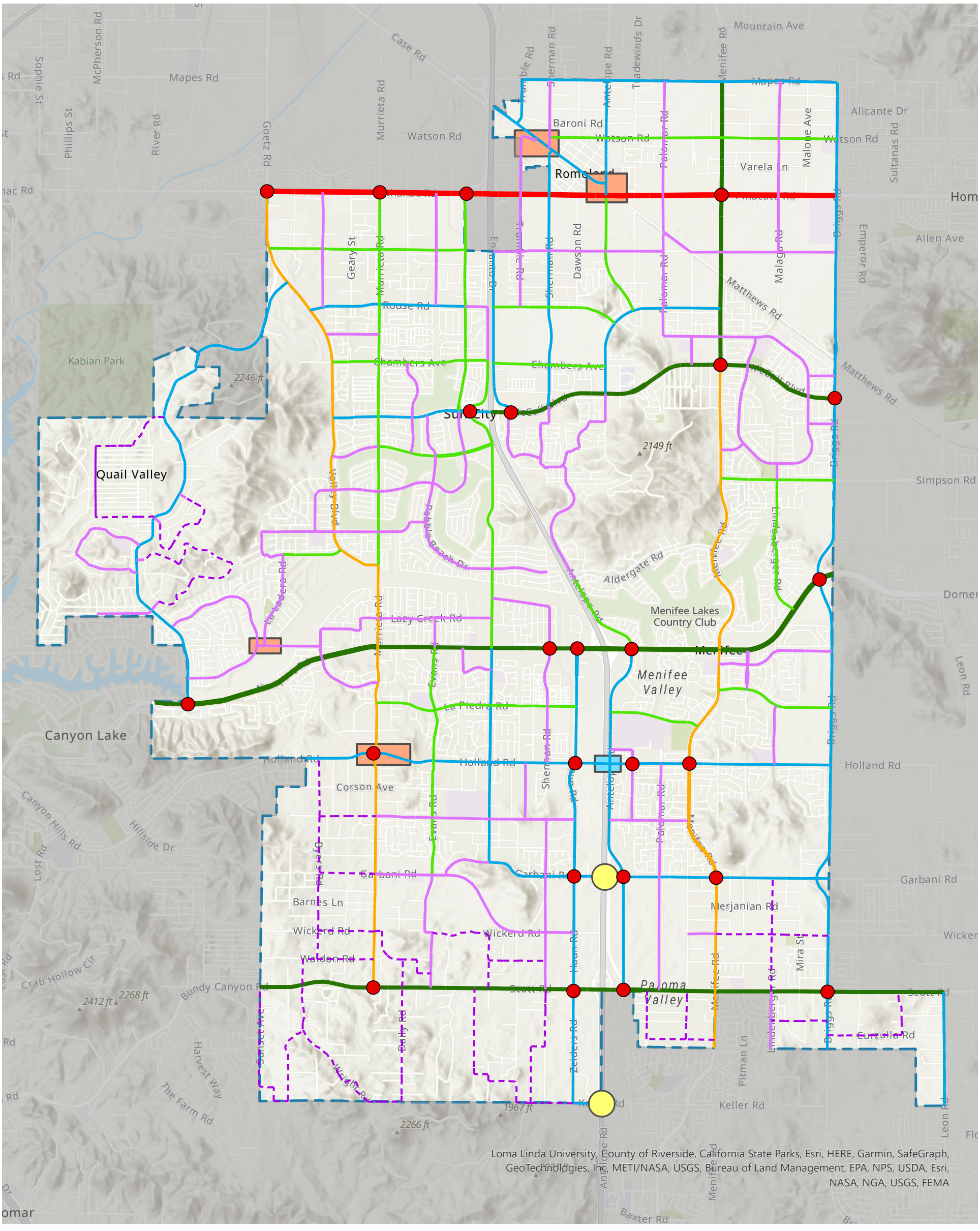
8. **Removal of Bouris Drive (Collector), Alston Lane (Collector), Fall River Lane (Collector), and Laguna Vista Drive (Collector) between Southshore Lane (Collector) and Tres Lagos Drive (Collector); Addition/Extension of Southshore Drive as Collector Roadway between Bouris Drive and Tres Lagos Drive.** This change will remove a Collector roadway, within the west half of Section 1, Township 6 South, Range 3 West, S.B.M., south of Tres Lagos Drive and west of Southshore Drive consisting of several segments including Bouris Drive, Alston Lane, Fall River Lane, and Laguna Vista Drive. Southshore Drive will be added to the Circulation Element as a Collector between Bouris Drive and Tres Lagos Drive.

9. **Valley Boulevard (Arterial) Realignment south of Honeyrun Road and west of Murrieta Road.** Clean-up/update the Valley Blvd. alignment. The current Valley Blvd. (4-lane Arterial Divided Roadway) alignment within Section 32, Township 5 South, Range 3 West, S.B.M., intersects Murrieta Road (4-lane Arterial Divided Roadway to the south and 4-lane Secondary Undivided Roadway to the north) at an acute angle of approximately 40 degrees or less, which is not acceptable for engineering design purposes nor feasible for construction.

   Proceeding south from Honeyrun Road, the Valley Blvd. alignment will intersect Murrieta Road at about 800 feet further north of the current Circulation Element intersection and at an engineering standard intersection angle of approximately 90 degrees. This new alignment will also line up with the existing alignment of Cam Del Sol Sur. The new Valley Blvd. alignment will cross Eastern Municipal Water District property.

DRAFT

Exhibit C-3
Roadway Network



Expressway (6 to 8 Lanes, Divided)

Urban Arterial (6 Lanes, Divided)

Arterial (4 Lanes, Divided)

Major (4 Lanes, Divided)

Mountain Arterial (4 Lanes, Undivided)

Secondary (4 Lanes, Undivided)

Collector / Interconnected Local (2 Lanes)

Rural Collector / Interconnected Local (2 Lanes)

Future Freeway Interchange

Enhanced Intersection - Additional lanes / Right-of-Way required within 600 feet of the intersection

Connectivity Analysis Zone - Roadway alignments, intersection geometrics and traffic control features subject to additional assessment

Future Freeway Overcrossing

City Boundary

MENIFEE
GENERAL PLAN

N

0 0.5 1 Miles

PROPOSED

EXHIBIT C-3
ROADWAY NETWORK

3. Evans Road realignment between Troy Lane and Rouse Road

5a) Remove the Secondary designation west of Sherman Rd. to Highway 74 and
5b) extend the Collector designation for Sherman Rd. to Highway 74

5c) Remove collector designation west of Trumble Rd

2. Chambers Avenue Realignment between Sherman Road and Encanto Drive

1. Goetz Road Realignment between Rouse and McLaughlin

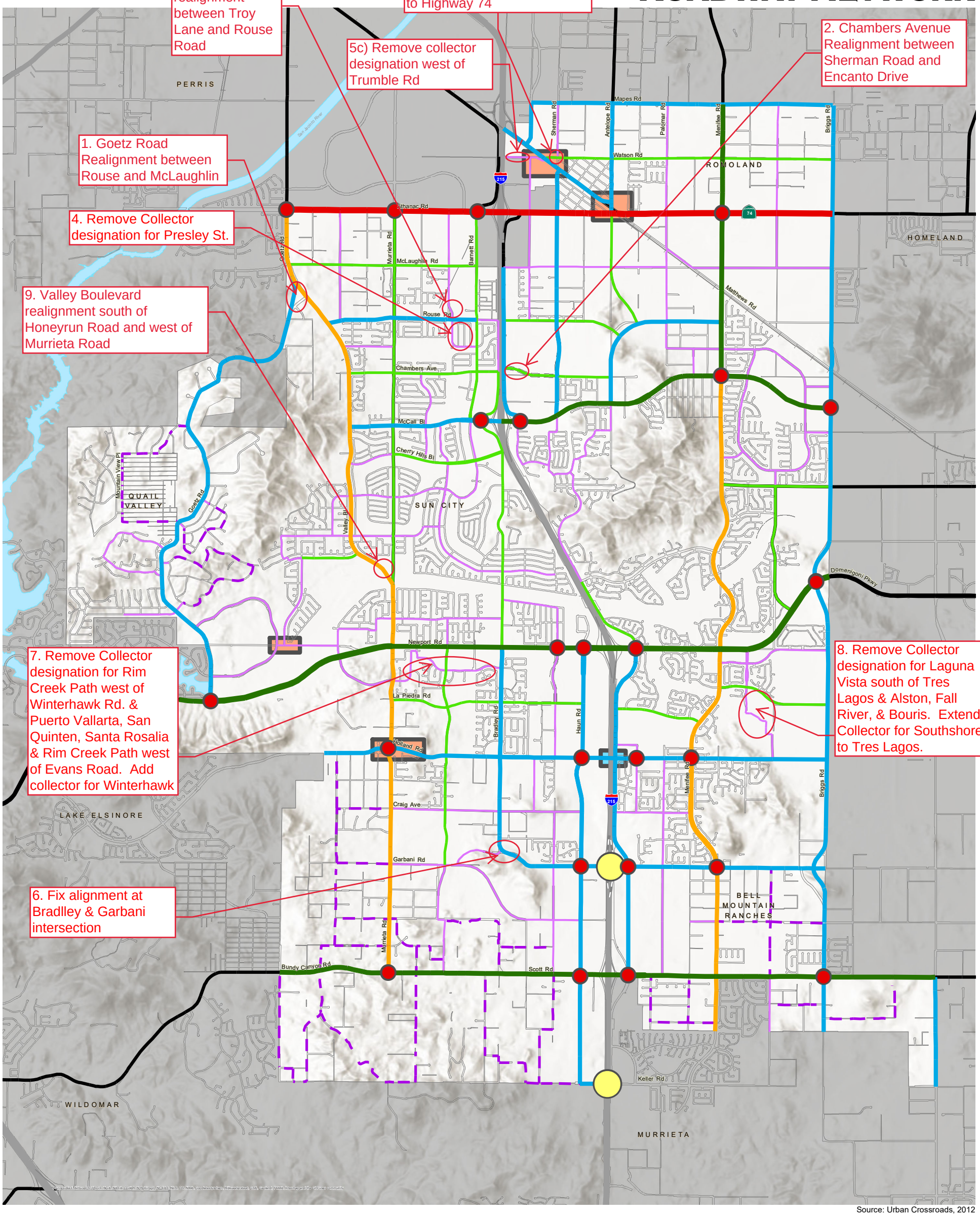
4. Remove Collector designation for Presley St.

9. Valley Boulevard realignment south of Honeyrun Road and west of Murrieta Road

7. Remove Collector designation for Rim Creek Path west of Winterhawk Rd. & Puerto Vallarta, San Quinten, Santa Rosalia & Rim Creek Path west of Evans Road. Add collector for Winterhawk

8. Remove Collector designation for Laguna Vista south of Tres Lagos & Alston, Fall River, & Bouris. Extend Collector for Southshore to Tres Lagos.

6. Fix alignment at Bradlley & Garbani intersection



Source: Urban Crossroads, 2012

- Expressway (6 to 8 Lanes, Divided)
- Urban Arterial (6 Lanes, Divided)
- Arterial (4 Lanes, Divided)
- Major (4 Lanes, Divided)
- Mountain Arterial (4 Lanes, Undivided)
- Secondary (4 Lanes, Undivided)
- Collector / Interconnected Local (2 Lanes)
- Rural Collector / Interconnected Local (2 Lanes)
- Future Freeway Interchange
- Enhanced Intersection - Additional lanes / Right-of-Way required withing 600 feet of the intersection
- Connectivity Analysis Zone - Roadway alignments, intersection geometrics and traffic control features subject to additional assessments
- Future Freeway Overcrossing

MENIFEE GENERAL PLAN

0 0.5 1 Mile

Update Adopted: May 20, 2020

C-3_Roadway_Network_6_23_2020

Safety Element

HOME PAGE

OVERVIEW

It is of fundamental importance to the City of Menifee to protect and preserve the health, safety, and welfare of the community to ensure that it continues to be a place people want to live, work, and spend their time. The Safety Element of the General Plan provides a strategy for City staff, residents, developers, and business owners to effectively address natural and man-made hazards in Menifee, including seismic and geological issues; flood hazards; fire hazards; hazardous materials; wind hazards; and disaster preparedness, response, and recovery. The policies and action items provided herein can help create a community that is minimally at risk from natural hazards and that responds quickly, effectively, and efficiently to those hazards. It is the primary goal of this document that as the policies and actions are implemented over the next 20 years, the City of Menifee will be increasingly less impacted by disasters, and in the process, become more self-reliant, sustainable, and prosperous.

The first step in hazard mitigation is to understand the community's vulnerability to the various natural and man-made hazards that can impact the region. To that end, the Safety Element identifies the potential hazards that can significantly affect the City of Menifee. More in-depth information regarding these hazards is provided in the supporting Technical Background Report.

PURPOSE OF ELEMENT

Section 65302 of the State of California Government Code identifies seven mandatory elements in a General Plan, including Safety. Section 65302 (g) defines the types of hazards that need to be identified and addressed. The following hazards, along with strong winds, hazardous materials, and critical facilities (including airports) and emergency response, are considered in Menifee's Safety Element.

1. Seismic and geologic hazards: Seismic hazards, including strong ground shaking, surface fault rupture, and seismically induced ground failure, such as liquefaction and slope failures and geologic hazards, including slope instability due to non-seismic causes, and subsidence (GC 65302(g)(1);
2. Flooding hazards, including storm-induced flooding, inundation resulting from the failure of water reservoirs, dams, and levees, and areas vulnerable to flooding after wildfires (GC 65302(g)(2);
3. Fire hazards, including both wildland fires and structure fires in state responsibility areas and land classified as very high fire hazard severity zones (GC 65302(g)(3);
4. Climate adaptation and resiliency including a vulnerability assessment (GC 65302(g)(4);

5. Residential developments in any hazard area identified in the safety element that do not have at least two emergency evacuation routes (GC 65302(g)(5);
6. Revise the safety element upon each revision of the housing element or local hazard mitigation plan, but not less than once every eight years, to identify new information relating to flood and fire hazards and climate adaptation and resiliency strategies applicable to the city or county that was not available during the previous revision of the safety element (GC 65302(g)(6);
7. Incorporate Federal floodplain management regulations and/or Federal Emergency Management Agency (FEMA)-approved flood plain management ordinance(s) to flood-prone areas (GC 65302(g)(7).

The Safety Element is written in conjunction and designed to work together with all other elements of the General Plan, most notably the Housing, Land Use, and Open Space and Conservation Elements. For example, the Safety Element contains policies and programs to address future drainage and flood hazards for housing sites. The Housing Element will comply with these requirements, and any future updates to the Housing Element will incorporate any changes in flood hazard and management information. Related to the Land Use Element, the Safety Element involves land-use-related policies that address potential hazards such as seismic and geologic issues, fire, and floods. Some of the land-use-related policies include, but are not limited to, requiring all new developments to mitigate the geologic hazards that have the potential to impact habitable structures and other improvements and requiring all new developments and redevelopment in areas susceptible to flooding (such as the 100-year floodplain and areas known to the City to flood during intense or prolonged rainfall events) to incorporate mitigation measures designed to mitigate flood hazards. Additionally, one of the goals of the Open Space and Conservation Element is to identify and protect sensitive environments and preserve amenities such as the rock features, natural landforms, and ridgelines that characterize Menifee. These landforms are the result of active natural processes (such as erosion) that have the potential to cause future damage to the built environment and are therefore best left either undeveloped or developed following careful design guidelines. These issues are discussed in the Safety Element. The goals of the Open Space and Conservation Element echo this concern by identifying some of these safety constraints as resources that merit conservation. The Safety Element also works together with various federal, state, and local regulations such as the Federal Clean Water Act, FEMA, the California Environmental Quality Act (CEQA), the California Building and Fire Codes, and the Menifee Municipal Code, to protect the health, safety, and welfare of Menifee's residents, visitors, and businesses.

BACKGROUND

This element describes the natural and man-made hazards most likely to impact the Menifee area. To reduce their potential effect on the community, these hazards should be carefully considered when new development or redevelopment is proposed in the area. Some issues should be considered for all types of development, whereas others are specific to critical or essential facilities or infrastructure. These distinctions are spelled out where appropriate.

The Safety Element covers eight general topics: seismic and geological issues; flood hazards; fire hazards; hazardous materials; wind hazards; disaster preparedness, response, and recovery; climate adaptation, and resiliency; and police services. A brief description of each of these topics is presented alongside the related goal and policies to provide context. For more detailed information on each of these issues and how they relate to Menifee's past and future, please review the General Plan exhibits and related documents identified below.

LOCAL HAZARD MITIGATION PLAN

The Local Hazard Mitigation Plan (LHMP) for the City of Menifee planning area was developed in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and follows FEMA's 2011 Local Hazard Mitigation Plan guidance. The LHMP incorporates a process where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risk. The implementation of these mitigation actions, which include both short-term and long-term strategies, involve planning, policy changes, programs, projects, and other activities. In accordance with Assembly Bill (AB) 2140, the latest adopted Local Hazard Mitigation Plan is incorporated by reference into this Safety Element and can be viewed at the "Menifee Local Hazard Mitigation" link provided below under "City Resources." The LHMP is also available for review in the Community Development Department at Menifee City Hall.

REFERENCE MATERIAL

For detailed information related to safety, please refer to the following documents. (Weblinks are available on the City's General Plan website).

City Resources

Safety Background Document & Definitions
Technical Background Report to the Safety Element of the General Plan for the City of Menifee (Earth Consultants International, Inc., July 2010)
Climate Vulnerability Assessment
Menifee Local Hazard Mitigation Plan
General Plan Environmental Impact Report
Exhibit S-b1: Engineering Materials
Exhibit S-b2.1: Dams with the Potential to Inundate
Exhibit S-b2.2: Diamond Valley Lake West Dam Failure
Exhibit S-b2.3: Diamond Valley Lake Saddle Dam Failure
Exhibit S-b2.4: Lake Perris Dam Failure
Exhibit S-b2.5: Hemet Dam Failure
Exhibit S-b2.6: Diamond Valley Lake East Dam Failure
Exhibit S-b2.7: Diamond Valley Lake Forebay Dam Failure
Exhibit S-b3: Historical Wildland Fires (updated)
Exhibit S-b4: Hazardous Materials

Additional Information

Riverside County Airport Land Use Commission

GENERAL PLAN EXHIBITS

Exhibit S-1: Fault Map (updated consistent with LHMP)
Exhibit S-2: Slope Distribution

GOALS AND POLICIES

SEISMIC AND GEOLOGIC ISSUES

The Menifee General Plan area is highly diverse geologically, the result of both the youthful seismic setting of the surrounding region and the effects of climate. No active faults (faults that show evidence of having experienced surface displacement within the last 11,000 years) have been mapped in the Menifee General Plan area; therefore, the hazard of primary surface fault rupture is considered low to none. However, Menifee is located near several regional active faults —such as the San Jacinto and Elsinore faults—that have the potential to cause strong ground shaking in the area (see Exhibit S-1, Fault Map).

Topographically, the Menifee area encompasses numerous rugged and moderately steep hills and mountains surrounded by a series of broad, nearly flat-bottomed valleys (see Exhibit S-2, Slope Distribution). Most development in the area occurs in the valleys and low hillside areas, with the prominent hills and ridgelines largely undeveloped. As a result, slope instability, including rockfalls, debris flows, or ridgetop shattering, is a potential hazard only where development has encroached onto the hills or is at the base of the hills. Most slope damage in the region is likely to occur as a result of earthquake-induced shaking or during periods of exceptional and/or prolonged rainfall.

Seismic shaking can also cause various types of ground deformation; liquefaction and slope failure are the most destructive of these. When liquefaction occurs, the soils that liquefy lose their ability to support structures; buildings may sink or tilt, with the potential for extensive structural damage. Three areas in Menifee are thought to have soils that could liquefy during an earthquake: the Salt Creek floodplain, the Warm Springs Creek floodplain, and portions of the Paloma Wash Valley (see Exhibit S-3, Liquefaction and Landslides). The geology of a community also plays a part in determining the significance of its seismic and geologic issues. Sedimentary units in the Menifee area consist mainly of water-transported (alluvial) sand, silt, clay, and gravel derived from erosion of the adjacent hills and mountains (see Exhibit S-4, Geologic Map). See the Safety Element Background Report for further details regarding these geology types.

Goal S 1: *A community that is minimally impacted by seismic shaking and earthquake-induced or other geologic hazards.*

Policies

S-1.1 Require all new habitable buildings and structures to be designed and built to be seismically resistant in accordance with the most recent California Building Code adopted by the City.

S-1.2 Encourage owners of old or potentially hazardous buildings— including pre-1952 wood-frame structures, concrete tilt-ups, pre-1971 reinforced masonry, soft-story, and multifamily residential buildings— to assess the seismic vulnerability of their structures and conduct seismic retrofitting as necessary to improve the building's resistance to seismic shaking.

S-1.3 Encourage the City's utility service providers to identify sections of their distribution networks that are old and/or in areas susceptible to earthquake-induced ground deformation, and to repair, replace, or strengthen the sections as necessary.

Goal S- 2: A community that has used engineering solutions to reduce or eliminate the potential for injury, loss of life, property damage, and economic and social disruption caused by geologic hazards such as slope instability; compressible, collapsible, expansive or corrosive soils; and subsidence due to groundwater withdrawal.

Policies

S-2.1 Require all new developments to mitigate the geologic hazards that have the potential to impact habitable structures and other improvements.

S-2.2 Monitor the losses caused by geologic hazards to existing development and require studies to specifically address these issues, including the implementation of measures designed to mitigate these hazards, in all future developments in these areas.

S-2.3 Minimize grading and modifications to the natural topography to prevent the potential for man-induced slope failures.

S-2.4 Manage the groundwater resources in the area to prevent over-drafting of the aquifers, which in turn could result in regional subsidence.

FLOOD HAZARDS

Floods are natural and recurrent events that generally do not pose a hazard when they occur in an undeveloped area; it is only when floods interact with the built environment— typically in the form of structures built in the floodplain, where they obstruct floodwaters— that they become hazardous. Unfortunately, as development in floodplains has increased, the average annual losses due to flooding have increased. Menifee is in the lower part of the San Jacinto River basin, a regional watershed of more than 700 square miles. Most flooding in Menifee is the result of flows along the San Jacinto River, Salt Creek, and several smaller drainages along the City's boundaries

(including Ethanac Wash, the creek through Quail Valley, Paloma Wash, and Warm Springs Creek). The City of Menifee is aware of these flood-prone areas and has plans to improve or replace some of the existing flood control structures to reduce the flood hazards.

Although new storm drain improvements have been constructed within and north of the City boundary, Line A Storm Drain Channel, portions of Romoland continue to be designated a Special Flood Hazard Area Zone (SFHA) and therefore subject to federal floodplain management regulations. SFHAs are areas subject to a high risk of inundation by a "base flood," also referred to as the 100-year flood (a flood having a 1 percent chance of occurring annually). SFHAs are regulated zones, requiring the mandatory purchase of flood insurance. They are also subject to special standards and regulations that apply to new construction, and in some cases, existing buildings. In addition, currently there is one Critical Facility, Heritage High School, that is located in the 100-year flood zone; see Exhibit S-7– Critical Facilities. The City of Menifee encourages the efforts of the Homeland/Romoland Area Drainage Plan participants' efforts and has funded improvements for flood control facilities necessary to facilitate removing the area from the 100-year flood zone. Exhibit S-5; Flood Hazards, shows the Flood Insurance Rate Maps (FIRMs) inundation limits for the 100-year and 500-year flood; however, it should be noted that the study areas are limited and the flood zones are incomplete. Consequently, there are areas outside of the mapped flood zones that are likely to be subject to flood hazards.

Goal S- 3: A community that is minimally disrupted by flooding and inundation hazards.

Policies

S-3.1 Require that all new developments and redevelopments in areas susceptible to flooding (such as the 100-year floodplain and areas known to the City to flood during intense or prolonged rainfall events) incorporate mitigation measures designed to mitigate flood hazards.

S-3.2 Reduce flood hazards in developed areas known to flood.

S-3.3 Use technology to identify flood-prone areas and to notify residents and motorists of impending flood hazards and evacuation procedures.

S-3.4 Develop floodplains as parks, nature trails, equestrian parks, golf courses, or other types of recreational facilities or joint-use facilities that can withstand periodic inundation wherever feasible.

S-3.5 Encourage neighboring jurisdictions to require development occurring adjacent to the City to consider the impact of flooding and flood control measures on properties within Menifee.

S-3.6: Coordinate with FEMA to ensure that flood mapping and flood risk information is current and available.

S-3.7: When feasible locate new essential public facilities outside of flood risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities or identify other methods to minimize damage if these facilities are located in flood hazard zones.

FIRE HAZARDS

Wildfires are a necessary part of the natural ecosystem in southern California, but they become a hazard when they extend out of control into developed areas, with a resultant loss of property, and sometimes, injuries or loss of life. The wildfire risk in the United States has increased in the last few decades with more encroachment of residences and other structures into the wildland environment, and the growing number of people living and playing in wildland areas.

Wildland Urban Interface

According to the U.S. Fire Administration, the zone of transition between unoccupied land and human development is referred to as the Wildland Urban Interface (WUI). The WUI zone is highly susceptible to wildfires because it is where built environment meets with undeveloped wildland or vegetative fuels. The California Department of Forestry and Fire Protection (CalFire) estimates the length of fire season had increased by 75 days in 2020. In 2015, wildfires in Riverside County and nearby municipalities resulted in approximately $42 million worth of losses in residential and commercial properties. Riverside County Fire Department data indicate about 47 wildland fire incidents occur in the Menifee area every year; with careful planning, the number of fires can be reduced and their impact to the City of Menifee can be minimized. The burn area is estimated to decrease its average size from the 156.8 acres observed between the years 1961 through 1990 to 128.2 acres projected for the years 2035 through 2064.

Topography has considerable effect on wildland fire behavior and on the ability of firefighters and their equipment to take action to suppress those fires. A fire starting in the bottom of a canyon may rush quickly to the ridge and become large, before initial attack forces can arrive, simply because of topography.

In an effort to alleviate fire dangers near the interface between urban development and wildlands, the construction of fuel modification zones (firebreak, fuel break, or greenbelt) has been required. The continued application of this method does have drawbacks and, therefore, is not the only acceptable solution. Impacts on wildlife, unique vegetation, and, in some cases, to the watershed, can be impacted with fuel modification zones. Balancing fire prevention measure to reduce the level of risk to structures with wildland impacts must be developed with the design of each project.

Very High Fire Hazard Severity Zones

The Very High Fire Hazard Severity Zones shown in Exhibit S-6 were established in 1996 to identify areas at the greatest threat of wildfires that require added precautions and protection. The designation is established based on the following criteria:

- Vegetation and its potential to burn over a 5-year time period
- Topography
- Weather
- Crown fire potential
- Ember production and movement
- Likelihood of an area burning over a 30 to 50-year time period

The California Building Code Chapter 7A requires that buildings constructed in areas identified as VHFHSZ must be built using fire-resistive features. Within the City of Menifee, certain roads, residential development, and commercial areas are currently located within the VHFHSZ.

The California Department of Forestry and Fire Protection (Cal Fire) has recommended that the urban, low-lying areas in Menifee be classified as having a Moderate Fire Hazard, whereas the hillside areas are generally classified as having a Very High Fire Hazard. The majority of the City's VHFHSZ falls under local responsibility, however, a small portion falls under federal responsibility. The areas between the flatlands and the hillsides are classified as High Fire Hazard. Most of the low-lying areas within the City are located within local responsibility areas (LRAs); the hillsides are within either state or federal responsibility areas. Fire suppression responsibility for these areas is divided among local, state, and federal agencies, respectively (see Exhibit S-6, High Fire Hazard Areas). California state law requires that fire hazard areas be disclosed in real estate transactions.

Goal S- 4: A community that has effective fire mitigation and response measures in place, and as a result is minimally impacted by wildland and structure fires.

Policies

S-4.1 Require fire-resistant building construction materials, the use of vegetation control methods, and other construction and fire prevention features to reduce the hazard of wildland fire. Ensure all new development and/or redevelopment in the LRA and VHFHSZ will comply with the California Fire Code (CFC) and California Building Code (CBC). All new development within the LRA Very High Fire zone will comply with Chapter 49 of the California Fire Code and Chapter 7A of the California Building Code.

S-4.2 Ensure, to the maximum extent possible, that fire services, such as firefighting equipment and personnel, infrastructure, and response times, are adequate for all sections of the City. The City will continue to coordinate with the Riverside County Fire Department, for Interagency coordination, to

respond to emergency calls in Menifee and to provide training and ongoing programs for public education.

S-4.3 Encourage owners of non-sprinklered high-occupancy structures to retrofit their buildings to include internal sprinklers.

S-4.4 Review development proposals for impacts to fire facilities and compatibility with fire areas or mitigate.

S-4.5 Coordinate with CalFire to ensure that Fire Hazard Severity Zone mapping is up to date.

S-4.6 Coordinate with Eastern Municipal Water District to ensure adequate water availability for fire suppression.

S-4.7 Encourage multi-family housing, group homes, or other community housing in SRAs, LRAs, or VHFHSZs to develop a policy to create emergency evacuation or shelter in place plans.

S-4.8 When feasible locate new essential public facilities outside of high fire risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identifying construction methods or other methods to minimize damage if these facilities are located in a state responsibility area or Very High Fire Hazard Severity Zone.

S-4.9 Ensure all new development and/or redevelopment within the SRA will comply with all provisions of Title 14, CCR, division 1.5, chapter 7, subchapter 3, article 3 (commencing with section 1299.01) (Fire Hazard Reduction Around Buildings and Structures Regulations) for SRAs and VHFHSZs.

S-4.10 Ensure all new residential development as well as all new development and redevelopment within the LRA and VHFHSZ will comply with the most current version of the California Building Codes and California Fire Code.

S-4.11 When feasible, the City will minimize all new residential, commercial, and industrial development in the VHFHSZ.

S-4.12 All new development located in the LRA VHFHSZ shall be required to provide a site-specific Fire Protection Plan (FPP) and a Fuel Modification Plan that address fuel modification or incorporate open space and other defensible space areas, as well as multiple points of ingress and egress before approval.

S-4.13 All new development within the LRA VHFHSZ shall be responsible for long-term maintenance of fire reduction projects; including but not limited to, a roadside fuel reduction plan (including private/public road clearance), defensible space clearances (including fuel breaks) around structures, subdivisions, and other development in the VHFHSZ.

S-4.14 All new parcel maps and tentative maps in the LRA, SRA, and VHFHSZ shall provide two points of access to the project in conformance with the California Building Code and California Fire Code and CA GC 65302 (g)(5). Approval of parcel maps and tentative maps in LRA's, SRAs or VHFHSZs is conditional based on meeting the SRA Fire Safe Regulations and the Fire Hazard Reduction Around Buildings and Structures Regulations, particularly those regarding road standards for ingress, egress, and fire equipment access. (See Gov. Code, § 66474.02.).

S-4.15 When feasible, the City will prepare a survey of existing non-conforming developments to identify all existing developments within the City that do not provide two points of access/evacuation routes and identify measures or improvement plans to address opportunities to improve access. Where no additional access opportunities exist, the City and Fire Department should identify a plan for emergency operations in fire/emergency events.

S-4.16 The City and Fire Department shall develop a policy or program promoting public outreach about defensible space and evacuation routes. The City and Fire District shall include specific plans to reach at risk populations.

S-4.17 The City should ensure that all new development has adequate water, sewer, and fire protection consistent with the most current California Building Code and California Fire Code and will comply with the Board of Forestry and Fire Protection Fire Safe Regulations.

S-4.18 The City shall evaluate all redevelopment as well as new development after a large fire event to ensure development will comply with the most current version of the California Building Codes and California Fire Code. The City and Fire Department will continue to coordinate with State, regional, and local agencies on emergency management and on fire risk reduction planning.

HAZARDOUS MATERIALS

Hazardous materials are used every day in industrial, commercial, medical, and residential applications. The primary concern associated with a hazardous materials release is the short- and/or long-term effect to the public from exposure to these substances. Although compared to other cities in Southern California, Menifee has a relatively low number of sites that generate, use, or store hazardous materials, it is still critical to plan for hazardous materials in order to ensure public safety. The City created measures to analyze/assess development in high risk

areas and include measure to protect the community in the event of natural disasters and protects sensitive receptors such as homes and schools. See Exhibit S-B4, Hazardous Materials Sites, for the location of hazardous material sites in Menifee.

Goal S-5: A community that has reduced the potential for hazardous materials contamination.

Policies

S-5.1 Locate facilities involved in the production, use, storage, transport, or disposal of hazardous materials away from land uses that may be adversely impacted by such activities and areas susceptible to impacts or damage from a natural disaster.

S-5.2 Ensure that the fire department can continue to respond safely and effectively to a hazardous materials incident in the City, whether it is a spill at a permitted facility, or the result of an accident along a section of the freeway or railroads that extend across the City.

S-5.3 Continue to support the operation of programs and recycling centers that accept hazardous substances, such as paint, paint thinner, used waste oil, etc.

S-5.4 Ensure that all facilities that handle hazardous materials comply with federal and state laws pertaining to the management of hazardous wastes and materials.

S-5.5 Require facilities that handle hazardous materials to implement mitigation measures that reduce the risks associated with hazardous material production, storage, and disposal.

S.5.6 Require all new industrial development projects and significant rehabilitation or expansion projects to reduce industrial truck idling by enforcing California's five (5) minute maximum law, requiring warehouse and distribution facilities to provide adequate on-site truck parking, and requiring refrigerated warehouses to provide generators for refrigerated trucks. Require air pollution point sources to be located at safe distances from sensitive sites such as homes and schools.

DISASTER PREPAREDNESS, RESPONSE, AND RECOVERY

A disaster is a sudden and dramatic emergency. When a disaster occurs, the threatened community strives to: 1) protect its residents to the extent possible, 2) care for victims, and 3) restore basic services as soon as possible. To do this, a community needs to respond quickly and dynamically and as effectively as possible. This requires preparation at all levels, from the federal government (for large-scale disasters) down to individual neighborhoods, families, and businesses. Planning issues pertaining to emergency response, disaster preparedness, and disaster recovery require an assessment of the hazards, identification of functions and resources to handle short-term and long-term response, and development of recovery procedures. Planning can help speed the response to an emergency, while ensuring that the response is appropriate to the situation. Some

level of preparedness, however basic, can be very useful to facilitate the safety and recovery of people who live and work in the City of Menifee.

HazUS (short for Hazards United States) is a methodology developed by the National Institute of Building Sciences with funding from the Federal Emergency Management Agency to make standardized loss estimates at a regional scale resulting from earthquakes, floods, or hurricanes. HazUS addresses nearly all aspects of the built environment and is used in planning for disaster loss mitigation and emergency preparedness, response and recovery. HazUS breaks critical facilities into two groups: (1) essential facilities and (2) high potential loss (HPL) facilities. Essential facilities are those parts of a community's infrastructure that must remain operational after an earthquake. Buildings that house essential services include hospitals, emergency operation centers, fire and police stations, schools, airport control towers, and communication centers. HPL or high-risk facilities are those that, if severely damaged, may result in a disaster far beyond the facilities themselves. Examples include power plants; dams and flood control structures; and industrial plants that use or store explosives, extremely hazardous materials, or petroleum products in large quantities, Exhibit S-7 - Critical Facilities, identifies where these facilities are located in Menifee.

Goal S-6: *A City that responds and recovers in an effective and timely manner from natural disasters such as flooding, fire, and earthquakes, and as a result is not impacted by civil unrest that may occur following a natural disaster.*

Policies

S-6.1 Continuously review, update, and implement emergency preparedness, response, and recovery plans that make the best use of the City- and county-specific emergency management resources available.

S-6.2 Ensure to the fullest possible extent that, in the event of a major disaster, critical, dependent care and high-occupancy facilities remain functional.

S-6.3 Work with the Riverside County Airport Land Use Commission to strengthen the City's disaster preparedness, response, and recovery program in accordance with the Airport Land Use Plans for March Air Reserve Base and Perris Valley Airport.

S-6.4 Locate new essential or critical facilities away from areas susceptible to impacts or damage from a natural disaster.

S-6.5 Promote strengthening of planned and existing critical facilities and lifelines, the retrofit and rehabilitation of existing weak structures, and the relocation of certain critical facilities as necessary to adequately meet the needs of Menifee's residents and workforce.

CLIMATE ADAPTATION AND RESILIENCY

Senate Bill 379 requires all cities to include climate adaptation and resiliency strategies to their General Plan Safety Element. The goals, policies, and objectives of this section are derived from a Climate Vulnerability Assessment, which identifies the exposure risks; sensitive structures, functions, and populations; potential impacts and risks; and the City's adaptive capabilities. Additional reference documents include the latest adopted Menifee Local Hazard Mitigation Plan ~~(2015)~~ and the Western Riverside Council of Governments Subregional Climate Action Plan Update (2014). ~~It is important to note that the City is currently updating the LHMP set for adoption in late 2021 and WRCOG is currently working on a comprehensive update to the CAP that is scheduled to be adopted in late 2021 as well.~~

Climate change generally occurs at a global scale. However, the climate change that is currently occurring at an unprecedented rate is the direct result of intensive human-generated greenhouse gas (GHG) emissions. Human-generated GHG emissions significantly contribute to the changes in the global climate, which have a number of physical and environmental effects. These effects include sea level rise, an increase in the frequency and intensity of droughts, and increased temperatures. Increased GHG emissions are largely the result of increasing energy consumption, particularly through the combustion of fossil fuels. These effects may also affect communities differently based on their geography, weather, environmental resources, urbanization, and populations.

Climate Change Considerations

The City of Menifee's inland location within a naturally dry climate makes it more susceptible to the effects of climate change in the forms of increased average temperature, a greater occurrence of extreme temperature days (days with temperatures that exceed the 105.8°F extreme temperature threshold), and enhanced wildfire severity. Specific scenarios and effects are further outlined in the City of Menifee Climate Vulnerability Assessment. The potential climate change-related risks were analyzed using a continued high emissions scenario calculated by Cal-Adapt. The high GHG emissions activity used to calculate potential risks illustrates more dramatic consequences than a scenario in which emissions peak in 2040 and then decrease.

Prior to the Climate Vulnerability Assessment, the City of Menifee adopted a variety of plans, policies and reduction strategies to address climate change. The City's General Plan Open Space and Conservation Element (OSC-9) includes Air Quality Goals and Polies; as well emissions reduction consideration in the Land Use and Circulation Elements through Policies that encourage local jobs and housing balance, improving the transportation network, and uses of neighborhood electric vehicles (NEVs). In addition, the City also adopted an Active Transportation Plan (ATP) in 2020 to meet the City's goals and vision for providing a transportation system that supports walking, cycling, public transit and automobiles. The ATP promotes programs that help reduce GHG emissions through increasing bicycling and walking; as well as improving non-motorized travel infrastructure to provide safer, walkable streets throughout the City. The City's adopted 2015 Local Hazard Mitigation Plan (LHMP) also provides plans to reduce or eliminate long-term risk to people and property from hazards, including hazardous air emissions.

The City of Menifee is a member of the Western Riverside Council of Governments (WRCOG). WRCOG adopted a Subregional Climate Action Plan (also referred to as CAP or CAPtivate) in 2014. CAPtivate included a study on Climate Adaptation and Resiliency. The CAPtivate Adaptation and Resiliency Strategy recommends strategies to reduce greenhouse gas (GHG) emissions for the subregion, including Menifee. Currently, WRCOG is in the process of preparing an update and expansion to the 2014 CAPtivate, which is referred to as the CAP Update. The CAP Update will include a comprehensive update to GHG inventories and GHG emissions reduction strategies for all sectors and establishes GHG targets for the years 2030 and 2050 for all WRCOG member jurisdictions. At this time, the CAP Update has not been adopted. Furthermore, the State of California has adopted a variety of bills aimed at decreasing the State's impact on climate change and improving the resiliency of its communities, such as the California Global Warming Solutions Act of 2006 and SB-379.

The City of Menifee and WRCOG both have a variety of plans adopted, which each address various aspects of the potential threats outlined in the Climate Vulnerability Assessment. Both jurisdictions recognize the importance of public and private partnerships and planning for potential issues the community may face in the coming years.

Goal S- 7: A community that has protected its sensitive structures, functions, and populations from the risks associated with climate change.

Policies

S-7.1 Continue to require environmental analysis for proposed projects which may produce harmful levels of greenhouse gas.

S-7.2 Ensure that the City's water supply is protected against drought conditions intensified by climate change.

S-7.3 Coordinate with energy providers to ensure reliable energy availability for the City's residents.

S-7.4 Promote alternative forms of energy production such as solar or wind power.

S-7.5 Promote the use of climate ready architecture designed to maintain adequate indoor climate with minimal energy use.

S-7.6 Continue to monitor potential climate risks occurring within the City.

S-7.7 The City shall maintain consistent outreach to notify the community of extreme weather hazards such as extreme heat, severe rain events, and potential wildfire risk.

S-7.8 The City shall communicate the location and availability of shelters in cases of hazardous climate conditions such as wildfire, severe rain events, and extreme temperatures.

S-7.9 Promote drought resistant landscaping to continue reducing water consumption and potential fuel sources.

POLICE SERVICES

In November 2018, the Menifee City Council voted to create their own police department. Being a young city, which incorporated in 2008, this was a bold step on the City Council's part. Menifee is one of the fastest growing and vibrant cities in America and it only made sense to have local control of their own police department. On July 1, 2020, the Menifee Police Department officially entered service with over 60 officers and 17 professional staff. Soon after its formation, the Menifee Police Department adopted the following Mission Statement and Values:

MISSION

"We deliver an experience where people feel unified, engaged and safe."

VALUES

- Together – See one another-Know one another-Empower one another
- Humble – Learn-Serve-Sacrifice
- Creative – Encourage and pursue original ideas

The Chief of Police is responsible for administering and managing the Menifee Police Department. There are three divisions in the Police Department as follows:

- OFFICE OF THE CHIEF OF POLICE: Under the direction of the Chief of Police, this Division has overall authority and is responsible for the effective administration, management and coordination of police services in the community. In addition to the Office of the Chief, this Division includes Budget and Finance, Policy and Procedure (updates/issuance/adherence), as well as the Senior Police Personnel and Training Analyst, and Professional Standards and Training Unit (PST). PST includes hiring, personnel, training, organizational adherence to Federal, State and local laws, acceptance and review of personnel commendations and complaints, Property and Evidence (as well as Crime Scene Investigations), short- and long-range Strategic Planning, and public information and social media.
- OPERATIONS DIVISION: The Operations Division is commanded by a Captain, whose primary responsibility is to provide general management direction and control for the Operations Division. The Operations Division consists of Uniformed Patrol, Traffic Unit, School Programs, SWAT and K-9.
- INVESTIGATIONS AND SUPPORT SERVICES DIVISION: The Investigations and Support Services Division is commanded by a Captain, whose primary responsibility is to provide general management direction and control for the Services Division. The Services Division consists of the General Investigation Unit, Special Investigations Unit, Problem Oriented Policing Unit, Code Enforcement Unit, Crime Analysis Unit, Property and Evidence Unit which includes Crime Scene Investigations, Volunteer Program, and protection and order during public meetings pursuant to California Government Code 38638.

Goal S-8: A community that provides high-quality police services and effective police response to major disasters and emergency events.

Policies

S-8.1 Utilize technology and IT infrastructure such as mobile platforms allowing for connectivity at remote work sites in the event of displacement.

S-8.2 Provide citywide surveillance connectivity allowing for assessment of critical roadways and infrastructure and video analytics including facial and physical recognition for threat analysis around critical infrastructure and government buildings.

S-8.3 Provide a diversity of fleet for specific and general mission accomplishments including for mobile command operations capable of replacing dispatch in long-term displacement situations.

S-8.4 Identify currently owned City buildings and property for expansion of emergency services.

S-8.5 Comply with all federal and State of California training requirements including POST (State of California) and FEMA ICS courses 100, 200, 300, 400 and 700 and provide officer and supervisor training in areas of Emergency Management and as Terrorism Liaison Officers.

EVACUATION ROUTES

The Western Riverside County of Governments (WRCOG) and San Bernardino County Transportation Authority (SBCTA) prepared a *Community Vulnerability Profiles Western Riverside County* report and the *Regional Climate Adaptation Toolkit for Transportation Infrastructure*, *"Resilient IE Toolkit"* to support member agencies prepare climate adaptation and resilience strategies to reduce risks. As part of this effort, The Vulnerability Profile identified key hazards, vulnerable populations, and infrastructure vulnerabilities in the evacuation network. The assessment identified the City's evacuation network and provided potential conflicts or hazard prone areas along the identified evacuation routes. Exhibit S-9: Evacuation Routes, identifies the City's evacuation route network relating to hazard impacts, bridges, and water crossings and the following provides a breakdown of hazard-prone areas in the City:

- Evacuation Route Miles in Fire Hazard Zones (8 miles and 12% of City's network)
- Evacuation Route Miles in Flood Hazard Zones (13 miles and 20% of City's network)
- Evacuation Route Miles in Landslide Hazard Zones (8 miles and 13% of City's network)
- Menifee's total Evacuation Network Miles (65 miles and 100% of City's network and 3.4% of City's total network as part of the larger Wester Riverside County network).
- Bridge Crossings in Menifee's Evacuation Network (16 miles)

- Water Crossings in Menifee's Evacuation Network (29 miles)

RIVERSIDE COUNTY
AIRPORT LAND USE COMMISSION

March 16, 2023

Evan Langan, Project Planner
County of Riverside Planning Department
4080 Lemon Street, 12th Floor
Riverside CA 92501

RE: AIRPORT LAND USE COMMISSION (ALUC) DEVELOPMENT REVIEW – DIRECTOR'S DETERMINATION

File No.:	ZAP1563MA23
Related File No.:	GPA210220 (General Plan Amendment), CZ210236 (Change of Zone), TTM38272 (Tentative Tract Map), PP210248 (Plot Plan)
APN:	461-030-008
Airport Zone:	Compatibility Zone E

Dear Mr. Langan:

Under the delegation of the Riverside County Airport Land Use Commission (ALUC) pursuant to Resolution No. 2015-01, as extended by Resolution No. 2020-01, of the Countywide Policies of the 2004 Riverside County Airport Land Use Compatibility Plan, staff reviewed County Case Nos. GPA210220 (General Plan Amendment), CZ210236 (Change of Zone), TTM38272 (Tentative Tract Map), PP210248 (Plot Plan), a proposal to divide 29.11 gross acres into two lots in conjunction with condominium ownership of 221 residential units located northerly of Matthews Road and easterly of Briggs Road. The applicant also proposes to amend the site's General Plan land use designation from Light Industrial to Medium High Density Residential, and also change the site's zoning from A-P (Light Agriculture with Poultry) to R-4 (Planned Residential).

The site is located within Airport Compatibility Zone E of the March Air Reserve Base/Inland Port Airport Influence Area (AIA). Within Compatibility Zone E of the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, residential density is not restricted.

Although the project is located within the March Air Reserve Base/Inland Port Airport Influence Area, the nearest runway is actually Runway 15-33 at Perris Valley Airport. The elevation of Runway 15-33 at Perris Valley Airport is approximately 1,413 feet above mean sea level (AMSL) at its southerly terminus. At a distance of 28,000 feet from the project to the nearest point on the runway, Federal Aviation Administration Obstruction Evaluation Service (FAA OES) review would be required for any structures taller than 200 feet in height. The project proposes a maximum structure height of 38 feet. Therefore, FAA OES review for height/elevation is not required.

As ALUC Director, I hereby find the above-referenced project **CONSISTENT** with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, provided that the County of Riverside applies the following recommended conditions:

CONDITIONS:

County Administrative Center
4080 Lemon St.,14th Floor.
Riverside, CA 92501
(951) 955-5132

www.rcaluc.org

1. Any new outdoor lighting that is installed shall be hooded or shielded so as to prevent either the spillage of lumens or reflection into the sky. Outdoor lighting shall be downward facing.

2. The following uses/activities are not included in the proposed project and shall be prohibited at this site:

   (a) Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA-approved navigational signal light or visual approach slope indicator.

   (b) Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport.

   (c) Any use which would generate smoke or water vapor or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area. (Such uses include landscaping utilizing water features, aquaculture, production of cereal grains, sunflower, and row crops, composting operations, wastewater management facilities, artificial marshes, trash transfer stations that are open on one or more sides, recycling centers containing putrescible wastes, construction and demolition debris facilities, fly ash disposal, and incinerators.)

   (d) Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

   (e) Other Hazards to flight.

3. The attached “Notice of Airport in Vicinity” shall be provided to all prospective purchasers and occupants of the property.

4. Any proposed stormwater basins or facilities shall be designed and maintained to provide for a maximum 48-hour detention period following the design storm, and remain totally dry between rainfalls. Vegetation in and around the stormwater basins that would provide food or cover for birds would be incompatible with airport operations and shall not be utilized in project landscaping. Trees shall be spaced so as to prevent large expanses of contiguous canopy, when mature. Landscaping in and around the stormwater basin(s) shall not include trees or shrubs that produce seeds, fruits, or berries.

   Landscaping in the stormwater basin, if not rip-rap, should be in accordance with the guidance provided in ALUC “LANDSCAPING NEAR AIRPORTS” brochure, and the “AIRPORTS, WILDLIFE AND STORMWATER MANAGEMENT” brochure available at RCALUC.ORG which list acceptable plants from Riverside County Landscaping Guide or other alternative landscaping as may be recommended by a qualified wildlife hazard biologist.

   A notice sign, in a form similar to that attached hereto, shall be permanently affixed to the stormwater basin with the following language: “There is an airport nearby. This stormwater basin is designed to hold stormwater for only 48 hours and not attract birds.

Proper maintenance is necessary to avoid bird strikes". The sign will also include the name, telephone number or other contact information of the person or entity responsible to monitor the stormwater basin

If you have any questions, please contact me at (951) 955-6893.

Sincerely,
RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION

Paul Rull, ALUC Director

Attachments: Notice of Airport in Vicinity

cc: Sunranch Communities, LLC (applicant/property owner)
Matthew Fagan Consulting Services, Inc. (representative)
Gary Gosliga, Airport Manager, March Inland Port Airport Authority
Major David Shaw, Base Civil Engineer, March Air Reserve Base
ALUC Case File

X:\AIRPORT CASE FILES\March\ZAP1563MA23\ZAP1563MA23.LTR.doc

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances [can vary from person to person. You may wish to consider what airport annoyances], if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you. Business & Professions Code Section 11010 (b)(13)(A)

NOTICE

THERE IS AN AIRPORT NEARBY.

THIS STORM WATER BASIN IS DESIGNED TO HOLD STORM WATER FOR ONLY 48 HOURS AND NOT TO ATTRACT BIRDS

PROPER MAINTENANCE IS NECESSARY TO AVOID BIRD STRIKES

RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION ALUC

IF THIS BASIN IS OVERGROWN, PLEASE CONTACT:

Name: _____ Phone: _____

LEGEND

Compatibility Zones

- Airport Influence Area Boundary
- Zone A
- Zone B1
- Zone B2
- Zone C1
- Zone C2
- Zone D
- Zone E
- Zone M
- High Terrain Zone
- FAR Part 77 Military Outer Horizontal Surface Limits
- FAR Part 77 Notification Area

Boundary Lines

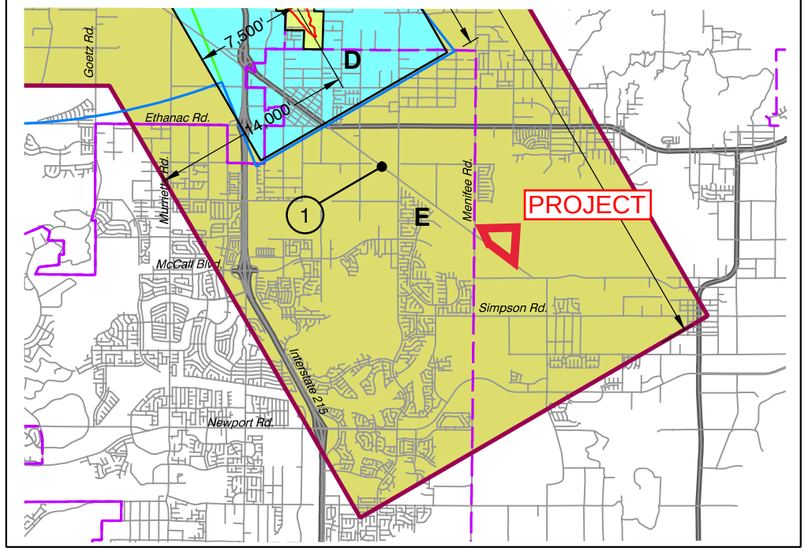
- March Air Reserve Base / Air Force Property
- March Joint Powers Authority Property Line
- County Boundary
- City Limits
- Site-Specific Exceptions (existing local agency commitments to development projects)

1. March JPA: March Business Center/Meridian
2. Perris: Harvest Landing
3. Perris: Park West
4. Moreno Valley: Affordable Housing
5. March JPA: Ben Clark Training Center
6. Riverside: Ridge Crest Subdivision

(1) Point at which aircraft on Runway 32 ILS approach descend below 3,000 feet above runway end. Airport Elevation is 1,535 feet MSL.

(2) Point at which departing aircraft typically reach 3,000 feet above runway end.

INSET



SAN BERNARDINO COUNTY

RIVERSIDE

MORENO VALLEY

PERRIS

UNINCORPORATED

UNINCORPORATED

PERRIS RESERVOIR

MATHEWS LAKE

Columbia Ave. · Chicago Ave. · Arlington Ave. · State Highway 91 · Canyon Crest Dr. · Trautwein Rd. · Washington St. · Eucalyptus Ave. · State Highway 60 · Alessandro Blvd. · Cactus Ave. · Heacock St. · Perris Blvd. · Lasselle St. · Frederic St. · Dilman Springs Rd. · Davis Rd. · Van Buren Blvd. · Wood Rd. · Barton St. · Interstate 215 · Ramona Expressway · Cajalco Rd. · El Sobrante Rd. · Clark St. · Old Elsinore Rd. · Gavilan Rd. · Perris Blvd. · Nuevo Rd. · San Jacinto Ave. · 4th St. · Ellis Ave. · State Highway 74 · Goetz Rd. · Ethanac Rd.

APZ I · APZ II

14,000' · 7,500' · 18,000' · 1,000' · 3,000' · 15,000' · 50,000' · 75,000'

SEE INSET AT RIGHT

Note:
All dimensions are measured from runway ends and centerlines.

N

0 2 4 MILES

Base map source: County of Riverside 2013

Prepared by Mead & Hunt, Inc. (June 2013)

X:\18190-10\114627.01\TECH\CAD\MAR-compatibility-2013.dwg Dec 10, 2014 - 1:38pm

Riverside County
Airport Land Use Commission

March Air Reserve Base / Inland Port Airport
Land Use Compatibility Plan

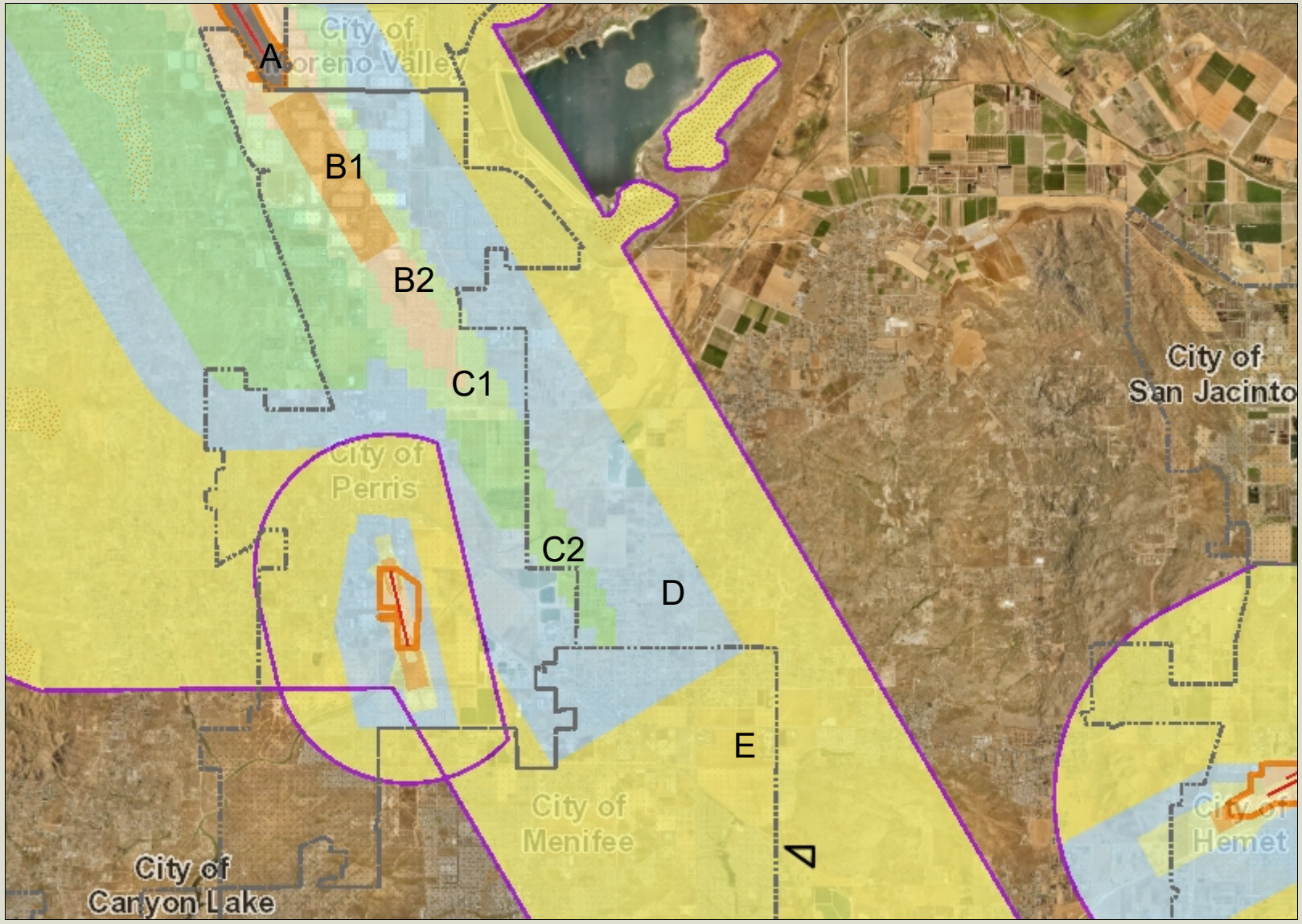
(Adopted November 13, 2014)

Map MA-1

Compatibility Map

March Air Reserve Base / Inland Port Airport

Map My County Map



Legend

- Runways
- Airports
- Airport Influence Areas
- Airport Compatibility Zones
  - OTHER COMPATIBILITY ZONE
  - A
  - A-EXC1
  - B1
  - B1-APZ I
  - B1-APZ I-EXC1
  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5
  - C2-EXC6

0 12,314 24,629 Feet

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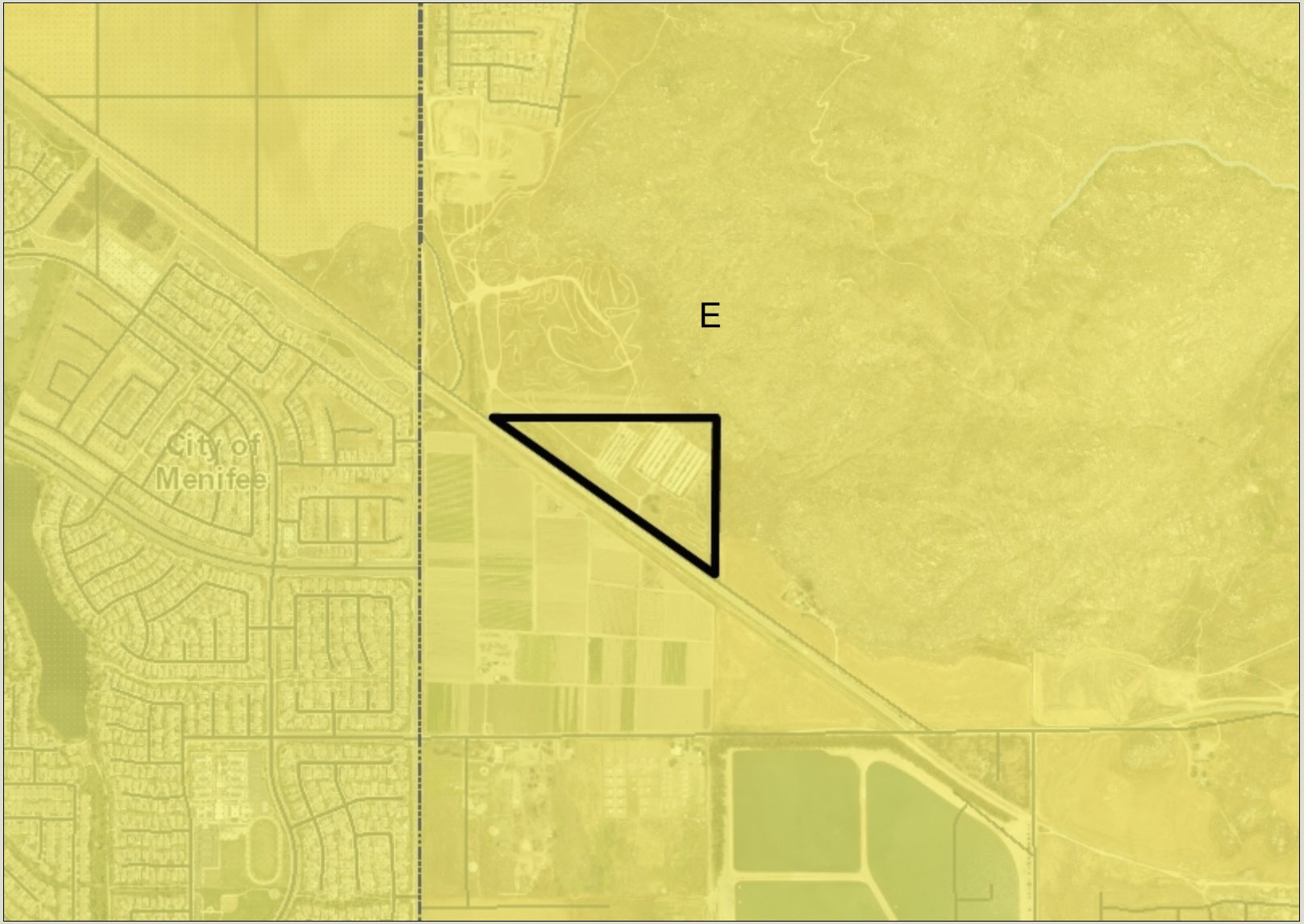
Notes

Map My County Map



Legend

- Runways
- Airports
- Airport Influence Areas
- Airport Compatibility Zones
  - OTHER COMPATIBILITY ZONE
  - A
  - A-EXC1
  - B1
  - B1-APZ I
  - B1-APZ I-EXC1
  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5
  - C2-EXC6

0 1,539 3,079 Feet

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Notes

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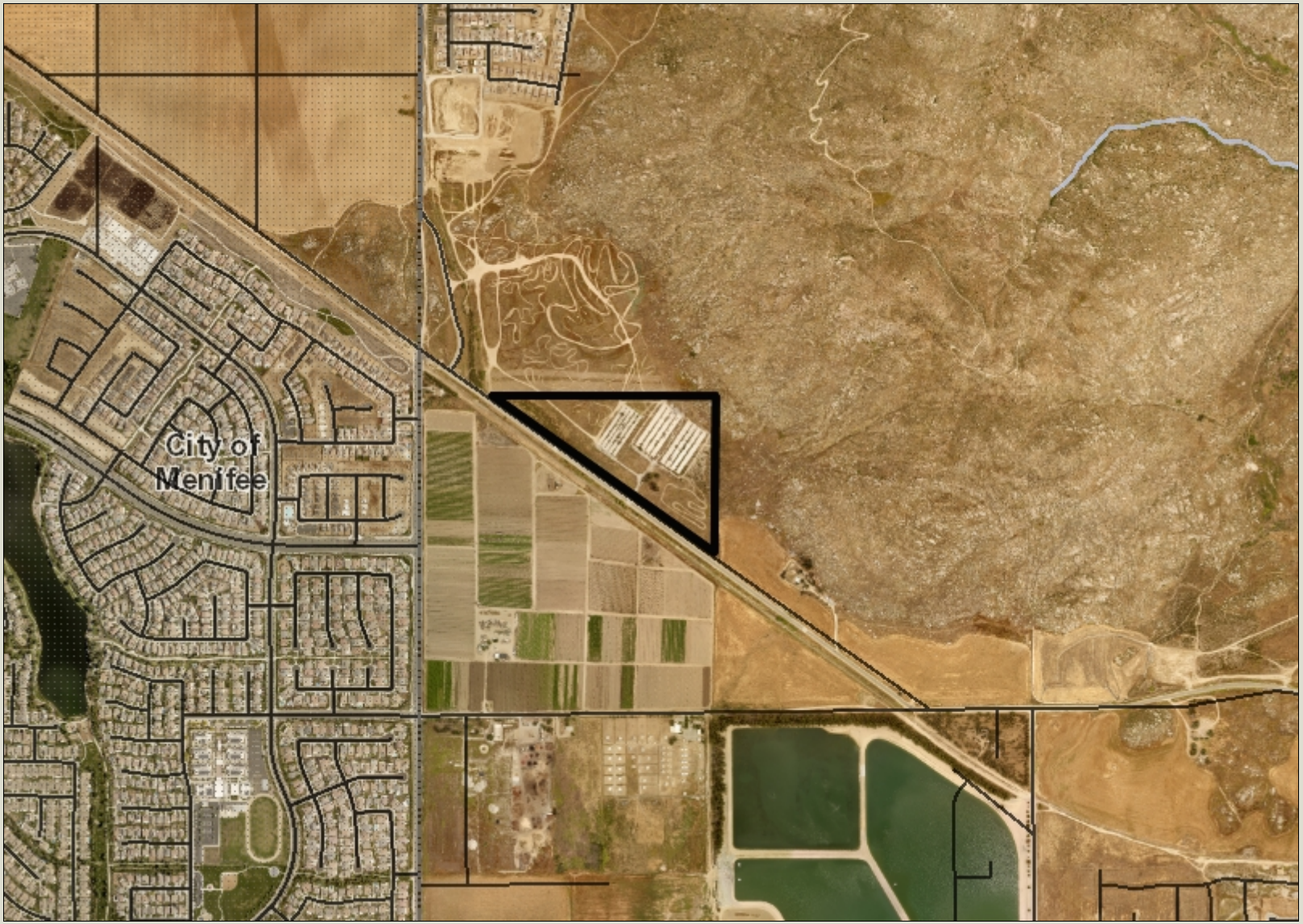

Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 1,539 3,079 Feet

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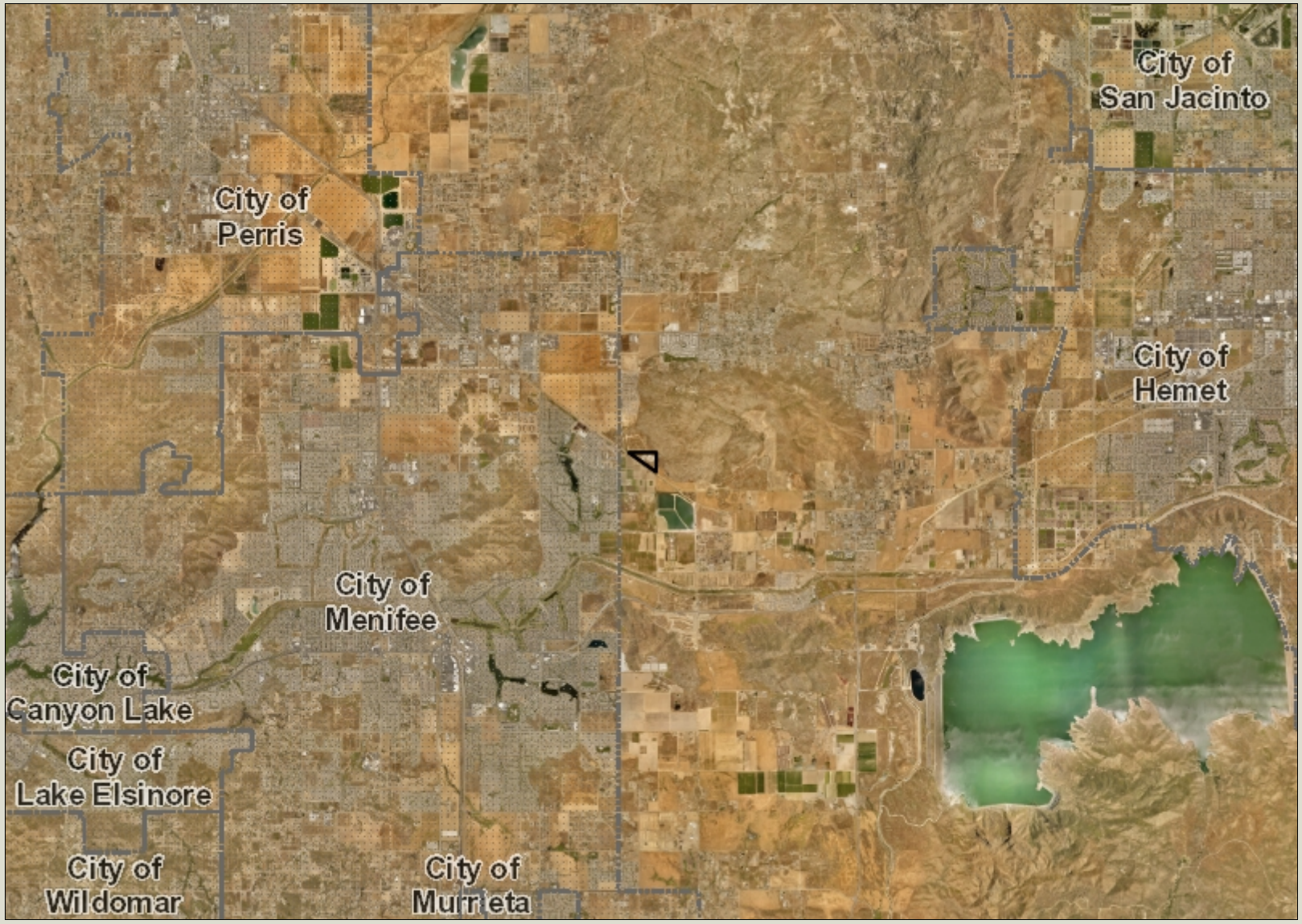
Notes

Map My County Map



Legend

City Areas

World Street Map

0 12,314 24,629 Feet

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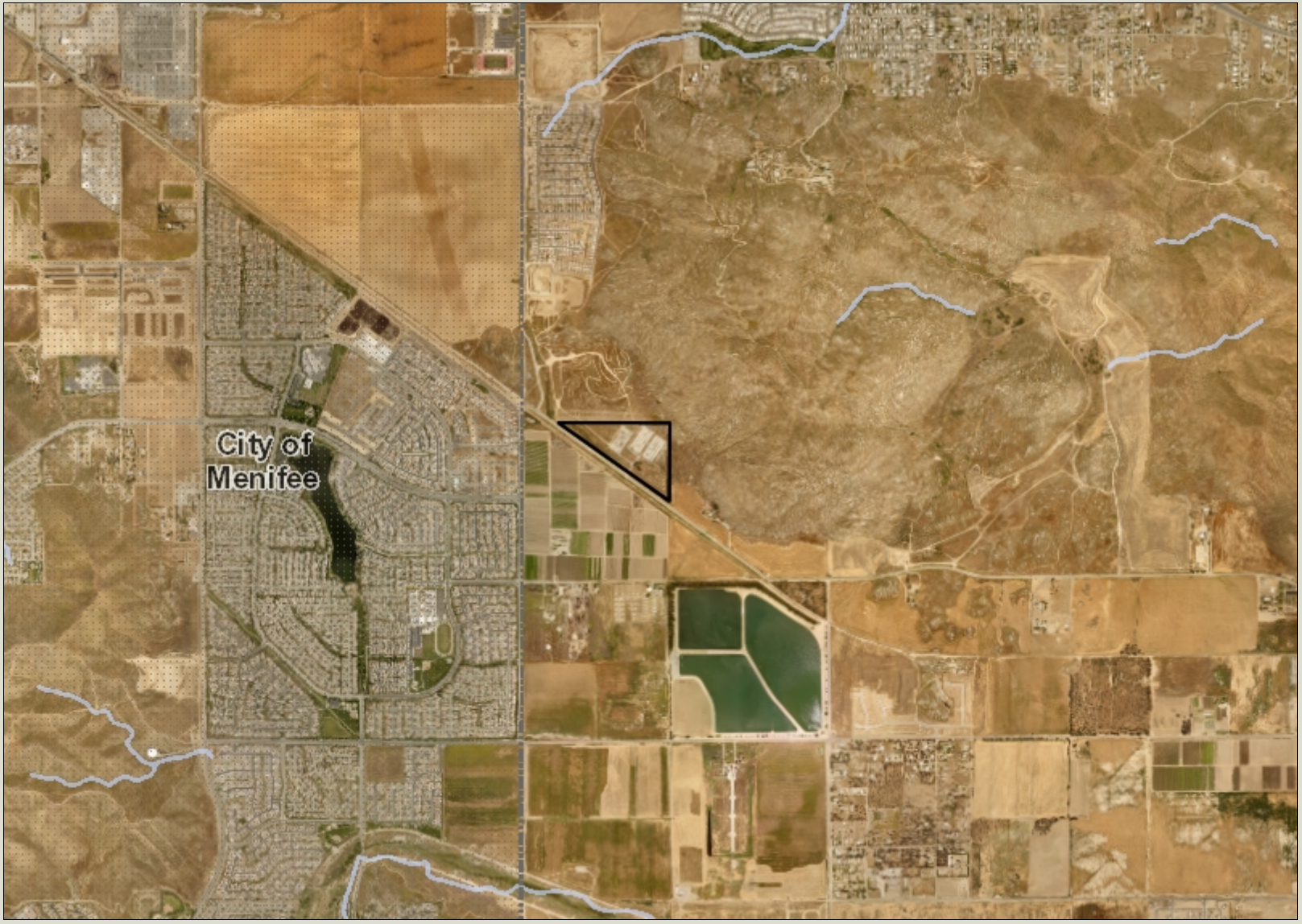
Notes

Map My County Map



Legend

- Blueline Streams
- City Areas
- World Street Map

0 3,079 6,157 Feet

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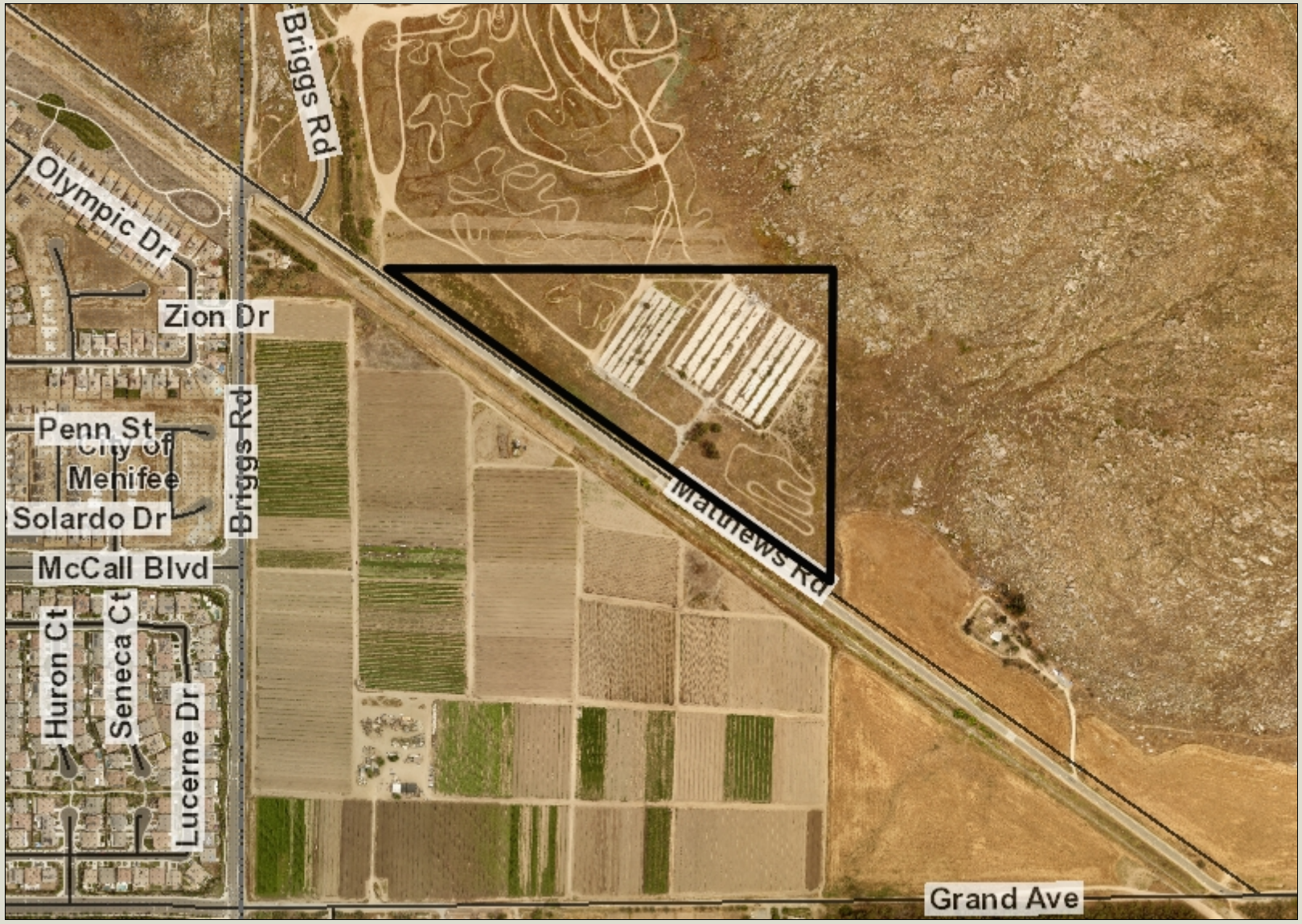
Notes

Map My County Map



Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 770 1,539 Feet

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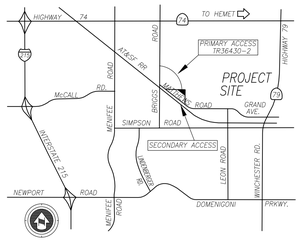
Notes

EXISTING GP LIGHT INDUSTRIAL
PROPOSED GP MEDIUM HIGH DENSITY RESIDENTIAL

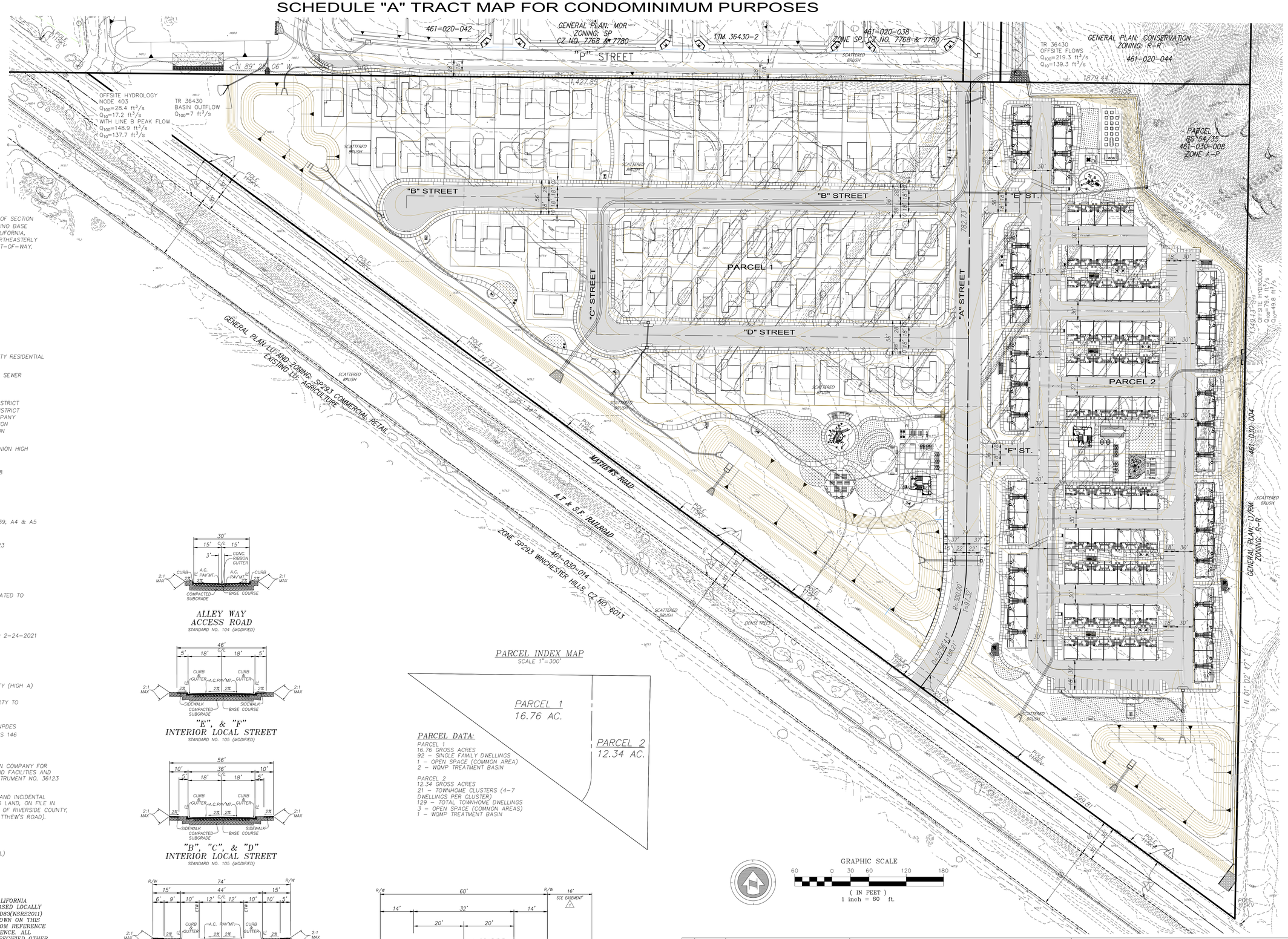
EXISTING ZONING LIGHT AGRICULTURE
PROPOSED ZONING PLANNED RESIDENTIAL

TENTATIVE TRACT MAP NO. 38272

SCHEDULE "A" TRACT MAP FOR CONDOMINIUM PURPOSES



VICINITY MAP
2010 THOMAS GUIDE PG 838, J4, PG 839, A4, AND A5
SEC 19 SW, T5S, R2W
NOT TO SCALE



GENERAL NOTES

LEGAL DESCRIPTION

1. THAT PORTION OF THE FRACTIONAL SOUTHWEST QUARTER OF SECTION 19, TOWNSHIP 5 SOUTH, RANGE 2 WEST, SAN BERNARDINO BASE MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, LYING NORTHEASTERLY OF THE CALIFORNIA CENTRAL RAILROAD COMPANY RIGHT-OF-WAY.

2. TOTAL ACREAGE: 29.11 ACRES GROSS/NET
3. NUMBER OF LOTS: 2
4. MINIMUM LOT SIZE: 12.34 AC.
5. EXISTING ZONING: A/P
6. PROPOSED ZONING: R-4
7. EXISTING LAND USE: LIGHT INDUSTRIAL
8. PROPOSED LAND USE: MEDIUM-HIGH DENSITY RESIDENTIAL
9. METHOD OF SEWAGE DISPOSAL: PUBLIC SEWER
10. UTILITIES:
    WATER – EASTERN MUNICIPAL WATER DISTRICT
    SEWER – EASTERN MUNICIPAL WATER DISTRICT
    GAS – SOUTHERN CALIFORNIA GAS COMPANY
    ELECTRIC – SOUTHERN CALIFORNIA EDISON
    TELEPHONE – VERIZON CABLE – VERIZON
10. SCHOOL DISTRICT: ROMOLAND & PERRIS UNION HIGH
11. ASSESSORS PARCEL NO.: 461-030-008
12. SITE ADDRESS: 30180 MATTHEWS ROAD, MENIFEE, CA. 92585
13. 2010 THOMAS BROS. GUIDE: 838, J4, 839, A4 & A5
14. PLOT PLAN PREPARED: JANUARY 11, 2023
15. OCCUPANCY: NOT APPLICABLE
16. POLICY AREA: HIGHWAY 79 POLICY AREA
17. ALL PROPOSED DRAINAGE FACILITIES SHALL BE DESIGNATED TO ACCOMMODATE 100 YEAR STORM FLOWS.
18. THIS PROPERTY IS NOT IN A SPECIFIC PLAN AREA.
19. TOPO SOURCE: AEROTECH MAPPING, INC., FLOWN TOPO 2-24-2021
20. THIS PROPERTY IS SUSCEPTIBLE TO SUBSIDENCE.
21. THIS PROPERTY LIES OUTSIDE OF THE FLOODPLAIN
22. THIS PROPERTY HAS A HIGH PALEONTOLOGY SENSITIVITY (HIGH A)
23. THERE ARE NO EXISTING STRUCTURES ON THIS PROPERTY TO REMAIN.
24. THE FINAL DESIGN WILL CONSIDER AND COMPLY WITH NPDES SUPPLEMENT "A". THE COUNTY SERVICE AREA (CSA) IS 146

EASEMENT NOTES

1. AN EASEMENT IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY FOR EITHER OR BOTH POLE LINES, CONDUITS, OR UNDERGROUND FACILITIES AND INCIDENTAL PURPOSES, RECORDED APRIL 14, 1969 AS INSTRUMENT NO. 36123 OF OFFICIAL RECORDS.
2. AN EASEMENT FOR THE HEREINAFTER SPECIFIC PURPOSE AND INCIDENTAL PURPOSES, AS SHOWN ON A RECORD OF SURVEY OF SAID LAND, ON FILE IN BOOK 54 PAGE(S) 35 OF RECORDS OF SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA. SAID EASEMENT IS FOR ROAD PURPOSES (MATTHEW'S ROAD).

EARTHWORK QUANTITIES: 54,664 CUBIC YARDS CUT
136,072 CUBIC YARDS FILL
IMPORT / EXPORT = 81,407 CUBIC YARDS (FILL)

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, CCS83, ZONE 6, BASED LOCALLY ON CONTROL STATIONS "BILL", "P584", AND "DSSC" NAD83(NSRS2011) EPOCH 2010.00 AS SHOWN HEREON. ALL BEARINGS SHOWN ON THIS MAP ARE GRID. QUOTED BEARINGS AND DISTANCES FROM REFERENCE MAPS OR DEEDS ARE SHOWN PER THE RECORD REFERENCE. ALL DISTANCES SHOWN ARE GROUND DISTANCES UNLESS SPECIFIED OTHER WISE. GRID DISTANCES, MAY BE OBTAINED BY MULTIPLYING THE GROUND DISTANCE BY A COMBINATION FACTOR OF .999899352 . CALCULATIONS ARE MADE AT POINT A WITH COORDINATES OF: N: 2209895.6772, E: 6292117.6525, USING AN ELEVATION OF 1501.75' MSL

QUOTED BEARINGS FROM REFERENCE MAPS OR DEEDS MAY OR MAY NOT BE IN TERMS OF SAID SYSTEM.

ALLEY WAY ACCESS ROAD
STANDARD NO. 104 (MODIFIED)

"E", & "F" INTERIOR LOCAL STREET
STANDARD NO. 105 (MODIFIED)

"B", "C", & "D" INTERIOR LOCAL STREET
STANDARD NO. 105 (MODIFIED)

"A" ENTRANCE COLLECTOR STREET
STANDARD NO. 103 (MODIFIED)

EXISTING MATTHEW'S ROAD (60' R/W)

PARCEL INDEX MAP
SCALE 1"=300'

PARCEL DATA:

PARCEL 1
16.76 GROSS ACRES
92 – SINGLE FAMILY DWELLINGS
1 – OPEN SPACE (COMMON AREA)
2 – WQMP TREATMENT BASIN

PARCEL 2
12.34 GROSS ACRES
21 – TOWNHOME CLUSTERS (4-7 DWELLINGS PER CLUSTER)
129 – TOTAL TOWNHOME DWELLINGS
3 – OPEN SPACE (COMMON AREAS)
1 – WQMP TREATMENT BASIN

GRAPHIC SCALE
60 0 30 60 120 180
(IN FEET)
1 inch = 60 ft.

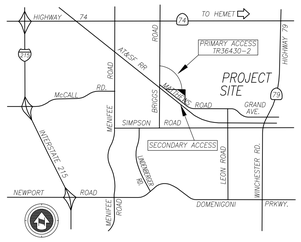
NO.	DATE	REVISION

OWNER/APPLICANT:
SUNRANCH COMMUNITIES, LLC
ATTN: WILLIAM LO
26895 ALISO CREEK RD. STE. B533
ALISO VIEJO, CA. 92656

ENGINEER:
4M ENGINEERING AND DEVELOPMENT, INC.
41635 Enterprise Circle N. – Suite B
Temecula, California 92590
TEL: (951) 296-3466
KIRK R. MEDEIROS R.C.E. 86558

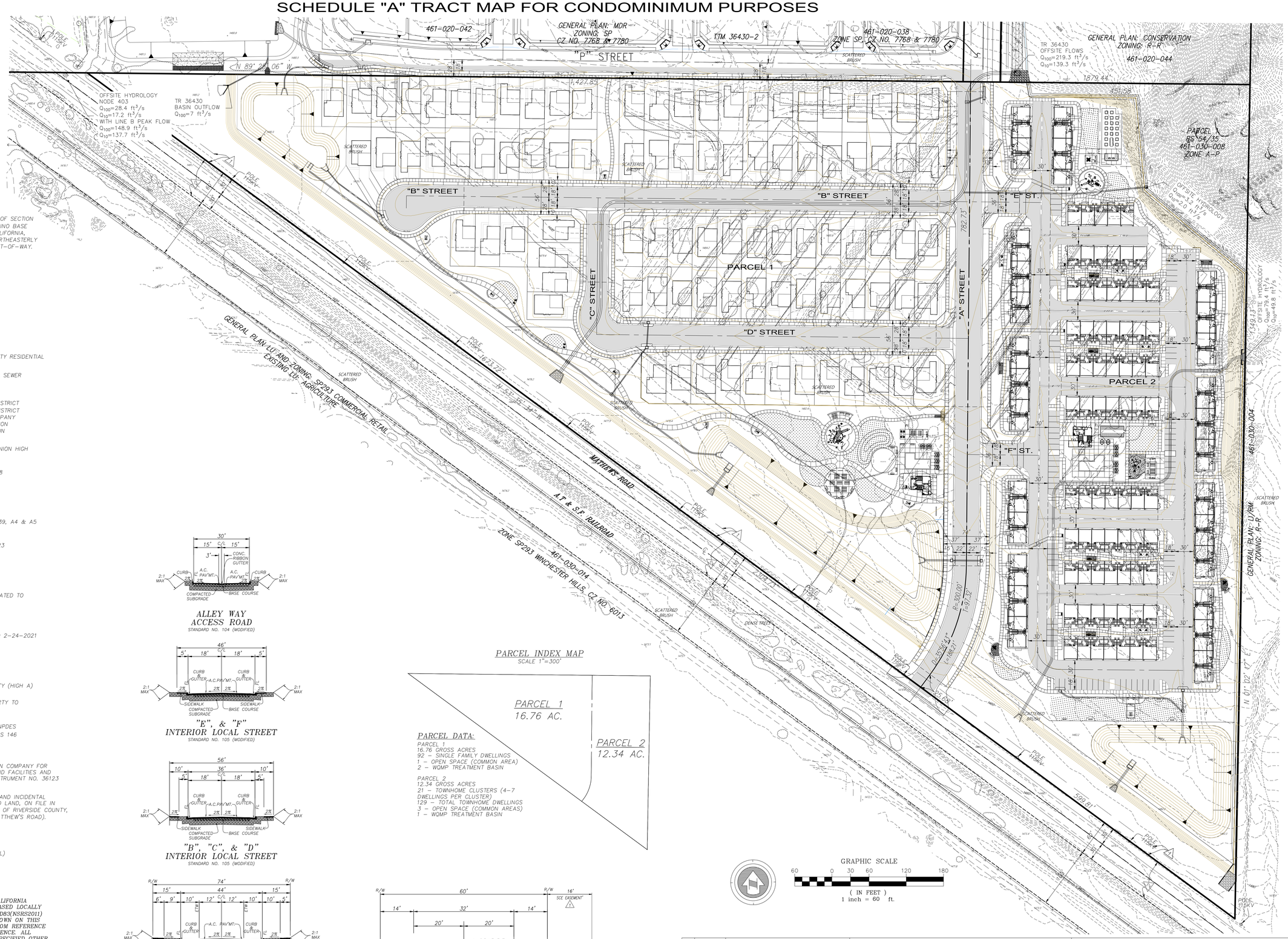
TENTATIVE TRACT MAP NO. 38272

SCHEDULE "A" TRACT MAP FOR CONDOMINIUM PURPOSES



VICINITY MAP

2010 THOMAS GUIDE PG 838, J4, PG 839, A4, AND A5
SEC 19 SW, T5S, R2W
NOT TO SCALE



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SCALE 1"=300'

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GRAPHIC SCALE
60 0 30 60 120 180
(IN FEET)
1 inch = 60 ft.

GENERAL NOTES

LEGAL DESCRIPTION

1. THAT PORTION OF THE FRACTIONAL SOUTHWEST QUARTER OF SECTION 19, TOWNSHIP 5 SOUTH, RANGE 2 WEST, SAN BERNARDINO BASE MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, LYING NORTHEASTERLY OF THE CALIFORNIA CENTRAL RAILROAD COMPANY RIGHT-OF-WAY.

2. TOTAL ACREAGE: 29.11 ACRES GROSS/NET
3. NUMBER OF LOTS: 2
4. MINIMUM LOT SIZE: 12.34 AC.
5. EXISTING ZONING: A/P
6. PROPOSED ZONING: R-4
7. EXISTING LAND USE: LIGHT INDUSTRIAL
8. PROPOSED LAND USE: MEDIUM-HIGH DENSITY RESIDENTIAL
9. METHOD OF SEWAGE DISPOSAL: PUBLIC SEWER
10. UTILITIES:
    WATER – EASTERN MUNICIPAL WATER DISTRICT
    SEWER – EASTERN MUNICIPAL WATER DISTRICT
    GAS – SOUTHERN CALIFORNIA GAS COMPANY
    ELECTRIC – SOUTHERN CALIFORNIA EDISON
    TELEPHONE – VERIZON CABLE – VERIZON
10. SCHOOL DISTRICT: ROMOLAND & PERRIS UNION HIGH
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QUOTED BEARINGS FROM REFERENCE MAPS OR DEEDS MAY OR MAY NOT BE IN TERMS OF SAID SYSTEM.

ALLEY WAY
ACCESS ROAD
STANDARD NO. 104 (MODIFIED)

"E", & "F"
INTERIOR LOCAL STREET
STANDARD NO. 105 (MODIFIED)

"B", "C", & "D"
INTERIOR LOCAL STREET
STANDARD NO. 105 (MODIFIED)

"A" ENTRANCE COLLECTOR STREET
STANDARD NO. 103 (MODIFIED)

EXISTING MATTHEW'S ROAD (60' R/W)

NO.	DATE	REVISION

OWNER/APPLICANT:

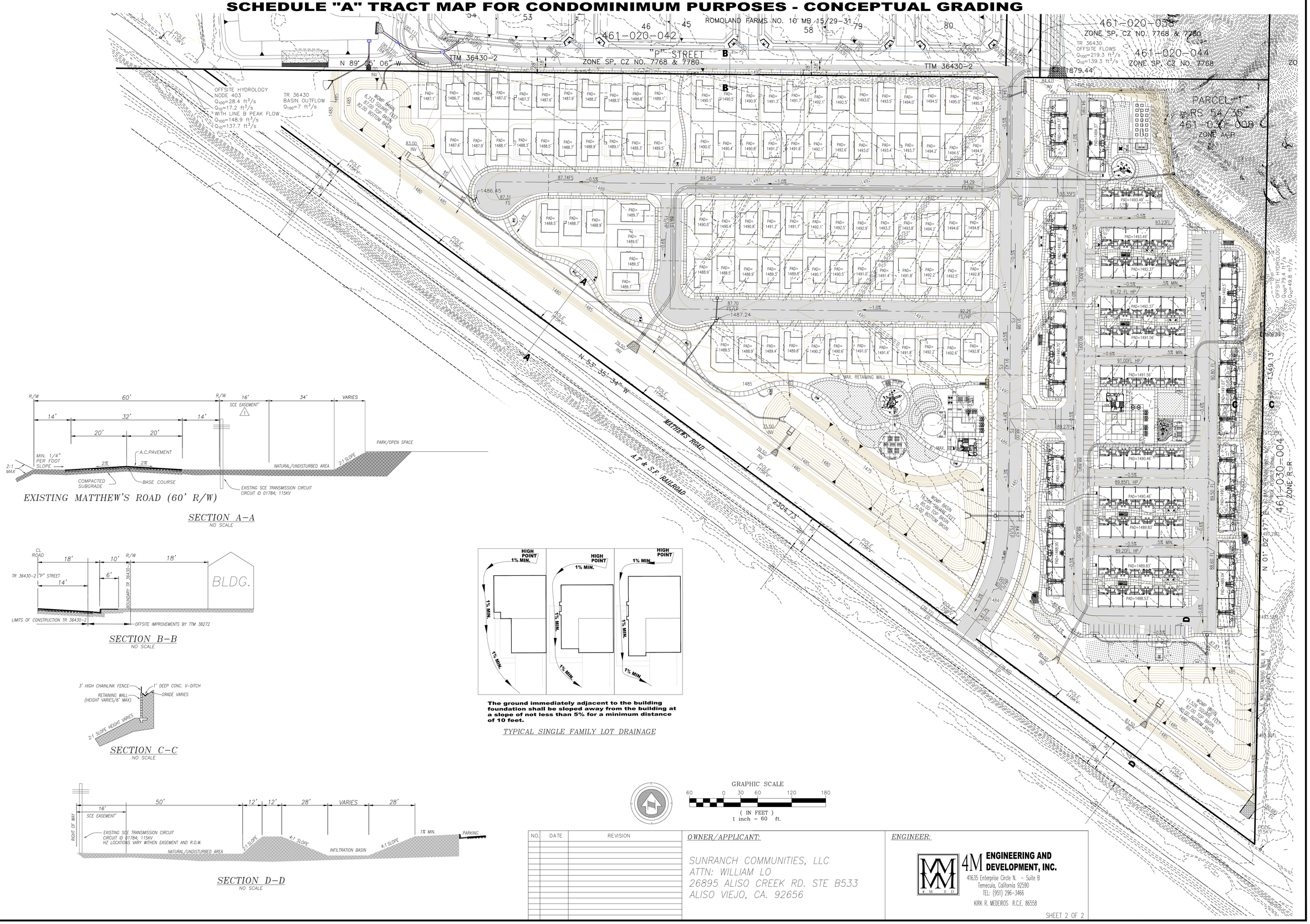
SUNRANCH COMMUNITIES, LLC
ATTN: WILLIAM LO
26895 ALISO CREEK RD. STE. B533
ALISO VIEJO, CA. 92656

ENGINEER:

4M ENGINEERING AND DEVELOPMENT, INC.
41635 Enterprise Circle N. – Suite B
Temecula, California 92590
TEL: (951) 296-3466
KIRK R. MEDEIROS R.C.E. 86558

TENTATIVE TRACT MAP NO. 38272

SCHEDULE "A" TRACT MAP FOR CONDOMINIMUM PURPOSES - CONCEPTUAL GRADING



EXISTING MATTHEW'S ROAD (60' R/W)

SECTION A–A
NO SCALE

SECTION B–B
NO SCALE

SECTION C–C
NO SCALE

The ground immediately adjacent to the building foundation shall be sloped away from the building at a slope of not less than 5% for a minimum distance of 10 feet.

TYPICAL SINGLE FAMILY LOT DRAINAGE

SECTION D–D
NO SCALE

GRAPHIC SCALE
60 0 30 60 120 180
(IN FEET)
1 inch = 60 ft.

NO.	DATE	REVISION

OWNER/APPLICANT:

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ATTN: WILLIAM LO
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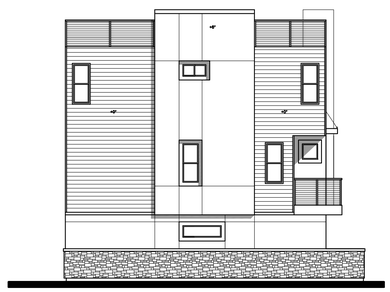
TEL: (951) 296-3466
KIRK R. MEDEIROS R.C.E. 86558

FRONT ELEVATION

SCALE = 3/16"=1'-0"

RIGHT ELEVATION

REAR ELEVATION
7-PLEX



LEFT ELEVATION

MATTHEWS RANCH

MENIFEE, CA

SUNRANCH COMMUNITIES, LLC

26895 ALISO CREEK, SUITE 533
ALISO VIEJO, CA 92656

BLDG. TYPE 1
TYP. URBAN STYLE ELEVATIONS

TOWNHOMES

SCALE : 1/8"=1'-0"

03/02/23
22010

FLAIR ARCHITECTS

FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

1.4

FRONT ELEVATION

SCALE = 3/16"=1'-0"

RIGHT ELEVATION

REAR ELEVATION
6-PLEX

LEFT ELEVATION

MATTHEWS RANCH

MENIFEE, CA

BLDG. TYPE II
TYP. CONTEMPORARY STYLE ELEVATIONS

SCALE : 1/8"=1'-0"

03/02/23
22010

TOWNHOMES

SUNRANCH COMMUNITIES, LLC
26895 ALISO CREEK, SUITE 533
ALISO VIEJO, CA 92656

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

PLAN 1499
SPANISH ELEVATION

RIVERSIDE COUNTY
AIRPORT LAND USE COMMISSION

April 14, 2023

Judy Eguez, Project Planner
City of Riverside Planning Department
3900 Main Street, Third Floor
Riverside CA 92522

County Administrative Center
4080 Lemon St.,14th Floor.
Riverside, CA 92501
(951) 955-5132

www.rcaluc.org

RE: AIRPORT LAND USE COMMISSION (ALUC) DEVELOPMENT REVIEW – DIRECTOR'S DETERMINATION

File No.:	ZAP1565MA23
Related File No.:	PR-2023-001469 (General Plan Amendment, Specific Plan Amendment, Rezone, Plot Plan, Tentative Tract Map)
APN:	211-022-026, 211-022-027, 211-071-001, 211-072-002, 211-071-004, 211-071-005, 211-071-023, 211-071-024
Airport Zone:	Zone E

Dear Ms. Eguez:

Under the delegation of the Riverside County Airport Land Use Commission (ALUC) pursuant to Resolution No. 2015-01 (as extended by Resolution No. 2020-01) of the Countywide Policies of the 2004 Riverside County Airport Land Use Compatibility Plan, staff reviewed City of Riverside Case No. PR-2023-001469 (General Plan Amendment, Specific Plan Amendment, Rezone, Plot Plan, Tentative Tract Map), a proposal to construct a mixed-use development consisting of 363 apartment units and a 2,000 square foot retail building on 8.48 acres located southerly of 4th street, easterly of Commerce Street, westerly of Park Avenue, and northerly of Mission Inn Avenue. The applicant also proposes amending the site's General Plan land use designation from Business/Office Park to Mixed-Use Urban, and change its zoning from BMP-SP Business and Manufacturing Park and Specific Plan (Riverside Marketplace) overlay zones and BMP-SP-CR Business and Manufacturing Park, Specific Plan (Riverside Marketplace), and cultural resource overlay zone to MU-U Mixed Use-Urban and Specific Plan (Riverside Marketplace) overlay zone. The applicant also proposes amending the Riverside Marketplace Specific Plan to expand the Mixed-Use Marketplace Sub Area to include the subject property. The applicant also proposes to combine 13 parcels into 2 parcels.

The project is located within Compatibility Zone E of March Air Reserve Base/Inland Port Airport Influence Area (March AIA), where Zone E does not restrict residential density or non-residential intensity.

Although the project is located within the March AIA, the nearest runway is Flabob Airport, which its easterly runway elevation is 768 feet above mean sea level (AMSL). Due to the runway length (3,200 feet), the relevant slope for notice purpose is a 50:1 surface. At a distance of approximately 12,300 feet from the project to the nearest point on the runway, Federal Aviation Administration (FAA) review would be required for any structures with top of roof exceeding 1,014 feet AMSL. The project's site elevation is 874 feet AMSL with a proposed building height of 49 feet, resulting in a top point elevation of 923 feet AMSL. Therefore, review of the building for height/elevation reasons by the FAA Obstruction Evaluation Service (FAAOES) was not required.

As ALUC Director, I hereby find the above-referenced project **CONSISTENT**, with the 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan, subject to the following conditions:

CONDITIONS:

1. Any new outdoor lighting that is installed shall be hooded or shielded so as to prevent either the spillage of lumens or reflection into the sky. Outdoor lighting shall be downward facing.

2. The following uses/activities are not included in the proposed project and shall be prohibited at this site:

   (a) Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA-approved navigational signal light or visual approach slope indicator.

   (b) Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport.

   (c) Any use which would generate smoke or water vapor or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area. (Such uses include landscaping utilizing water features, aquaculture, outdoor production of cereal grains, sunflower, and row crops, composting operations, wastewater management facilities, artificial marshes, trash transfer stations that are open on one or more sides, recycling centers containing putrescible wastes, construction and demolition debris facilities, fly ash disposal, and incinerators

   (d) Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

   (e) Highly noise-sensitive outdoor nonresidential uses.

   (f) Any use which results in a hazard to flight, including physical (e.g., tall objects), visual, and electronic forms of interference with the safety of aircraft operations.

3. The attached “Notice of Airport in Vicinity” shall be provided to all prospective purchasers and occupants of the property.

4. Any proposed stormwater basins or facilities shall be designed and maintained to provide for a maximum 48-hour detention period following the design storm, and remain totally dry between rainfalls. Vegetation in and around the stormwater basins that would provide food or cover for birds would be incompatible with airport operations and shall not be utilized in project landscaping. Trees shall be spaced so as to prevent large expanses of contiguous canopy, when mature. Landscaping in and around the stormwater basin(s) shall not include trees or shrubs that produce seeds, fruits, or berries.

   Landscaping in the stormwater basin, if not rip-rap, should be in accordance with the guidance provided in ALUC “LANDSCAPING NEAR AIRPORTS” brochure, and the “AIRPORTS, WILDLIFE AND STORMWATER MANAGEMENT” brochure available at RCALUC.ORG which list acceptable plants from Riverside County Landscaping Guide or other alternative landscaping as may be recommended by a qualified wildlife hazard

biologist.

A notice sign, in a form similar to that attached hereto, shall be permanently affixed to the stormwater basin with the following language: “There is an airport nearby. This stormwater basin is designed to hold stormwater for only 48 hours and not attract birds. Proper maintenance is necessary to avoid bird strikes”. The sign will also include the name, telephone number or other contact information of the person or entity responsible to monitor the stormwater basin

If you have any questions, please contact me at (951) 955-6893.

Sincerely,
RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION

Paul Rull, ALUC Director

Attachments: Notice of Airport in Vicinity

cc: Iron Lofts, LLC (applicant/property owner)
Todd Cadwell (representative)
Gary Gosliga, March Inland Port Airport Authority
Major. David Shaw, Base Civil Engineer, March Air Reserve Base
ALUC Case File

X:\AIRPORT CASE FILES\March\ZAP1565MA23\ZAP1565MA23.LTR.doc

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances [can vary from person to person. You may wish to consider what airport annoyances], if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you. Business & Professions Code Section 11010 (b)(13)(A)

NOTICE

THERE IS AN AIRPORT NEARBY.

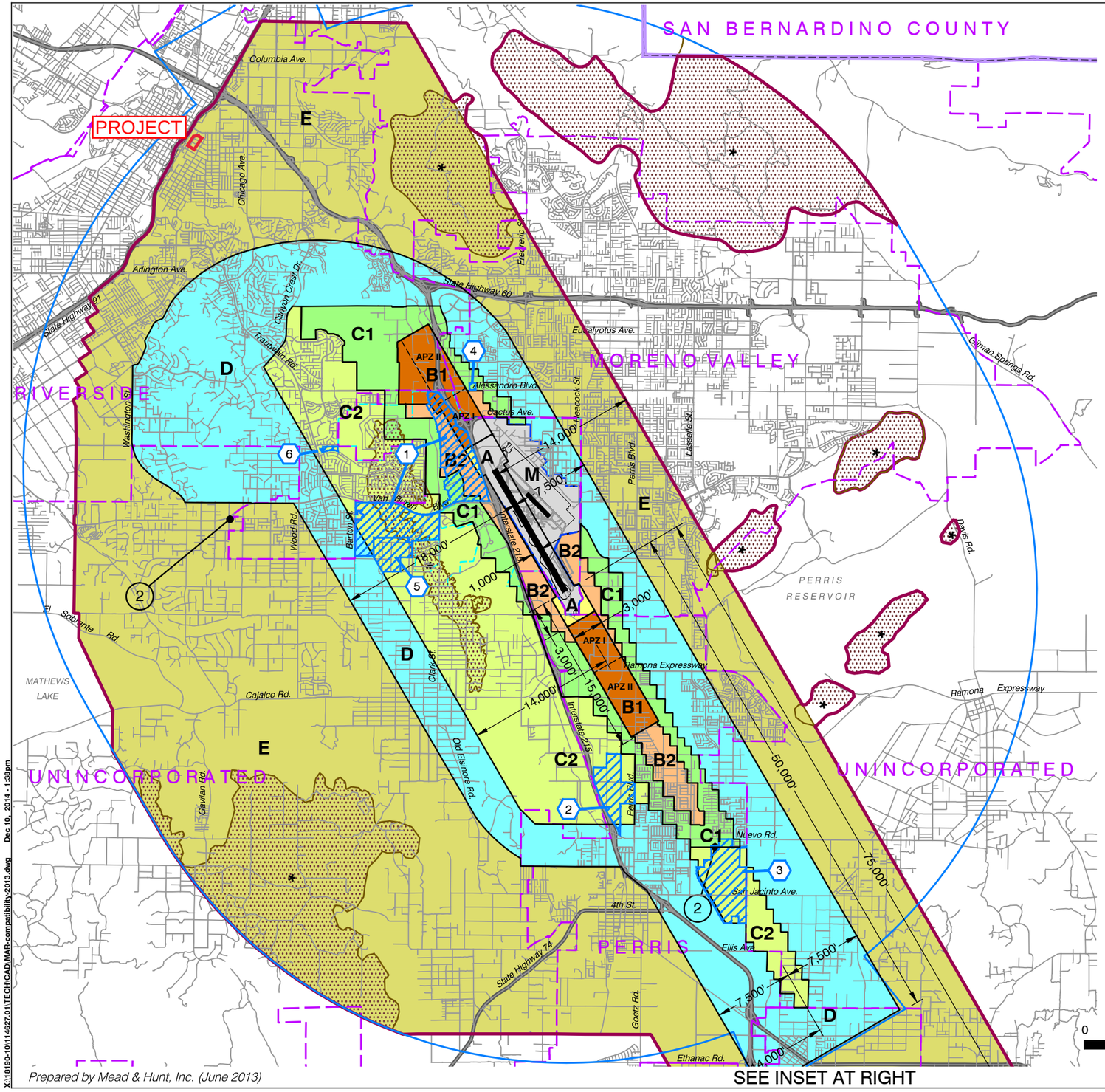
THIS STORM WATER BASIN IS DESIGNED TO HOLD STORM WATER FOR ONLY 48 HOURS AND NOT TO ATTRACT BIRDS

PROPER MAINTENANCE IS NECESSARY TO AVOID BIRD STRIKES

RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION ALUC

IF THIS BASIN IS OVERGROWN, PLEASE CONTACT:

Name: _____ Phone: _____



LEGEND

Compatibility Zones

- Airport Influence Area Boundary
- Zone A
- Zone B1
- Zone B2
- Zone C1
- Zone C2
- Zone D
- Zone E
- Zone M
- High Terrain Zone
- FAR Part 77 Military Outer Horizontal Surface Limits
- FAR Part 77 Notification Area

Boundary Lines

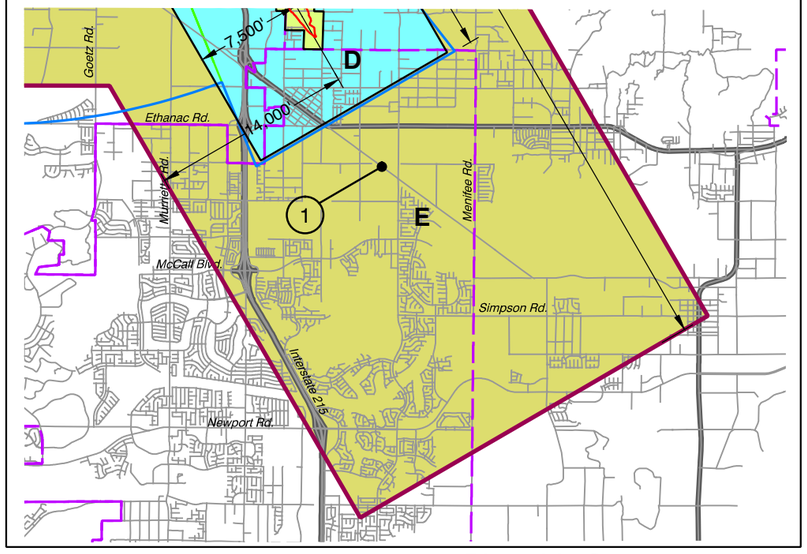
- March Air Reserve Base / Air Force Property
- March Joint Powers Authority Property Line
- County Boundary
- City Limits
- Site-Specific Exceptions (existing local agency commitments to development projects)

1. March JPA: March Business Center/Meridian
2. Perris: Harvest Landing
3. Perris: Park West
4. Moreno Valley: Affordable Housing
5. March JPA: Ben Clark Training Center
6. Riverside: Ridge Crest Subdivision

(1) Point at which aircraft on Runway 32 ILS approach descend below 3,000 feet above runway end. Airport Elevation is 1,535 feet MSL.

(2) Point at which departing aircraft typically reach 3,000 feet above runway end.

INSET



SEE INSET AT RIGHT

Note:
All dimensions are measured from runway ends and centerlines.

N

0 2 4 MILES

Base map source: County of Riverside 2013

Prepared by Mead & Hunt, Inc. (June 2013)

X:\18190-10\114627.01\TECH\CAD\MAR-compatibility2013.dwg Dec 10, 2014 - 1:38pm

Riverside County
Airport Land Use Commission

March Air Reserve Base / Inland Port Airport
Land Use Compatibility Plan

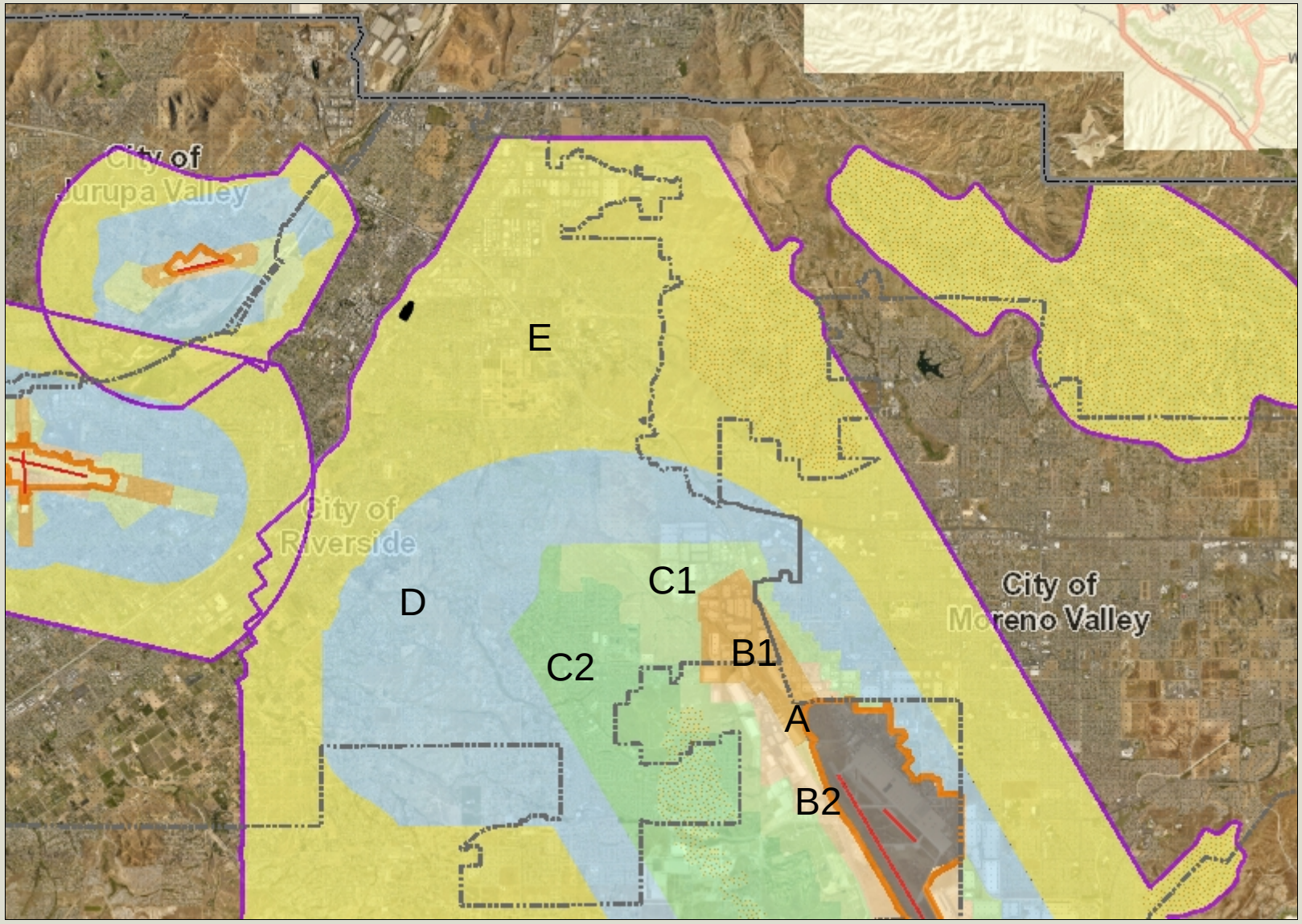
(Adopted November 13, 2014)

Map MA-1

Compatibility Map

March Air Reserve Base / Inland Port Airport

Map My County Map



Legend

- Runways
- Airports
- Airport Influence Areas
- Airport Compatibility Zones
  - OTHER COMPATIBILITY ZONE
  - A
  - A-EXC1
  - B1
  - B1-APZ I
  - B1-APZ I-EXC1
  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5
  - C2-EXC6

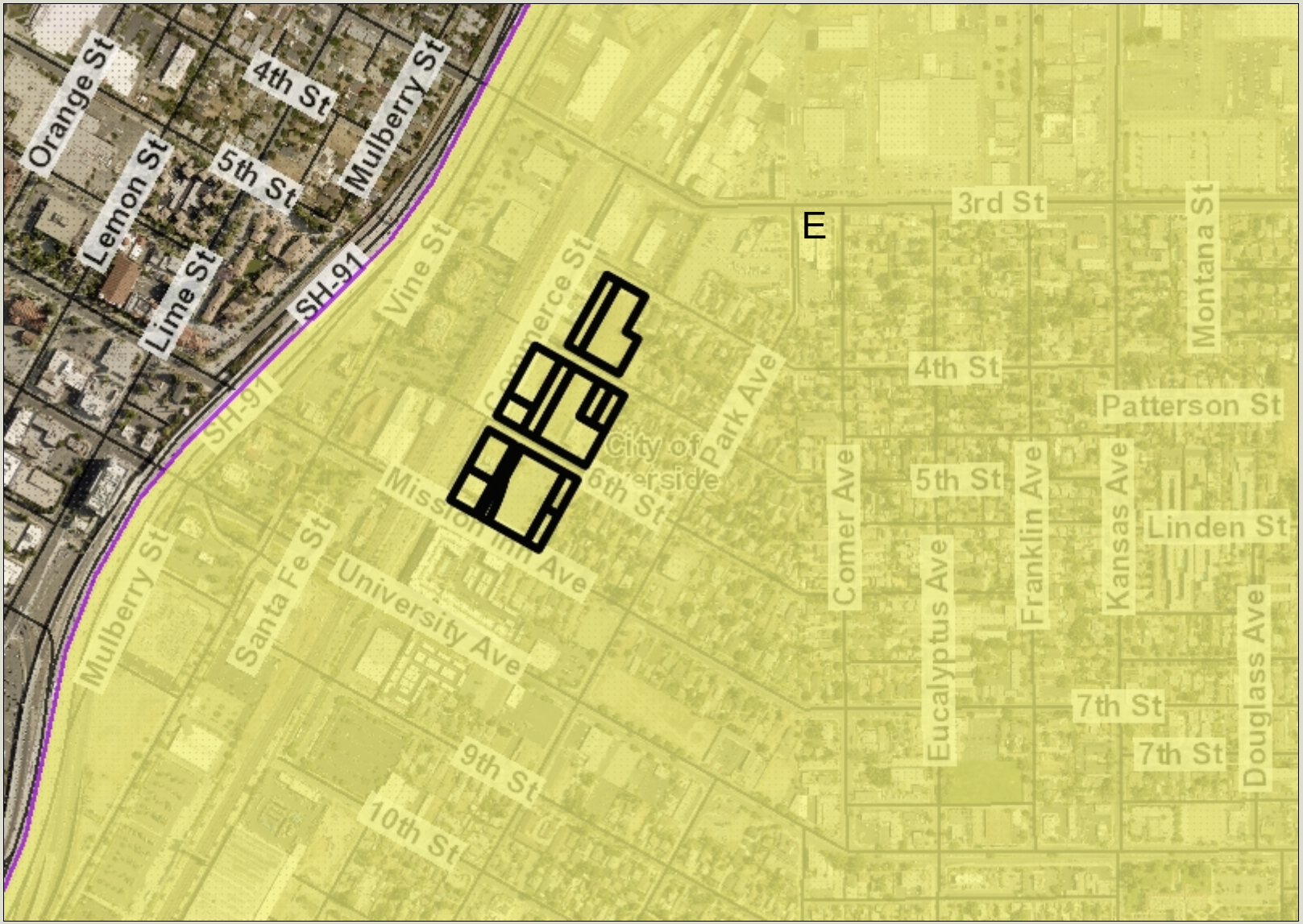
0 12,314 24,629 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

REPORT PRINTED ON... 4/7/2023 8:58:18 AM

Notes

Map My County Map



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- Runways
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  - OTHER COMPATIBILITY ZONE
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  - B1-APZ II
  - B1-APZ II-EXC1
  - B1-EXC1
  - B2
  - B2-EXC1
  - C
  - C1
  - C1-EXC1
  - C1-EXC3
  - C1-EXC4
  - C1-HIGHT
  - C2
  - C2-EXC1
  - C2-EXC2
  - C2-EXC3
  - C2-EXC5
  - C2-EXC6

0 770 1,539 Feet

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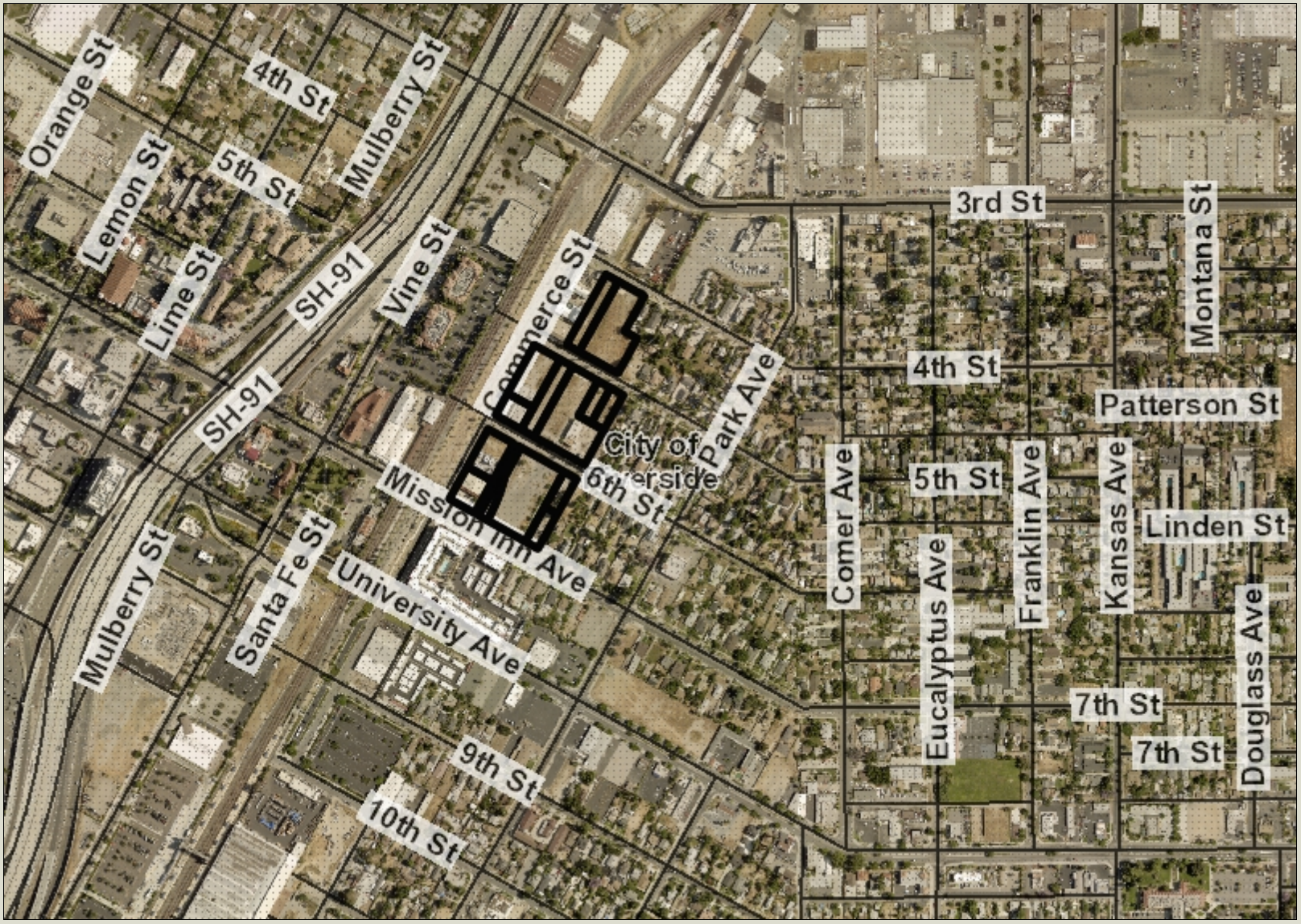
REPORT PRINTED ON... 4/7/2023 8:59:21 AM

Notes

Map My County Map



Legend

- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

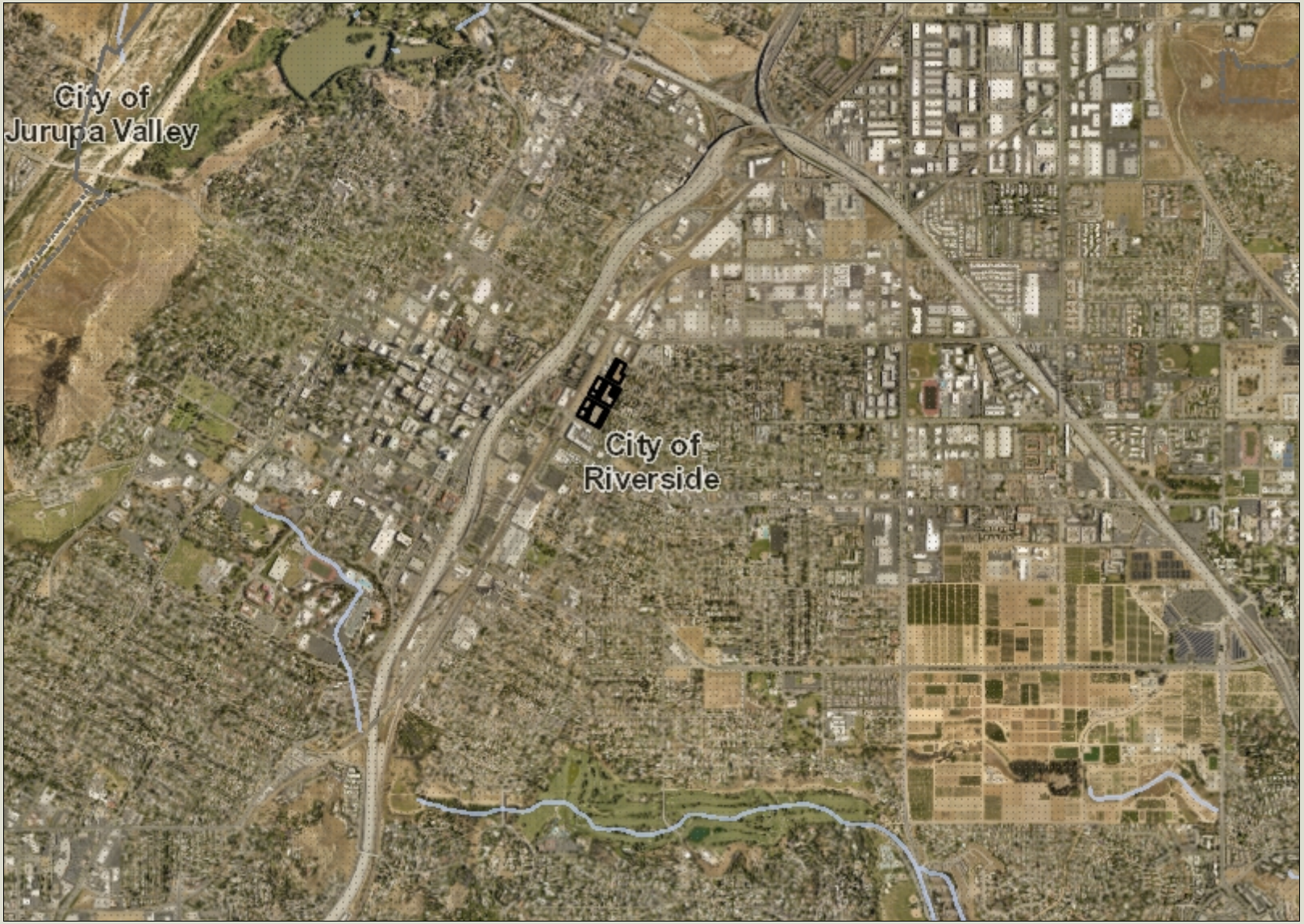
0 770 1,539 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

REPORT PRINTED ON... 4/7/2023 8:59:50 AM

Notes

Map My County Map



Legend

- Blueline Streams
- City Areas
- World Street Map

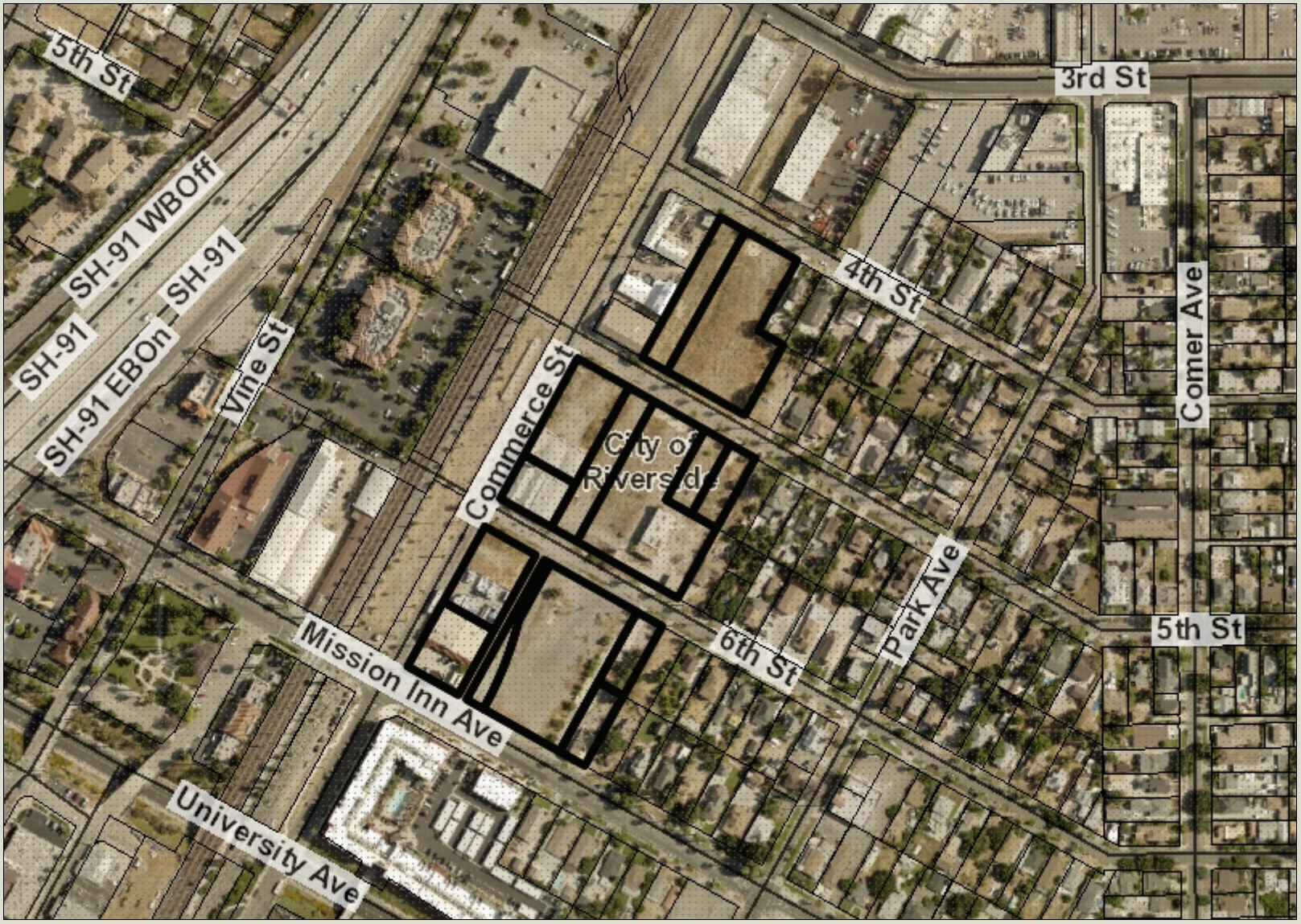
0 3,079 6,157 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

REPORT PRINTED ON... 4/7/2023 9:00:41 AM

Notes

Map My County Map



Legend

- Parcels
- County Centerline Names
- County Centerlines
- Blueline Streams
- City Areas
- World Street Map

0 385 770 Feet

IMPORTANT Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

REPORT PRINTED ON... 4/7/2023 9:01:36 AM

Notes

EXISTING

SCALE: 1" = 200'

KEY

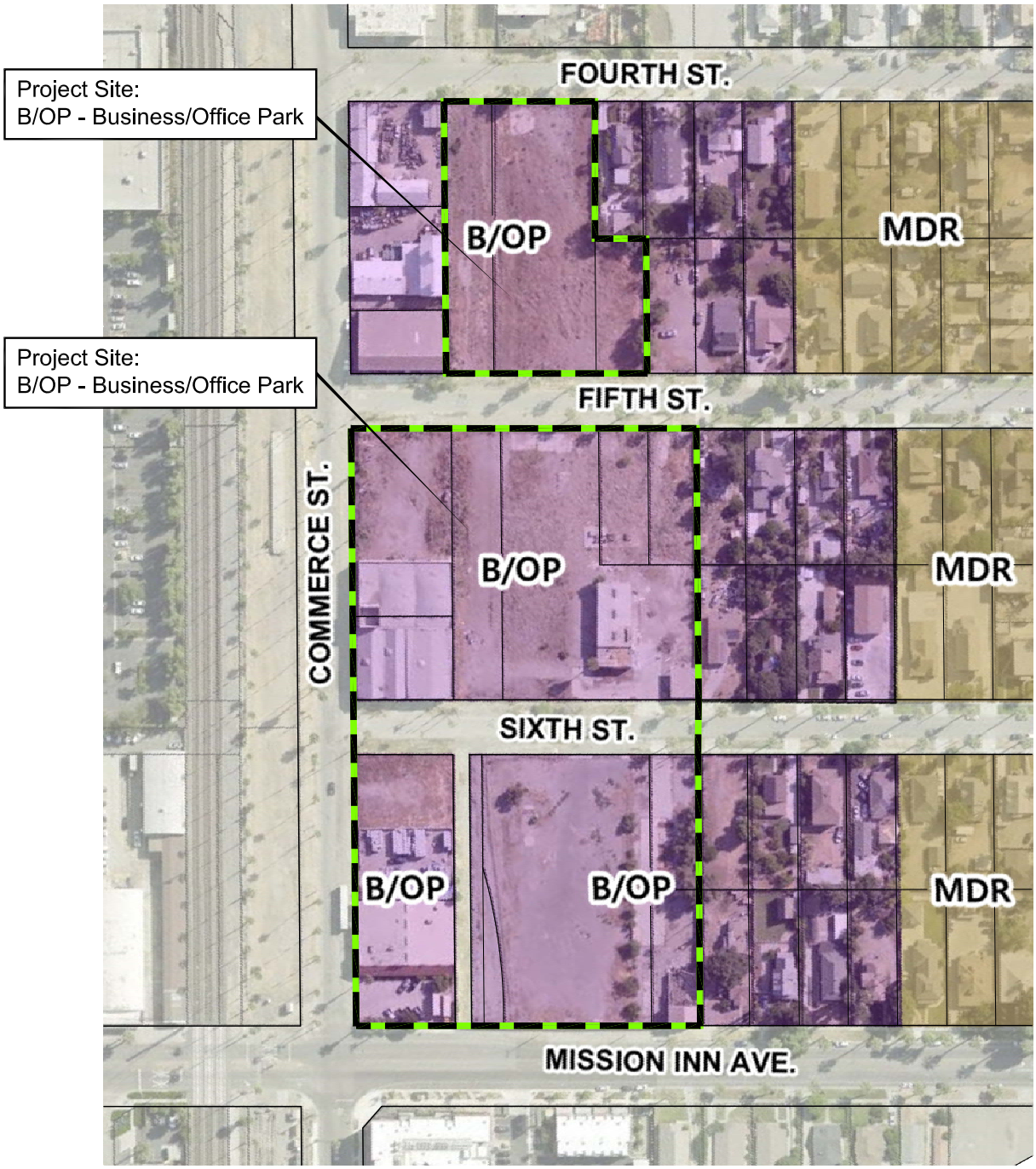
Project Site

Parcels

General Plan Designation

B/OP - Business/Office Park

MDR - Medium Density Residential



PROPOSED

SCALE: 1" = 200'

KEY

Project Site

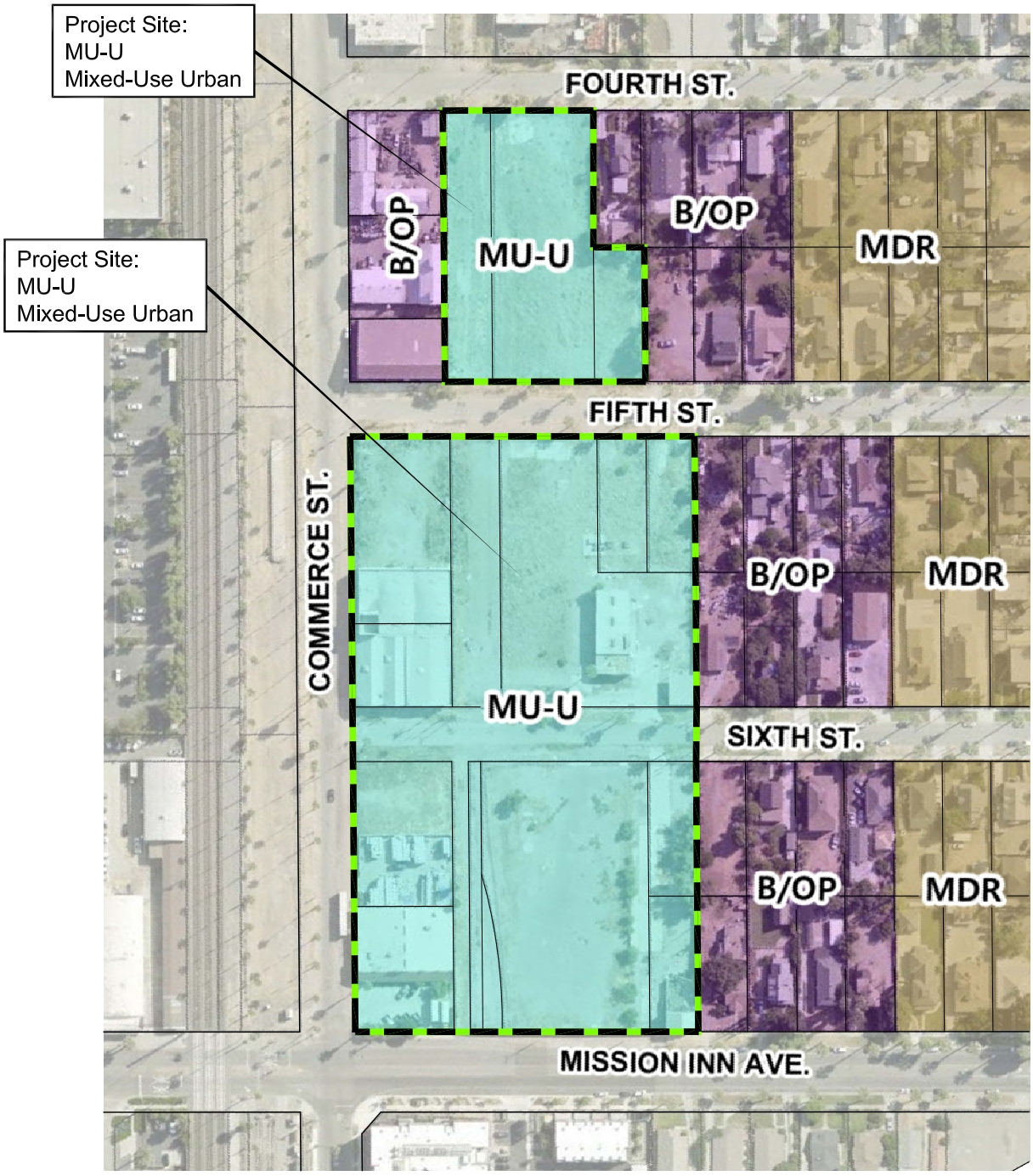
Parcels

General Plan Designation

MU-U - Mixed-Use Urban

B/OP - Business/Office Park

MDR - Medium Density Residential



EXISTING

SCALE: 1" = 200'

KEY

Project Site

Parcels

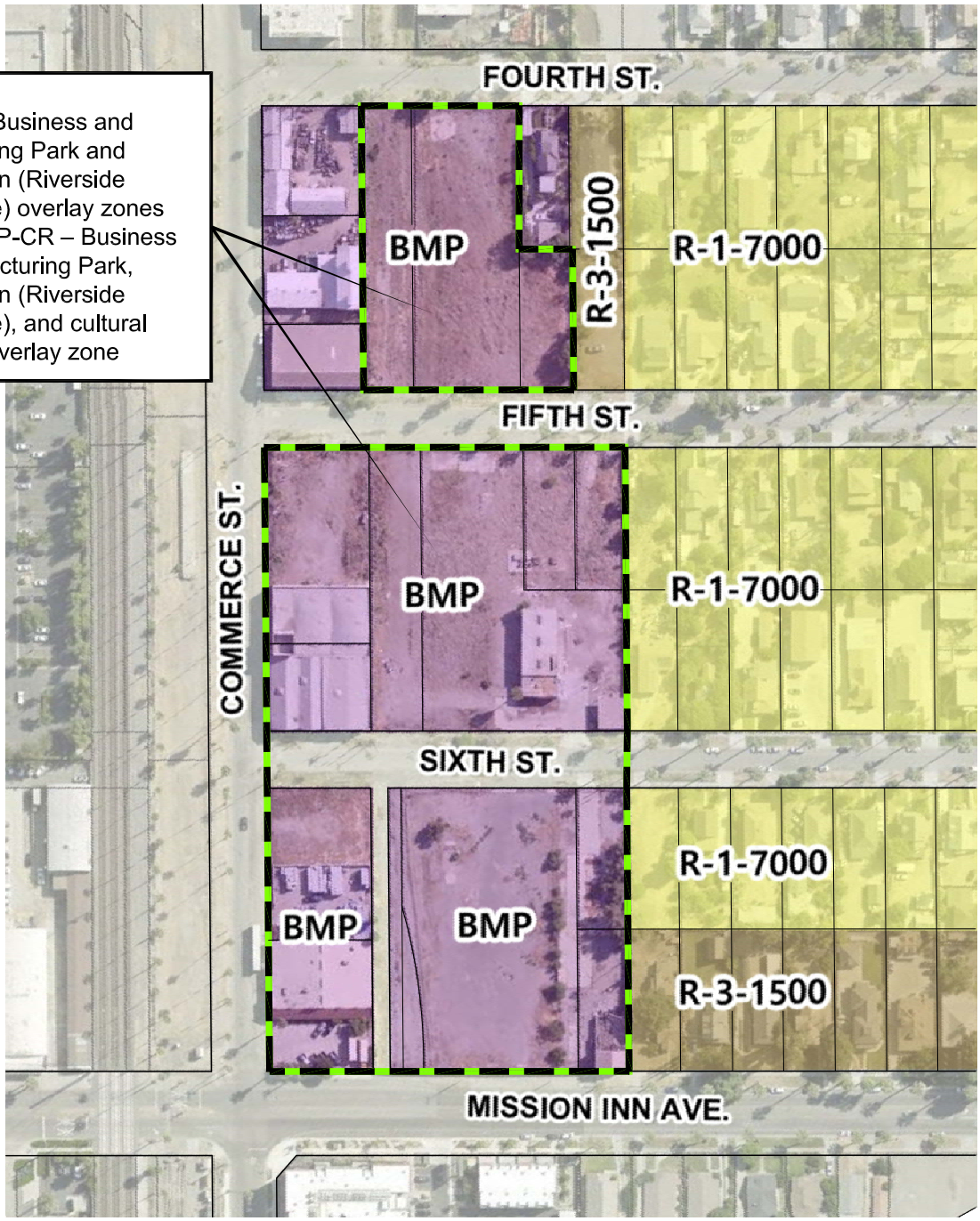
Zoning Designation

BMP - Business and Manufacturing Park

R-1-7000 Single - Family Residential

R-3-1500 Mutiple - Family Residential

Project Site:
BMP-SP – Business and Manufacturing Park and Specific Plan (Riverside Marketplace) overlay zones and BMP-SP-CR – Business and Manufacturing Park, Specific Plan (Riverside Marketplace), and cultural resources overlay zone



SPECIFIC PLAN

SCALE: 1" = 200'

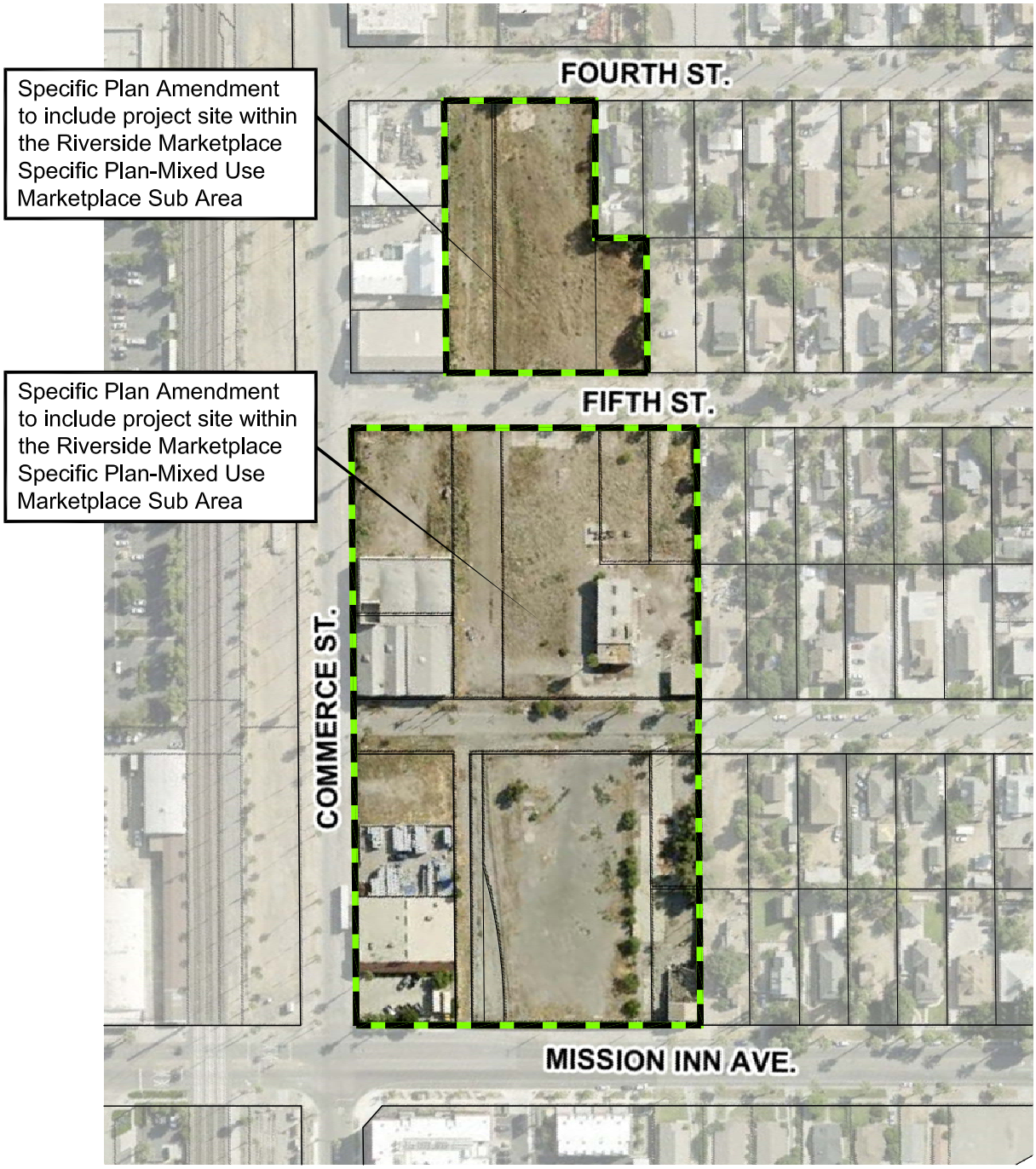
KEY

Project Site

Parcels

Specific Plan Amendment

Proposed Specific Plan Amendment to amend the Riverside Marketplace Specific Plan to expand the Mixed Use Marketplace Sub Area to include the subject property.



PROPOSED

SCALE: 1" = 200'

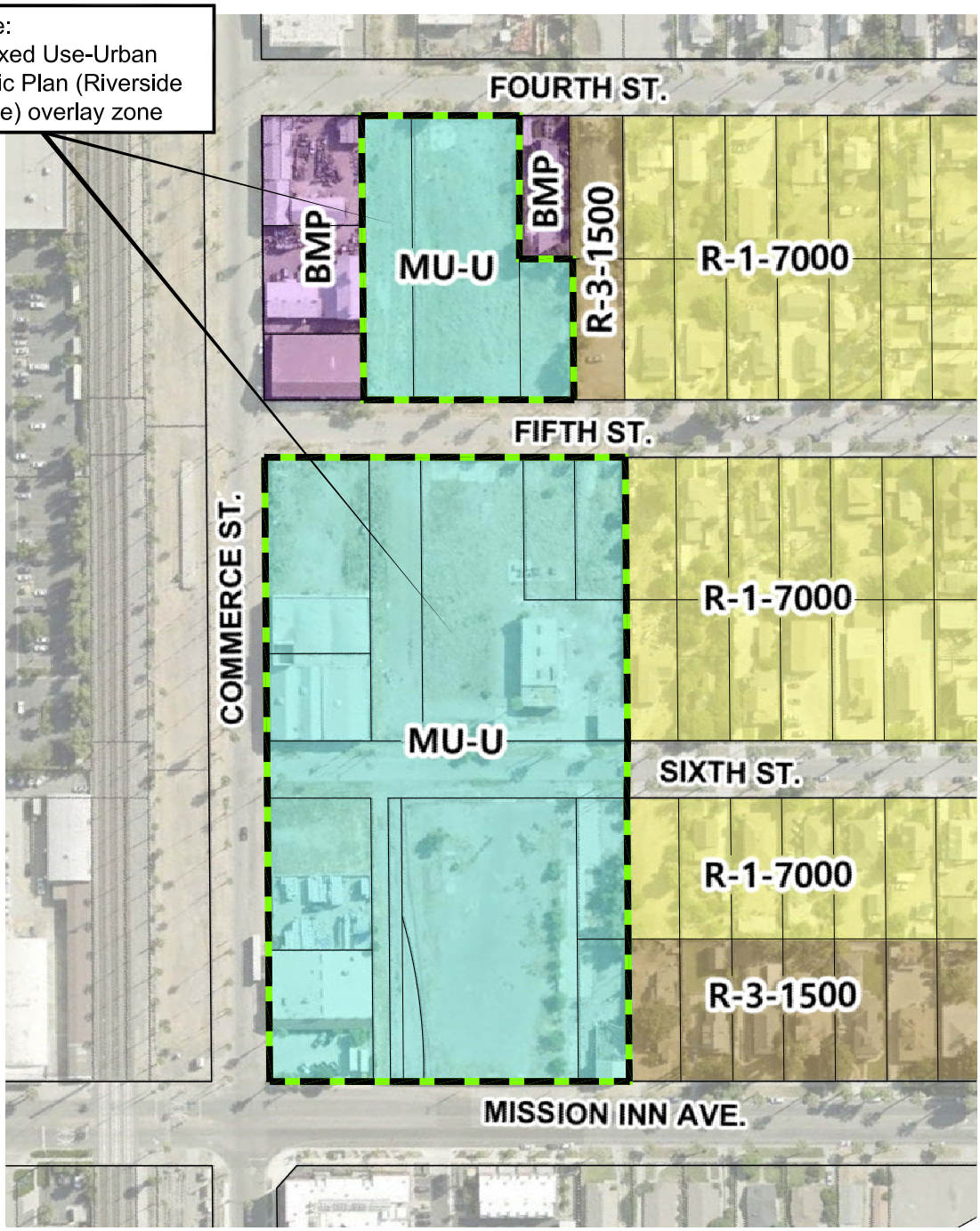
KEY

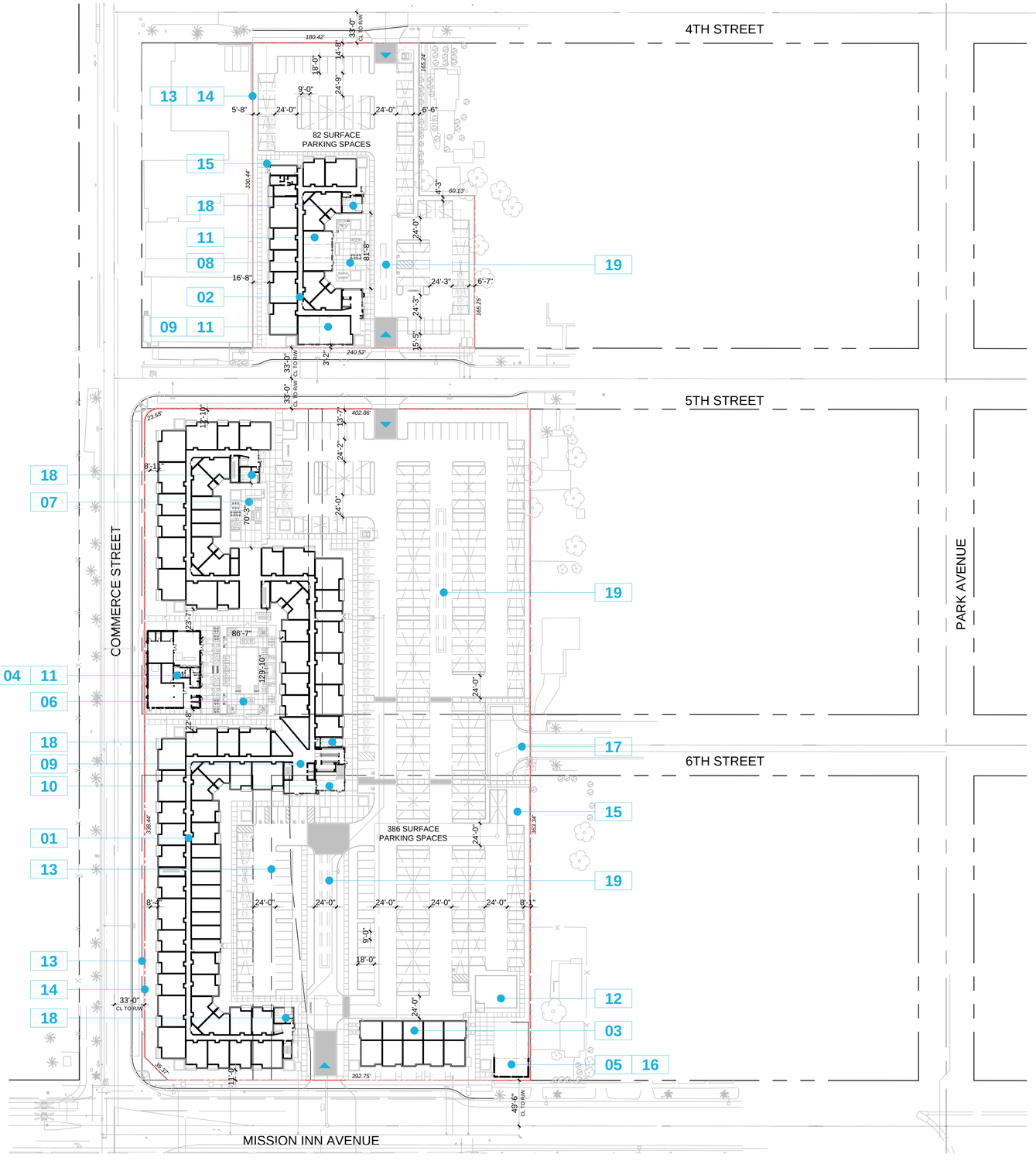
- Project Site
- Parcels

Zoning Designation

- MU-U - Mixed-Use Urban
- BMP - Business and Manufacturing Park
- R-1-7000 Single - Family Residential
- R-3-1500 Mutiple - Family Residential

Project Site:
MU-U – Mixed Use-Urban and Specific Plan (Riverside Marketplace) overlay zone





PROJECT SUMMARY

COMMERCE ST AND MISSION INN AVE
RIVERSIDE, CALIFORNIA

ZONING
CURRENT: BMP (BUSINESS MANUFACTURING AND PARK ZONE)
PROPOSED: MU-U (MIXED-USE URBAN)

AREA
NORTHERN PARCEL: 1.59 AC (69,394 SF)
SOUTHERN PARCEL: 6.89 AC (300,188 SF)
GROSS SITE AREA: 8.48 AC (369,582 SF)
TOTAL DWELLING UNITS: 363 DU
DENSITY: 42.8 DU/AC
COMMERCIAL: 2,000 SF
FAR: 0.96:1 (356,083 SF)

UNIT MIX
STUDIO: 52 UNITS (14%)
1-BED: 185 UNITS (51%)
2-BED: 126 UNITS (35%)
TOTAL 363 UNITS
AVG. UNIT SIZE: 727 SF

VEHICLE PARKING
RESIDENTIAL REQUIRED: 582 SPACES
(*1 SP/STUDIO + 1.5 SP/1-BED + 2 SP/2-BED*)
COMMERCIAL REQUIRED: 8 SPACES
(*1 SP/250 SF FLOOR AREA*)

RESIDENTIAL PROVIDED:
NORTHERN PARCEL: 82 SURFACE SPACES
SOUTHERN PARCEL: 386 SURFACE SPACES
10 GARAGE SPACES (2 SP/TH)
TOTAL: 478 SPACES (1.31 SP/DU)

COVERED: 370 SPACES (1 SP/DU)
SHARED COMMERCIAL: 8 SPACES
EV READY: 49 SPACES
(*10% TOTAL PROVIDED RES. PARKING*)

CALLOUT LEGEND

01 BUILDING A (4-STORY ON GRADE)
02 BUILDING B (4-STORY ON GRADE)
03 BUILDING C (2-STORY TOWNHOMES)
04 BUILDING D (HISTORIC)
05 BUILDING E (HISTORIC)
06 COURTYARD A (ACTIVE - POOL)
07 COURTYARD B (PASSIVE)
08 COURTYARD C (SEMI-ACTIVE - SPA)
09 LOBBY
10 LEASING
11 AMENITIES
12 DOG PARK
13 EXISTING PROPERTY LINE
14 NEW PROPERTY LINE
15 PROPOSED SETBACK
16 COMMERCIAL SPACE
17 6TH STREET HAMMERHEAD
18 TRASH ROOM
19 STORMWATER TREATMENT TANK & AQUA-SWIRL

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Newport Beach, CA 92660

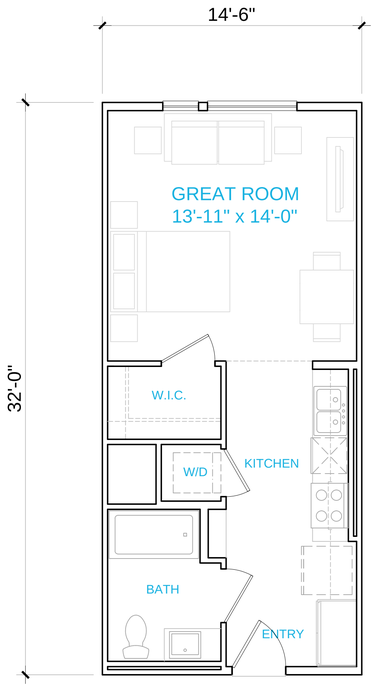
IRON LOFTS
RIVERSIDE, CALIFORNIA # 2020-0844

SCHEMATIC DESIGN
DECEMBER 9, 2022

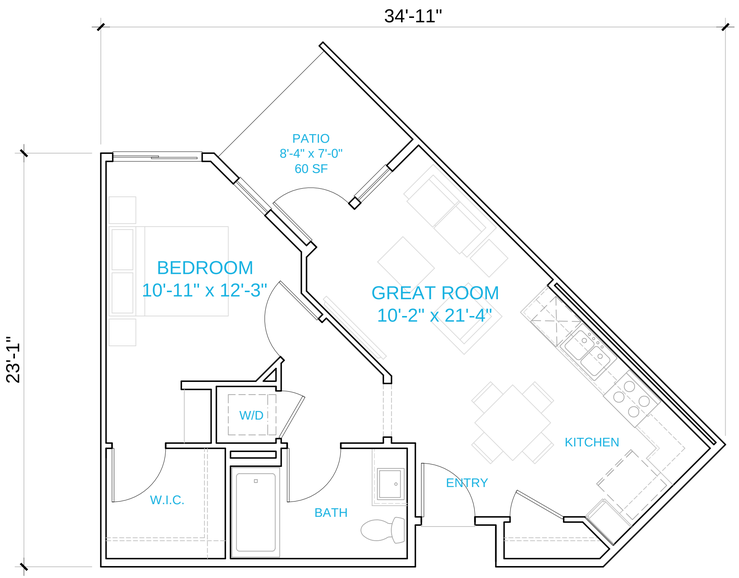
0 30 60 120

SITE PLAN
PROJECT SUMMARY

A1-0



PLAN 0-1
STUDIO
1 BATH
447 SF



PLAN 1-1
1 BEDROOM
1 BATH
609 SF

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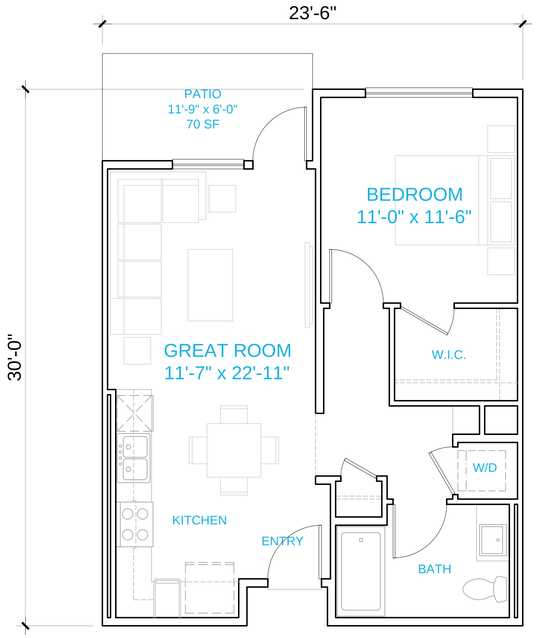
SCHEMATIC DESIGN
DECEMBER 9, 2022

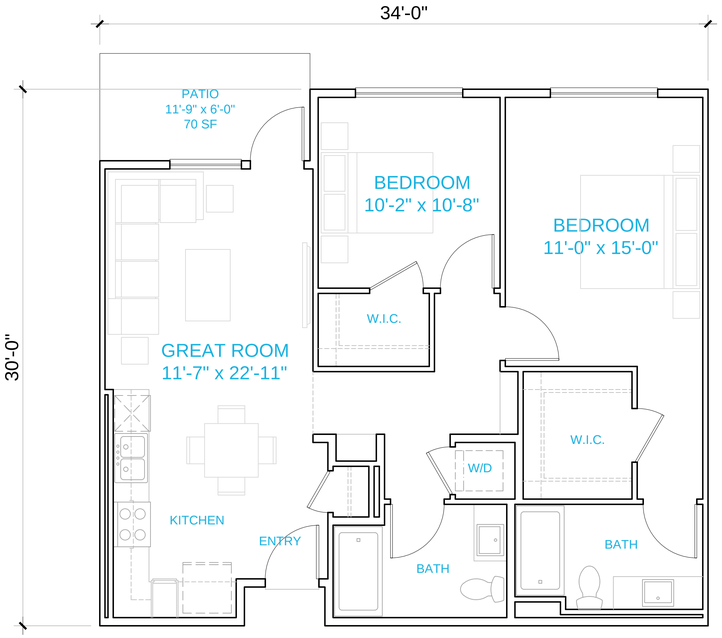
0 2 4 8

UNIT PLANS
STUDIO AND 1-BEDROOM

A5-0



PLAN 1-2
1 BEDROOM
1 BATH
636 SF



PLAN 2-1
2 BEDROOM
2 BATH
949 SF

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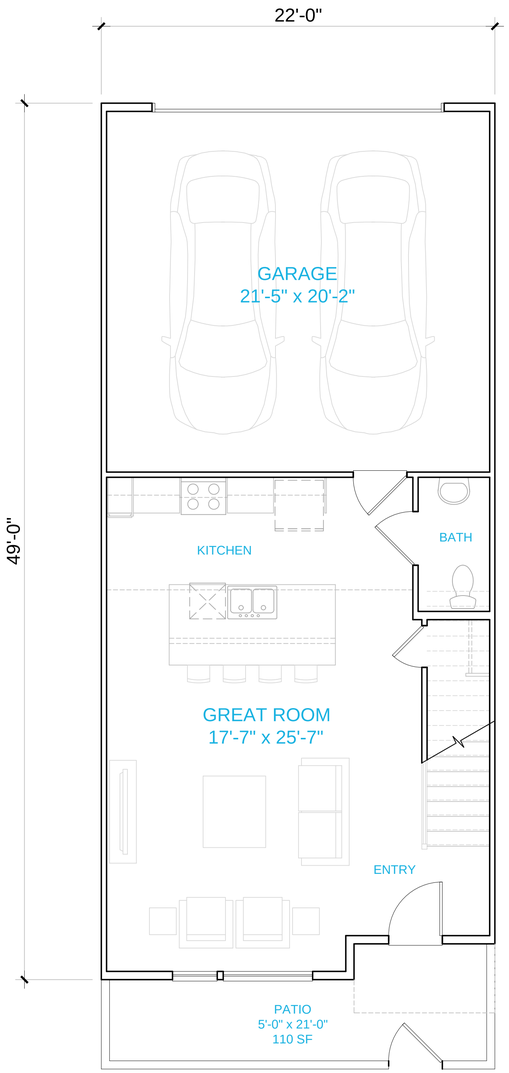
DECEMBER 9, 2022

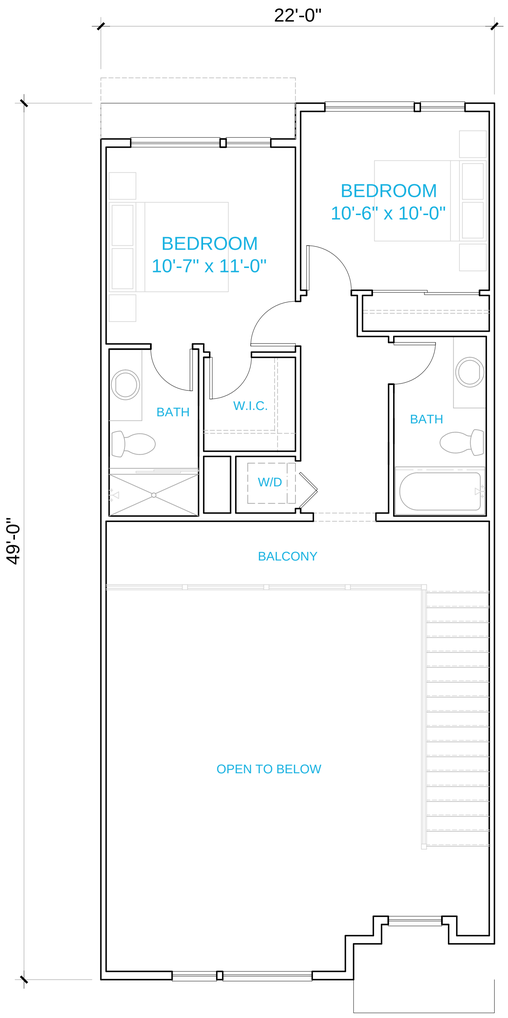
0 2 4 8

UNIT PLANS
1-BEDROOM AND 2-BEDROOM

A5-1



PLAN 2-2
2 BEDROOM
2.5 BATH
1186 SF



PLAN 2-2 LOFT

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SCHEMATIC DESIGN
DECEMBER 9, 2022

0 2 4 8

UNIT PLANS
2-BEDROOM TOWNHOME

A5-2

1. BUILDING A - SOUTH ELEVATION

2. BUILDING A - PARTIAL WEST ELEVATION (RIGHT)

3. BUILDING A - PARTIAL WEST ELEVATION (LEFT)

CALLOUT LEGEND

01	FLAT METAL PANEL
02	CORRUGATED METAL PANEL
03	STUCCO
04	CMU BLOCK
05	STEEL GRATE RAILING
06	AWNING
07	VINYL WINDOW
08	PERFORATED METAL PANEL

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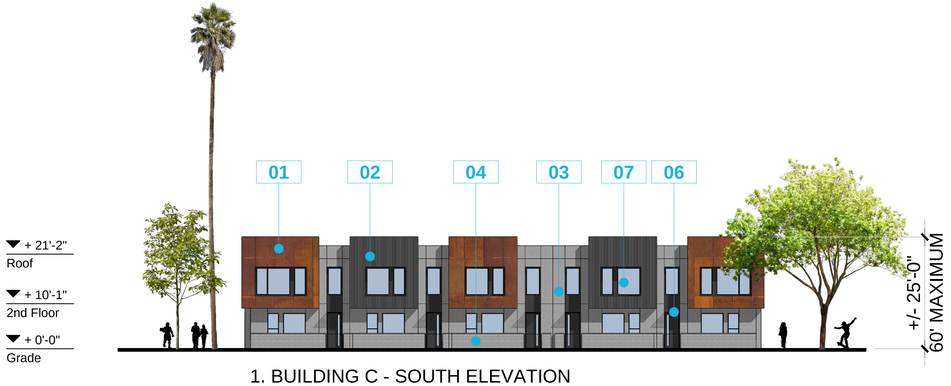
RIVERSIDE, CALIFORNIA # 2020-0844

SCHEMATIC DESIGN
DECEMBER 9, 2022

0 8 16 32

BUILDING ELEVATIONS
BUILDING A

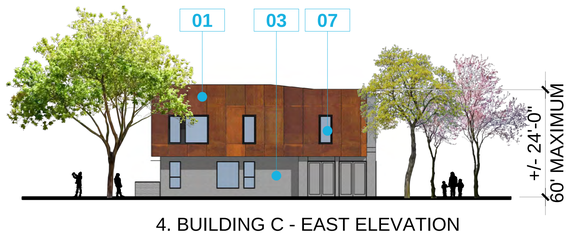
A2-1



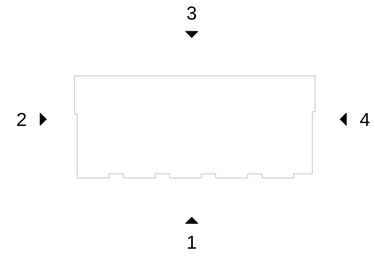
1. BUILDING C - SOUTH ELEVATION

2. BUILDING C - WEST ELEVATION

3. BUILDING C - NORTH ELEVATION



4. BUILDING C - EAST ELEVATION



CALLOUT LEGEND

01	FLAT METAL PANEL
02	CORRUGATED METAL PANEL
03	STUCCO
04	CMU BLOCK
05	STEEL GRATE RAILING
06	AWNING
07	VINYL WINDOW
08	PERFORATED METAL PANEL

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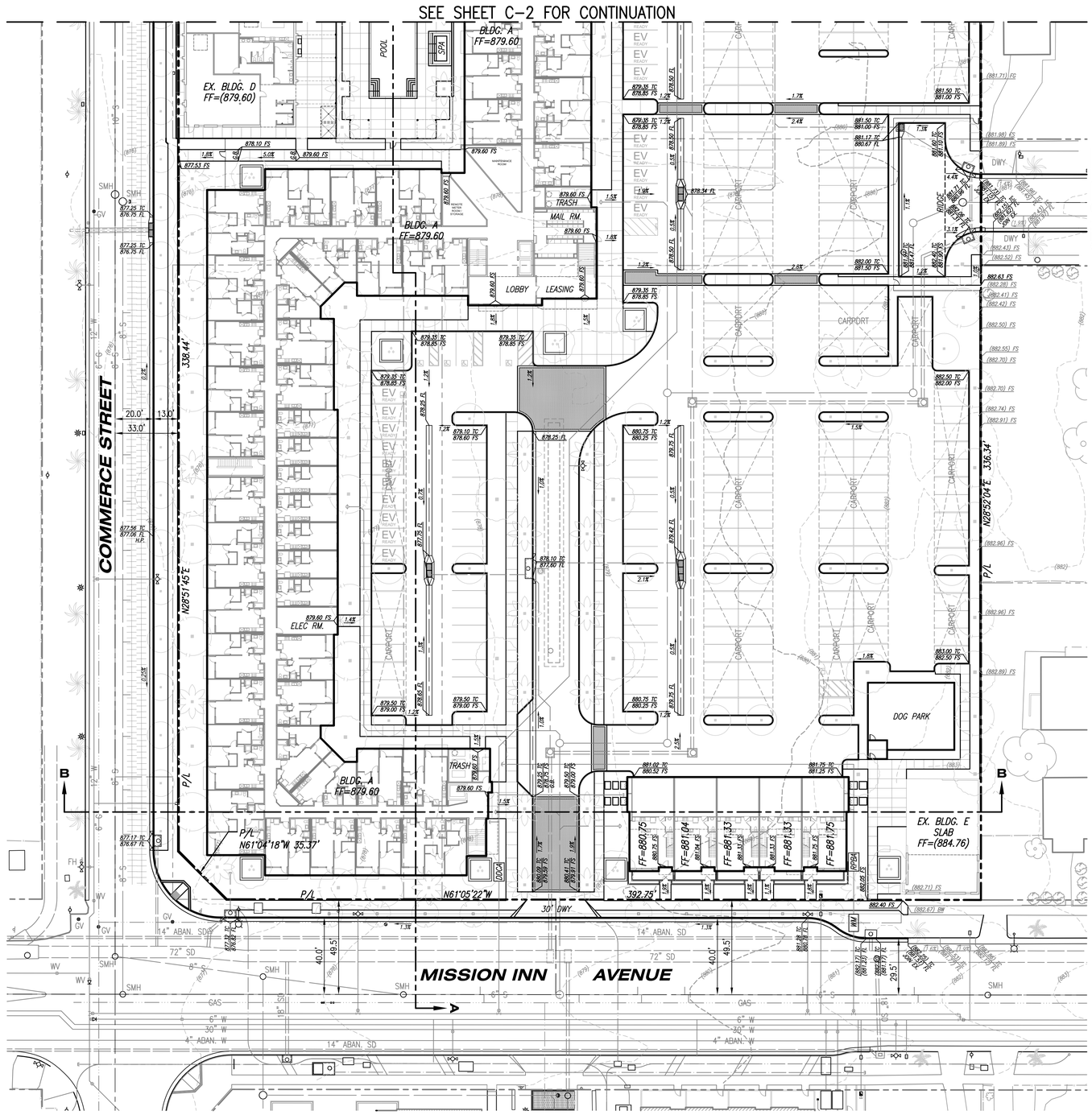
RIVERSIDE, CALIFORNIA # 2020-0844

SCHEMATIC DESIGN
DECEMBER 9, 2022

0 8 16 32

BUILDING ELEVATIONS
BUILDING C

A2-4



EARTHWORK QUANTITY ESTIMATE

IMPORT	0 CY
EXPORT	0 CY

*THIS WILL BE A BALANCED SITE.

FORESTRY NOTES

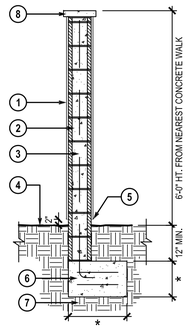
1. PROTECT IN PLACE EXISTING STREET TREES IN PUBLIC RIGHT-OF-WAY ALONG 4TH ST. (WASHINGTONIA ROBUSTA) AND ALONG MISSION INN AVE. (WASHINGTONIA FILIFERA).
2. IF EXISTING STREET TREES ARE FOUND BY TREE INSPECTOR AT TIME OF SCHEDULED SITE INSPECTION (AFTER FINE GRADING AND HARDSCAPE INSTALLATION IS COMPLETE), TO BE MISSING, DEAD, DAMAGED, OR IN POOR CONDITION, THEY WILL BE REQUIRED TO BE REMOVED AND REPLACED WITH 24" BOX SIZE TREES TO TREE INSPECTOR'S SPECIFICATIONS. PLANTING, STAKING, IRRIGATION, AND ROOT BARRIERS TO LANDSCAPE & FORESTRY SPECIFICATIONS.
3. PLANT IN PUBLIC RIGHT-OF-WAY, 24" BOX SIZE CELTIS SINENSIS ALONG MISSION INN AVE., LOPHESTEMON CONFERTUS (BRISBANE BOX) ALONG COMMERCE ST., AND MAGNOLIA GRANDIFLORA (ST. MARY) ALONG 5TH ST. AT TYPICAL SPACING 25' O.C.
4. PRIOR TO ANY PLANTING, TREE INSPECTOR TO DETERMINE PRECISE LOCATIONS AT TIME OF SCHEDULED SITE INSPECTION AFTER FINE GRADING AND HARDSCAPE INSTALLATION IS COMPLETE. PLANTING, STAKING, IRRIGATION, AND ROOT BARRIERS TO LANDSCAPE & FORESTRY SPECIFICATIONS.

BENCHMARK

INDEX 6647 PAGE 42 DATED JANUARY 20, 2005

FOUND PK NAIL AND CITY SURVEYOR TAG IN WESTERLY END OF CATCH BASIN ON THE SOUTHERLY SIDE OF UNIVERSITY AVENUE, 95'± EASTERLY OF CENTERLINE OF PARK AVENUE.

ELEVATION: 891.353 FEET

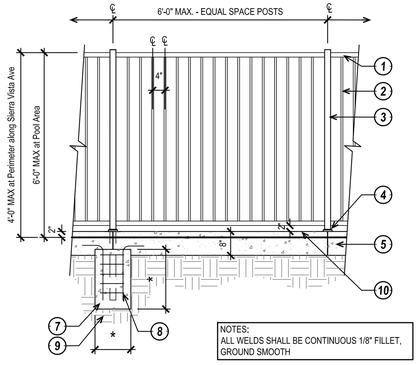


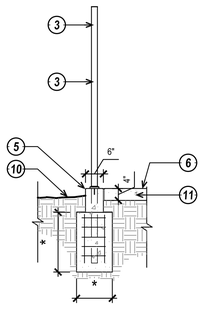
1. WALL COLOR AND FINISH TO MATCH ADJACENT ARCHITECTURE
2. 8x8x16 CMU PRECISION BLOCK WALL
3. RECOMPACTED SUBGRADE PER GEOTECHNICAL REPORT
4. FINISH GRADE
5. WEEP SCREED
6. CONCRETE FOOTING PER STRUCTURAL ENGINEER'S PLANS
7. COMPACTED SUB-GRADE
8. WALL CAP

* FOOTING DIMENSIONS AND REINFORCING PER STRUCTURAL ENGINEER.

1 - PERIMETER AND POOL CMU WALL

SCALE: NONE





NOTES:
ALL WELDS SHALL BE CONTINUOUS 1/8" FILLET, GROUND SMOOTH

1. 1½" x 2" TUBULAR STEEL TOP AND BOTTOM RAIL WELD TO POSTS. REFER TO CONSTRUCTION MATERIAL SCHEDULE FOR COLOR AND FINISH.
2. ⅝" TUBULAR STEEL PICKETS, 4" O.C. CENTER MAX. WELDED TO CENTER OF TOP AND BOTTOM RAIL
3. 2' SQ. TUBULAR STEEL POST WITH FLUSH MOUNTED CAP.
4. CAST IRON TUBE SOCKET AT BASE OF POSTS BY KING ARCHITECTURAL METALS, MODEL NUMBER: 81-204
5. POURED IN PLACE CONCRETE CURB WITH ¼" RADIUS ALONG ALL EDGES. PROVIDE JOINT AT ALL POST INTERSECTIONS.
6. FINISH SURFACE.
7. CONCRETE FOOTING PER STRUCTURAL ENGINEER'S PLANS.
8. REINFORCEMENT PER STRUCTURAL ENGINEER'S PLANS.
9. COMPACTED SUB-GRADE PER GEOTECHNICAL REPORT.
10. FINISH GRADE.
11. CONCRETE POOL DECK

2 - PERIMETER AND POOL FENCE

SCALE: NONE

LOT AREAS

PROPOSED LOT 1:	303,549 S.F. (6.97 ACRES)
PROPOSED LOT 2:	69,553 S.F. (1.60 ACRES)
TOTAL PROPOSED PROJECT AREA:	373,102 S.F. (8.57 ACRES)

LEGAL DESCRIPTION

LOTS 3 THROUGH 5 INCLUSIVE AND LOTS 23 THROUGH 26 ALL INCLUSIVE, IN BLOCK 4 WHITE'S ADDITION, IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 48 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY.

AS RESERVED TO UNION PACIFIC RAILROAD COMPANY, A DELAWARE CORPORATION, FORMERLY KNOWN AS SOUTHERN PACIFIC TRANSPORTATION COMPANY, A DELAWARE CORPORATION, IN A DOCUMENT RECORDED APRIL 27, 2000 AS INSTRUMENT NO. 156950 OF OFFICIAL RECORDS.

LOTS 1, 2, 3, 4, 5, 6, 7, 22 THROUGH 37 IN BLOCK 6 OF WHITES ADDITION, IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 48 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY.

LOTS 1, 2, 3 THROUGH 7, INCLUSIVE, 22 THROUGH 37 INCLUSIVE, IN BLOCK 8 OF WHITE'S ADDITION, IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 48 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY, CALIFORNIA.

EASEMENTS

1. EASEMENT(S) FOR INGRESS, EGRESS AD PARKING PURPOSE(S) AND RIGHTS INCIDENTAL THERETO, GRANTED TO SOUTHERN PACIFIC COMPANY RECORDED MARCH 13, 1928 IN BOOK 755, PAGE 184 OF DEEDS.

   THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD. ***NO MENTIONED EASEMENTS WITHIN SAID DOCUMENT, DOES NOT AFFECT.***

2. EASEMENT(S) FOR RIVERSIDE WATER COMPANY CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY WATER DITCHES, PIPES, FLUMES AND APPARATUS FOR THE PURPOSES OF IRRIGATION AND DOMESTIC USE RECORDED IN BOOK 42, PAGES 294 AND 296, OF DEEDS, SAN BERNARDINO COUNTY RECORDS.
   THE EXACT LOCATION IS UNDETERMINED FROM RECORD. DOCUMENT ILLEGIBLE.

3. EASEMENT(S) GRANTED TO SOUTHERN PACIFIC TRANSPORTATION COMPANY, A DELAWARE CORPORATION FOR RAILROAD PURPOSES AS RESERVED IN A DOCUMENT RECORDED DECEMBER 17, 1985 AS INSTRUMENT NO. 283346, OF OFFICIAL RECORDS.

   AFFECTS: OVER, ACROSS AND UPON THE NORTHWESTERLY 15.00 FEET OF SAID LOTS 4 AND 25. ***AFFECTS, TO BE QUITCLAIMED.***

4. EASEMENT(S) GRANTED TO SOUTHERN PACIFIC TRANSPORTATION COMPANY, A DELAWARE CORPORATION FOR RAIL AND RAILROAD RELATED EQUIPMENT FACILITIES AND COMMUNICATIONS AND PIPELINES, LINES AND FACILITIES OF EVERY KIND AND NATURE INCLUDING BUT NOT LIMITED TO ALL EXISTING FACILITIES, TELEPHONE, TELEGRAPH, TELEVISION AND FIBER OPTIC LINES AND RELATED EQUIPMENT AND RIGHTS INCIDENTAL THERETO RECORDED AUGUST 31, 1990 AS INSTRUMENT NO. 326250, OF OFFICIAL RECORDS. ***AFFECTS, TO BE QUITCLAIMED.***

5. EASEMENT(S) FOR TELECOMMUNICATIONS PURPOSE(S) AND RIGHTS INCIDENTAL THERETO, AS GRANTED TO QWEST COMMUNICATIONS COMPANY, LLC IN A DOCUMENT RECORDED DECEMBER 16, 2013 AS INSTRUMENT NO. 2013-0581753 OF OFFICIAL RECORDS.
   AFFECTS PARCEL 2, NOT PLOTTABLE PER RECORD. TO BE QUITCLAIMED.

0 15 30 60 90

SCALE: 1"=30' DATE: 12/09/22

IRON LOFTS

IRON LOFTS, LLC

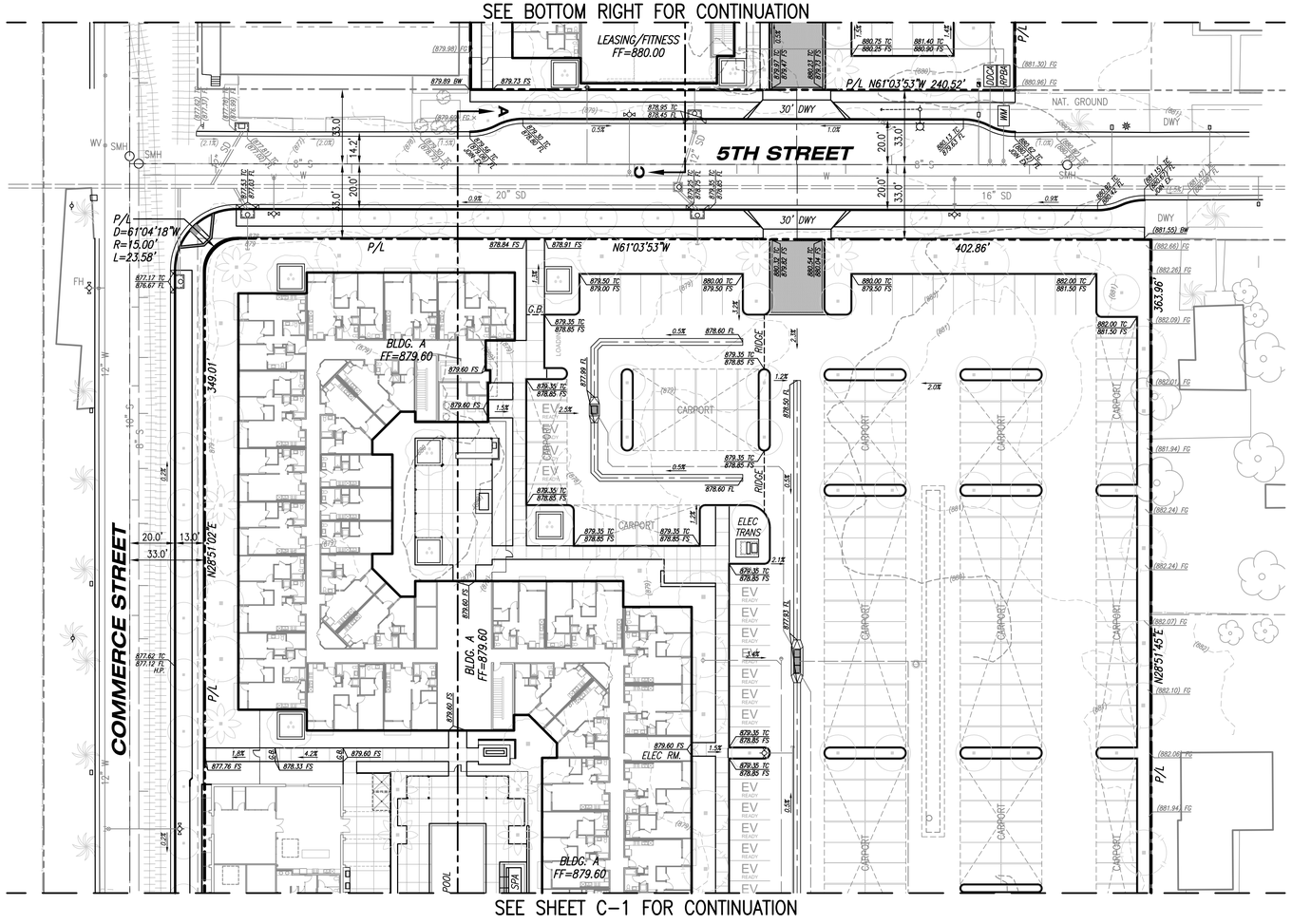
C-1: PRELIMINARY GRADING PLAN

RIVERSIDE, CALIFORNIA

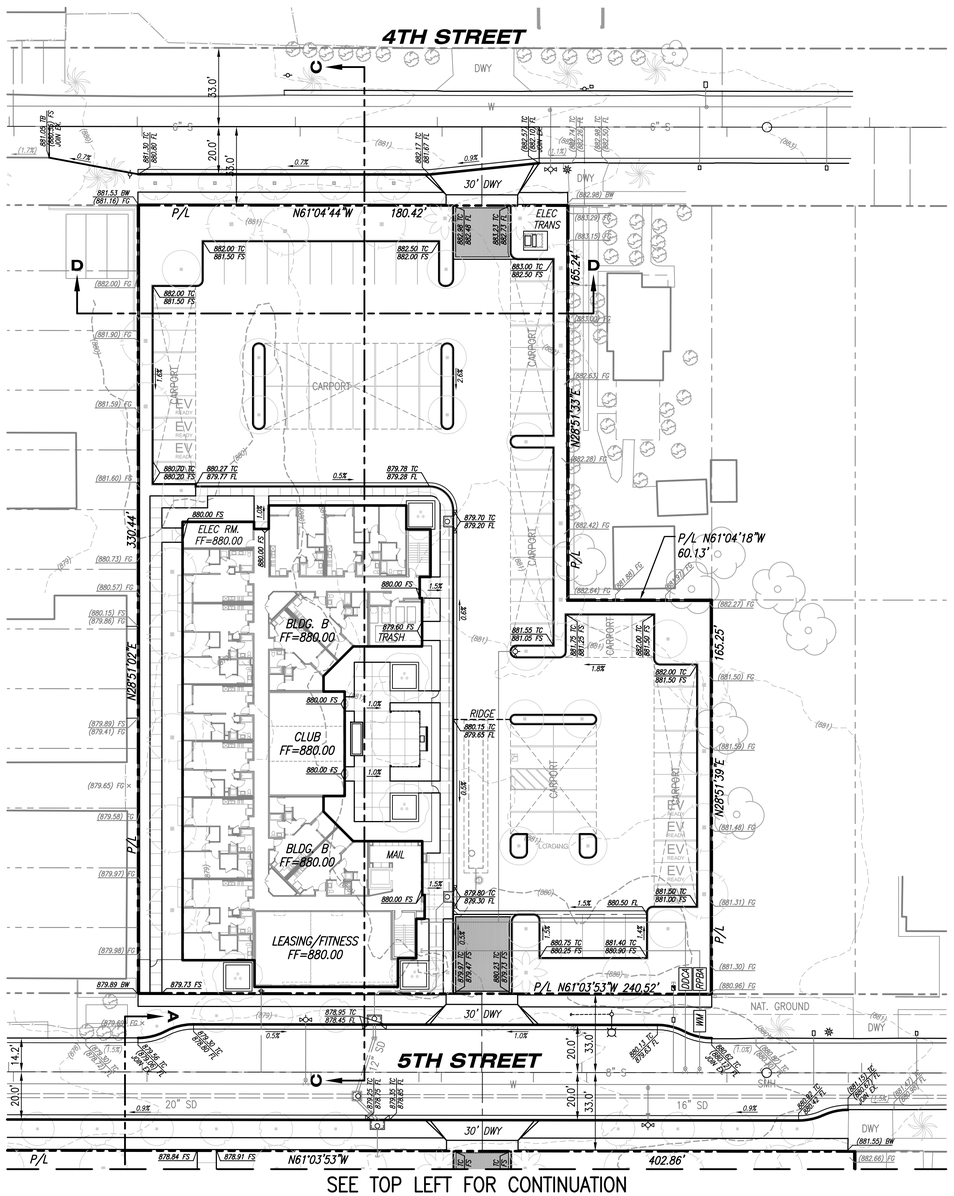
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
17530 Von Karman Ave. - Suite 200 Tel (949) 756-6440
Irvine, California 92614

L:\Yeolm\Yeolm-Riverside-Iron Lofts\Cds\Preliminary\KRL-01-02-GRAD.dwg Dec 07, 2022 - 10:31am

SEE BOTTOM RIGHT FOR CONTINUATION



SEE SHEET C-1 FOR CONTINUATION



SEE TOP LEFT FOR CONTINUATION

0 15 30 60 90

SCALE: 1"=30' DATE: 12/09/22

IRON LOFTS

IRON LOFTS, LLC

C-2: PRELIMINARY GRADING PLAN

RIVERSIDE, CALIFORNIA

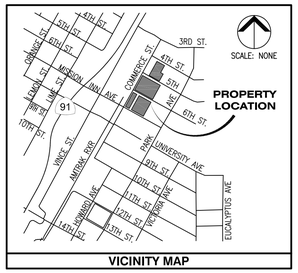
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
17530 Von Karman Ave. - Suite 200 Tel (949) 756-6440
Irvine, California 92614

TENTATIVE TRACT MAP NO. 38624

IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
DECEMBER 9, 2022

PROPOSED SITE PLAN

0 35 70 140 210
SCALE: 1"=70' DATE: 12/9/2022



VICINITY MAP

LEGAL DESCRIPTION

LOTS 3 THROUGH 5 INCLUSIVE AND LOTS 23 THROUGH 26 ALL INCLUSIVE, IN BLOCK 4 WHITE'S ADDITION, IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 48 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY.

AS RESERVED TO UNION PACIFIC RAILROAD COMPANY, A DELAWARE CORPORATION, FORMERLY KNOWN AS SOUTHERN PACIFIC TRANSPORTATION COMPANY, A DELAWARE CORPORATION, IN A DOCUMENT RECORDED APRIL 27, 2000 AS INSTRUMENT NO. 156950 OF OFFICIAL RECORDS.

APN: 211-022-026-4 AND 211-022-027-5

LOTS 1, 2, 3, 4, 5, 6, 7, 22 THROUGH 37 IN BLOCK 6 OF WHITES ADDITION, IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 48 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY.

APN: 211-07-024-4, 211-071-005-7, 211-071-023-3, 211-071-004-6, 211-071-001-3 AND 211-071-002-4

LOTS 1, 2, 3 THROUGH 7, INCLUSIVE, 22 THROUGH 37 INCLUSIVE, IN BLOCK 8 OF WHITE'S ADDITION, IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 48 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY, CALIFORNIA.

APN: 211-072-021-4; 211-072-022-5, 211-072-004-9 AND 211-072-020-3, 211-072-001, 211-072-002

EASEMENTS

1. EASEMENT(S) FOR INGRESS, EGRESS AD PARKING PURPOSE(S) AND RIGHTS INCIDENTAL THERETO, GRANTED TO SOUTHERN PACIFIC COMPANY RECORDED MARCH 13, 1928 IN BOOK 755, PAGE 184 OF DEEDS.

   THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD.
   NO MENTIONED EASEMENTS WITHIN SAID DOCUMENT. DOES NOT AFFECT.

2. EASEMENT(S) FOR RIVERSIDE WATER COMPANY CONSTRUCTION AND MAINTENANCE OF ALL NECESSARY WATER DITCHES, PIPES, FLUMES AND APPARATUS FOR THE PURPOSES OF IRRIGATION AND DOMESTIC USE RECORDED IN BOOK 42, PAGES 294 AND 296, OF DEEDS, SAN BERNARDINO COUNTY RECORDS.
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   EASEMENT(S) GRANTED TO SOUTHERN PACIFIC TRANSPORTATION COMPANY, A DELAWARE CORPORATION FOR RAILROAD PURPOSES AS RESERVED IN A DOCUMENT RECORDED DECEMBER 17, 1985 AS INSTRUMENT NO. 283346, OF OFFICIAL RECORDS.

   AFFECTS: OVER, ACROSS AND UPON THE NORTHWESTERLY 15.00 FEET OF SAID LOTS 4 AND 25. *AFFECTS, TO BE QUITCLAIMED.*

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   EASEMENT(S) FOR TELECOMMUNICATIONS PURPOSE(S) AND RIGHTS INCIDENTAL THERETO, AS GRANTED TO QWEST COMMUNICATIONS COMPANY, LLC IN A DOCUMENT RECORDED DECEMBER 16, 2013 AS INSTRUMENT NO. 2013-0581753 OF OFFICIAL RECORDS.
   AFFECTS PARCEL 2. NOT PLOTTABLE PER RECORD. TO BE QUITCLAIMED.

NOTES

1. EXISTING NUMBER OF LOTS: 53
2. ALL EXISTING ON-SITE IMPROVEMENTS ARE TO BE REMOVED/ DEMOLISHED.
3. REMOVAL OR RELOCATION OF EXISTING UTILITIES TO BE COORDINATED WITH UTILITY COMPANIES, CITY OF RIVERSIDE, AND THE COUNTY OF RIVERSIDE.
4. THERE ARE NO PROPOSED PUBLIC STREETS AS A PART OF THIS DEVELOPMENT/SUBDIVISION.
5. VACATION OF 6TH ST. WILL REQUIRE THE ABANDONMENT OF THE EXISTING 8" WATERMAIN IN THE EXISTING STREET RIGHT OF WAY. ADDITIONAL ANALYSIS WILL BE NEEDED TO DETERMINE IF THE ABANDONMENT OF THAT SECTION OF MAIN WILL TRIGGER ANY ADDITIONAL OFFSITE UPGRADES OR THE NEED TO LOOP THE MAIN THROUGH AN EASEMENT WITHIN THE PROJECT.
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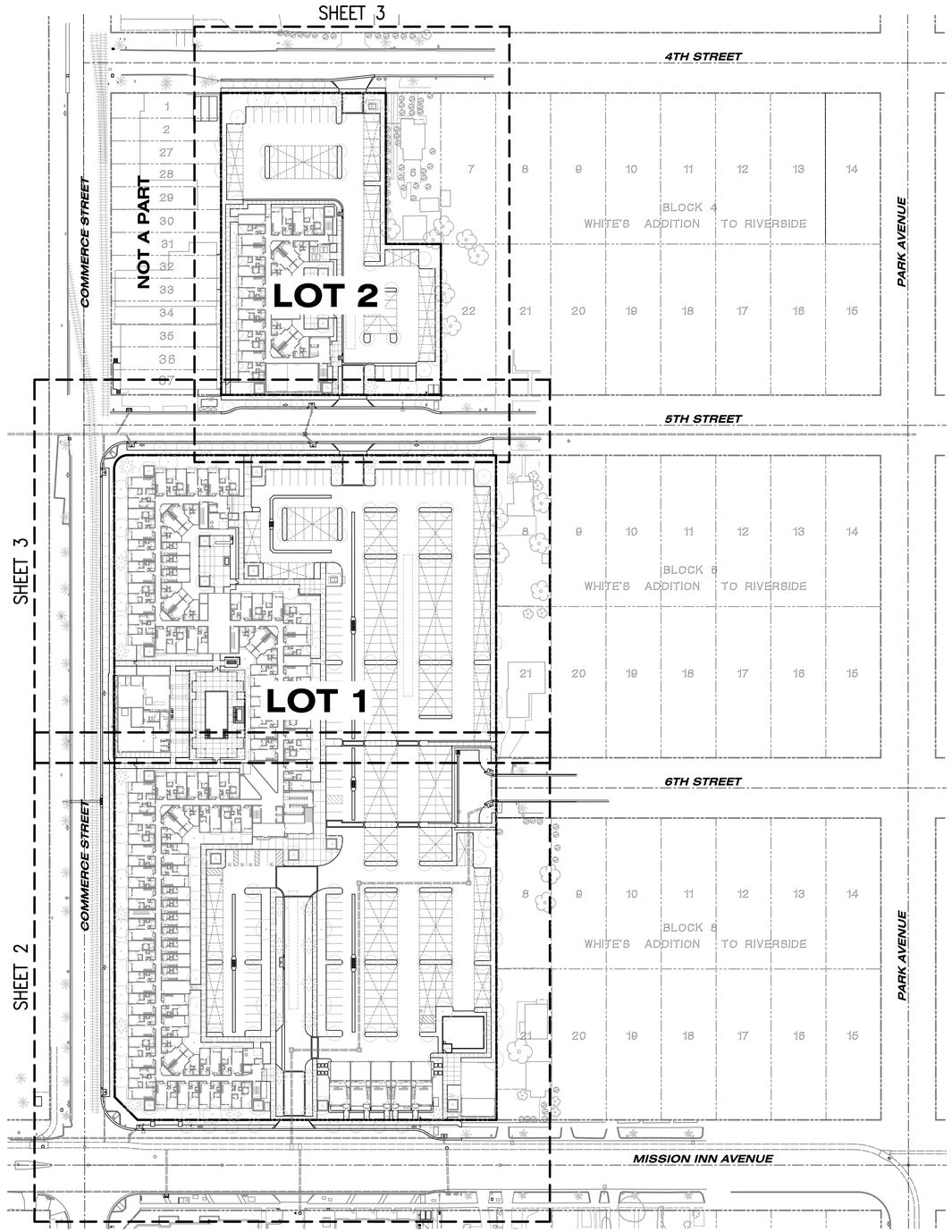
7. ON-SITE STORMWATER WILL BE TREATED BY WAY INFILTRATION THROUGH UNDERGROUND PERFORATED CORRUGATED METAL PIPE.
8. THE PROPOSED PROJECT WILL REQUIRE REMOVAL OF A PORTION OF THE EXISTING SEWER MAIN LOCATED WITHIN 6TH STREET. A PUBLIC SEWER MAIN WILL BE CONSTRUCTED TO COLLECT EXISTING SEWER AND PROPOSED PROJECT DISCHARGE TO THE EXISTING CITY SEWER SYSTEM.
9. DATE OF SURVEY: JULY 22, 2020



OWNER/SUBDIVIDER

IRON LOFTS, LLC
1201 DOVE STREET, SUITE 520
NEWPORT BEACH, CALIFORNIA 92660
ATTN: DARRIN OLSON
PHONE NO. (949) 975-1122 EXT. 1

CIVIL ENGINEER

KHR ASSOCIATES
17530 VON KARMAN AVENUE, SUITE 200
IRVINE, CALIFORNIA 92614
ATTN: JAMES H. KAWAMURA
R.C.E. NO. 30560
PHONE NO. (949) 756-6440

JAMES H. KAWAMURA R.C.E. 30560

REGISTERED PROFESSIONAL ENGINEER — JAMES H. KAWAMURA — No. 30560 — Expiration: 03/31/24 — CIVIL — STATE OF CALIFORNIA

ADDRESS/THOMAS GUIDE

ADDRESS:	VACANT COMMERCIAL PROPERTY
ASSESSORS PARCEL NOS.:	211-022-026, 027 211-071-001, 002, 004, 005, 023, 024 211-072-001, 002, 004, 020, 021, 022

AREA

TOTAL EXISTING AREA OF THE PROPERTIES CONSISTS OF:	341,265 S.F. (7.83 ACRES)
PROPOSED STREET DEDICATIONS:	2,345 S.F. (0.54 ACRES)
PROPOSED STREET VACATION:	27,575 S.F. (0.63 ACRES)
PROPOSED ALLEY VACATION:	6,608 S.F. (0.15 ACRES)
PROPOSED LOT 1:	303,549 S.F. (6.97 ACRES)
PROPOSED LOT 2:	69,553 S.F. (1.60 ACRES)
TOTAL PROPOSED PROJECT AREA:	373,102 S.F. (8.57 ACRES)

ABBREVIATIONS

ABAND.	ABANDONED
BFD	BACKFLOW DEVICE
C/L	CENTERLINE
CB	CATCH BASIN
DOM.	DOMESTIC WATER
ELEC.	ELECTRICAL
EX.	EXISTING
FF	FINISH FLOOR
FH	FIRE HYDRANT
FL	FLOWLINE
FS	FINISH SURFACE
FS	FIRE SERVICE LINE
G	GAS
GV	GAS VALVE
HC	HANDICAP
P/L	PROPERTY LINE
PP	POWER POLE
PROP.	PROPOSED
R/W	RIGHT OF WAY
S	SEWER
S.F.	SQUARE FEET
SD	STORM DRAIN
SL	STREETLIGHT
SMH	SEWER MANHOLE
SDMH	STORMDRAIN MANHOLE
TC	TOP OF CURB
TRANS.	TRANSFORMER
TYP.	TYPICAL
W	WATER
WM	WATER METER
WV	WATER VALVE

LEGEND

- BOUNDARY
- RIGHT OF WAY
- CENTERLINE
- BUILDING
- CURB AND GUTTER
- STREET LIGHT
- SIGN
- FIRE HYDRANT
- FENCE
- POWER POLE/ UTILITY POLE
- (CB) PROPOSED CATCH BASIN
- (F) PROPOSED FIRE HYRANT POINT OF CONNECTION
- (S) PROPOSED SEWER POINT OF CONNECTION
- (SD) PROPOSED STORM DRAIN CONNECTION POINT
- (W) PROPOSED WATER SERVICE POINT OF CONNECTION

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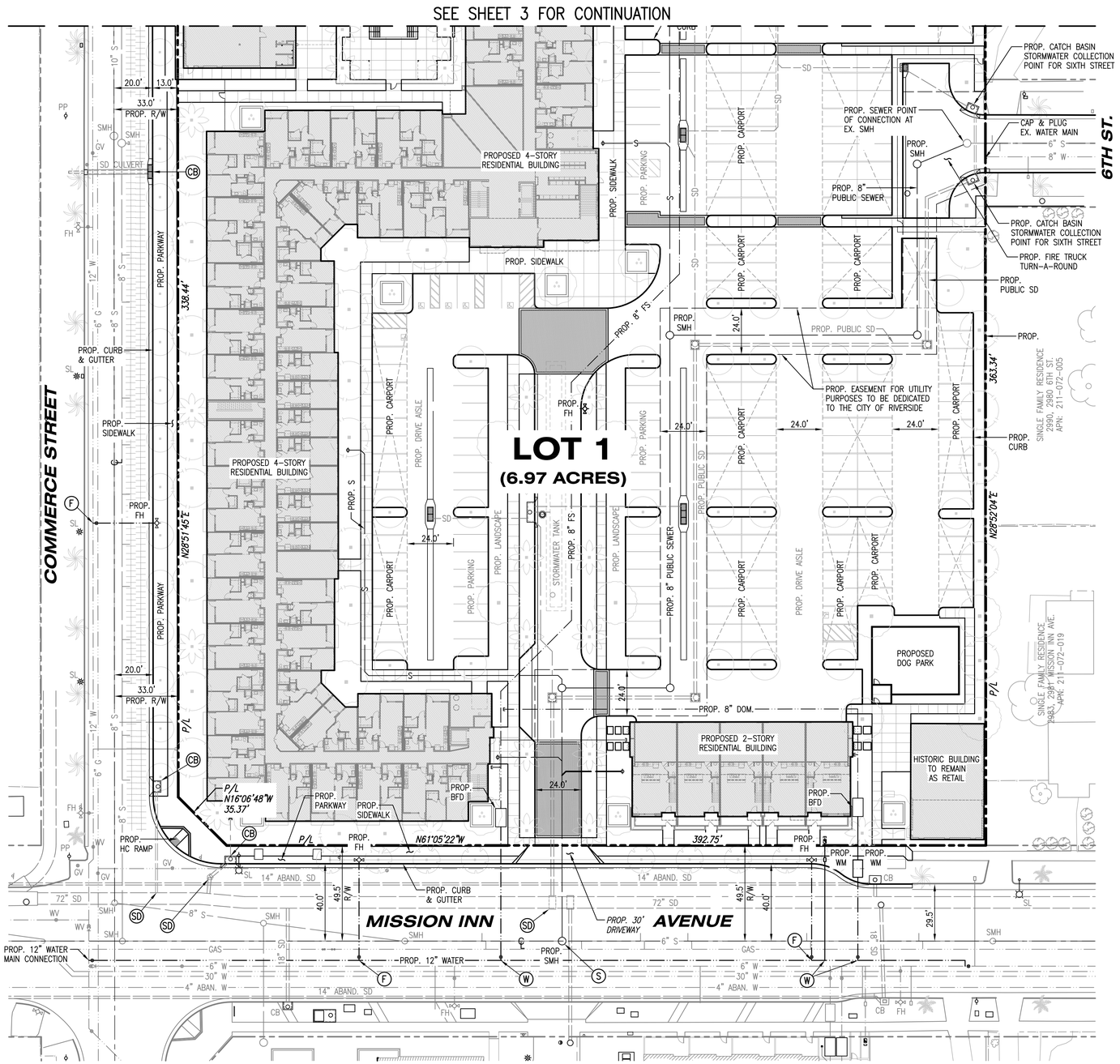
R:\Realm\Realm-Riverside-Iron Lofts\Subdivision & Legals\Tentative Tract Map\KRL-VTTM_Proposed.dwg Dec 07, 2022 - 1:16pm

TENTATIVE TRACT MAP NO. 38624

IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
DECEMBER 9, 2022

PROPOSED SITE PLAN

0 15 30 60 90
SCALE: 1"=30' DATE: 12/9/2022



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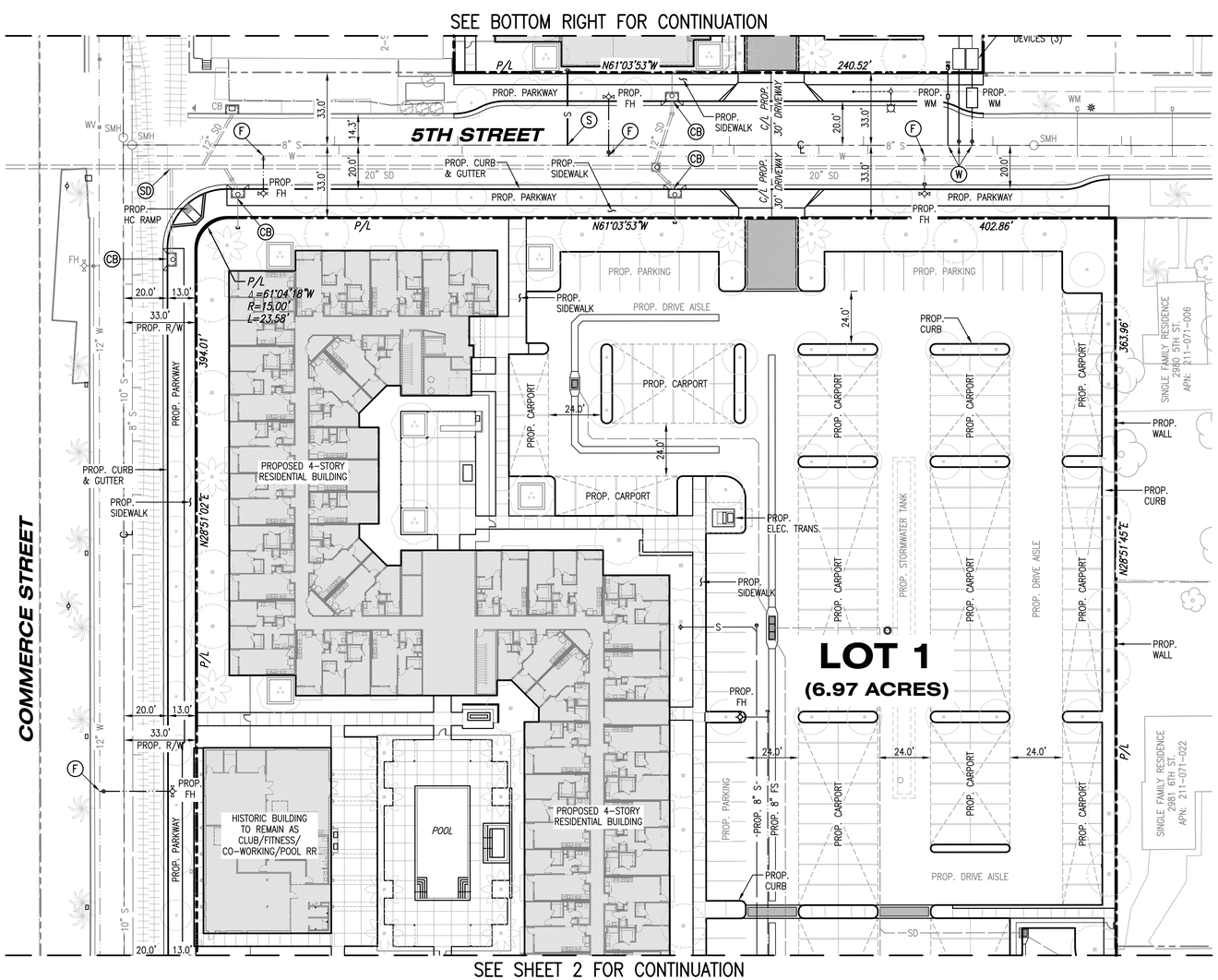

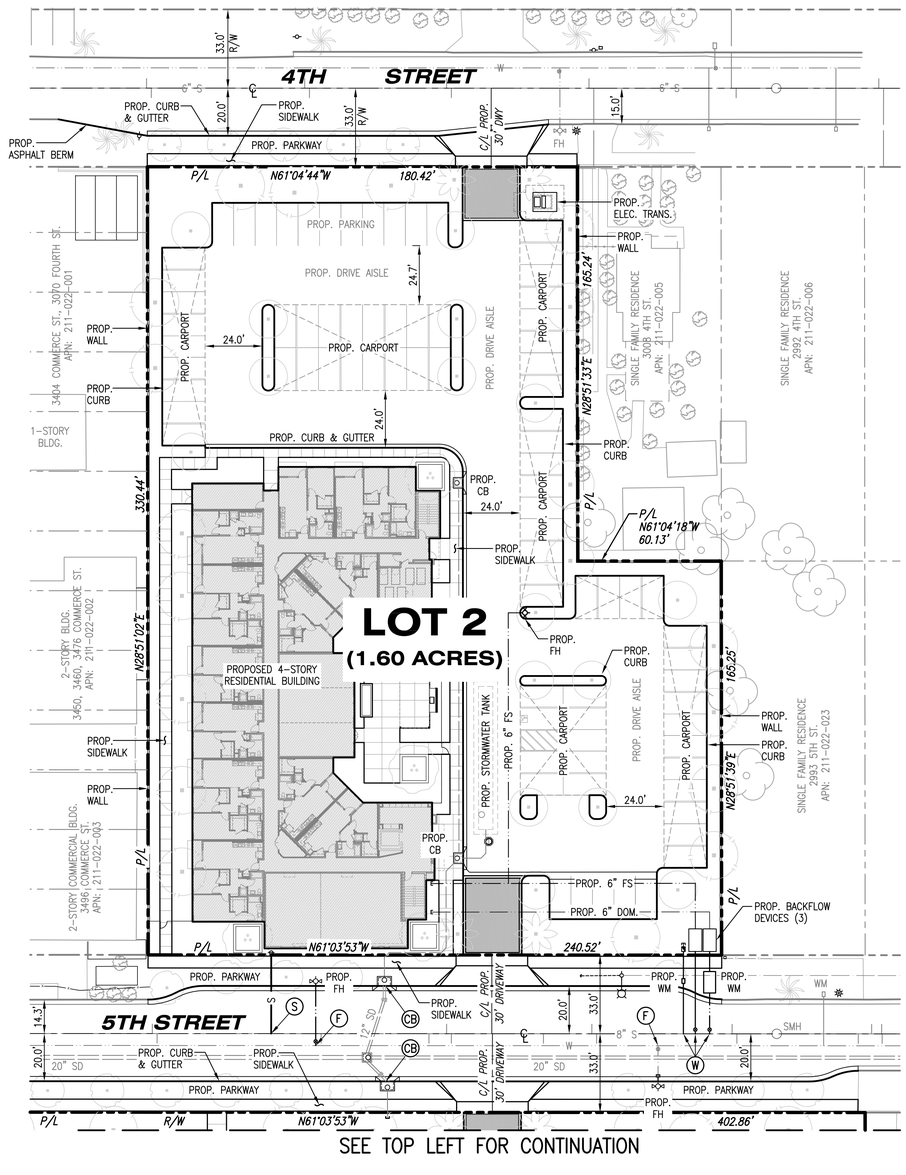

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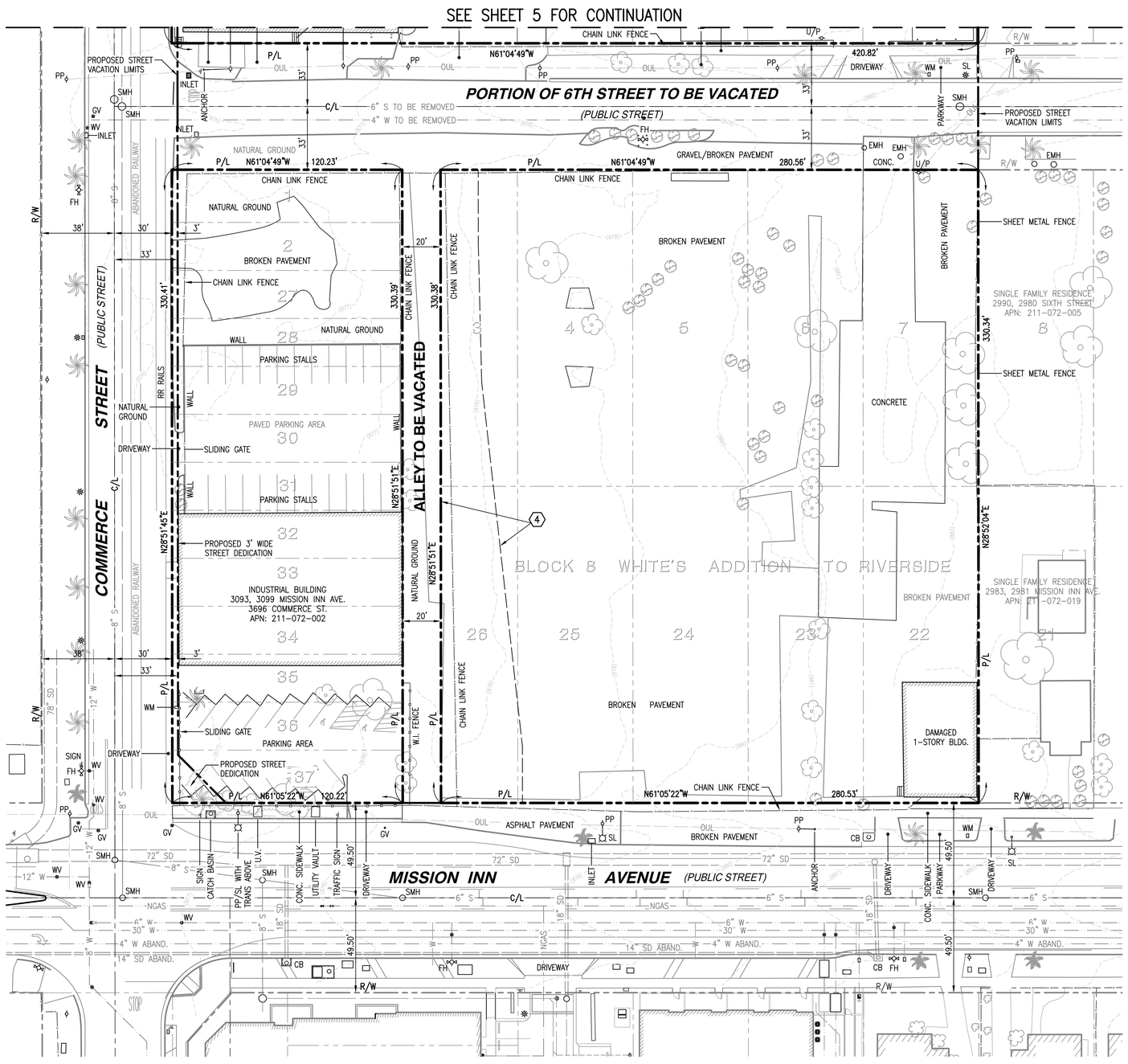
TENTATIVE TRACT MAP NO. 38624

IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
DECEMBER 9, 2022

EXISTING SITE CONDITIONS

0 15 30 60 180

SCALE: 1"=30' DATE: 12/9/2022



ABBREVIATIONS

APN.	ASSESSOR'S PARCEL NUMBER
ABAND	ABANDON
B	BOLLARDS
BFD	BACKFLOW DEVICE
BLDG.	BUILDING
C/L	CENTERLINE
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CB	CATCH BASIN
CHLK.	CHAIN LINK
CLR.	CLEAR
COMM.	COMMUNICATION
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LEGEND

- BOUNDARY
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BENCHMARK

INDEX 6647 PAGE 42 DATED JANUARY 20, 2005

FOUND PK NAIL AND CITY SURVEYOR TAG IN WESTERLY END OF CATCH BASIN ON THE SOUTHERLY SIDE OF UNIVERSITY AVENUE, 95± EASTERLY OF CENTERLINE OF PARK AVENUE.

ELEVATION: 891.353 FEET

AREA

TOTAL AREA OF THE SUBJECT PROPERTIES CONSISTS OF: 341,265 S.F. (7.834 ACRES)

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NOTES

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4. THERE ARE NO PROPOSED PUBLIC STREETS AS A PART OF THIS DEVELOPMENT/SUBDIVISION.
5. VACATION OF 6TH ST. WILL REQUIRE THE ABANDONMENT OF THE EXISTING 8" WATERMAIN IN THE EXISTING STREET RIGHT OF WAY. ADDITIONAL ANALYSIS WILL BE NEEDED TO DETERMINE IF THE ABANDONMENT OF THAT SECTION OF MAIN WILL TRIGGER ANY ADDITIONAL OFFSITE UPGRADES OR THE NEED TO LOOP THE MAIN THROUGH AN EASEMENT WITHIN THE PROJECT.
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9. DATE OF SURVEY: JULY 22, 2020

PREPARED BY:
KHR ASSOCIATES
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17530 Von Karman Ave. - Suite 200 Tel (949) 756-6440
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R:\Realm\Realm-Riverside-Iron Lofts\Subdivision & Legals\Tentative Tract Map\RRIL-VTTM_EXISTING.dwg Dec 07, 2022 - 1:21pm

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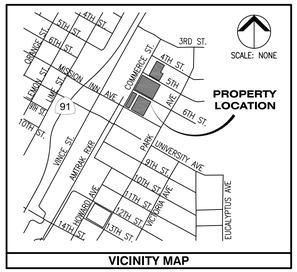
DECEMBER 9, 2022

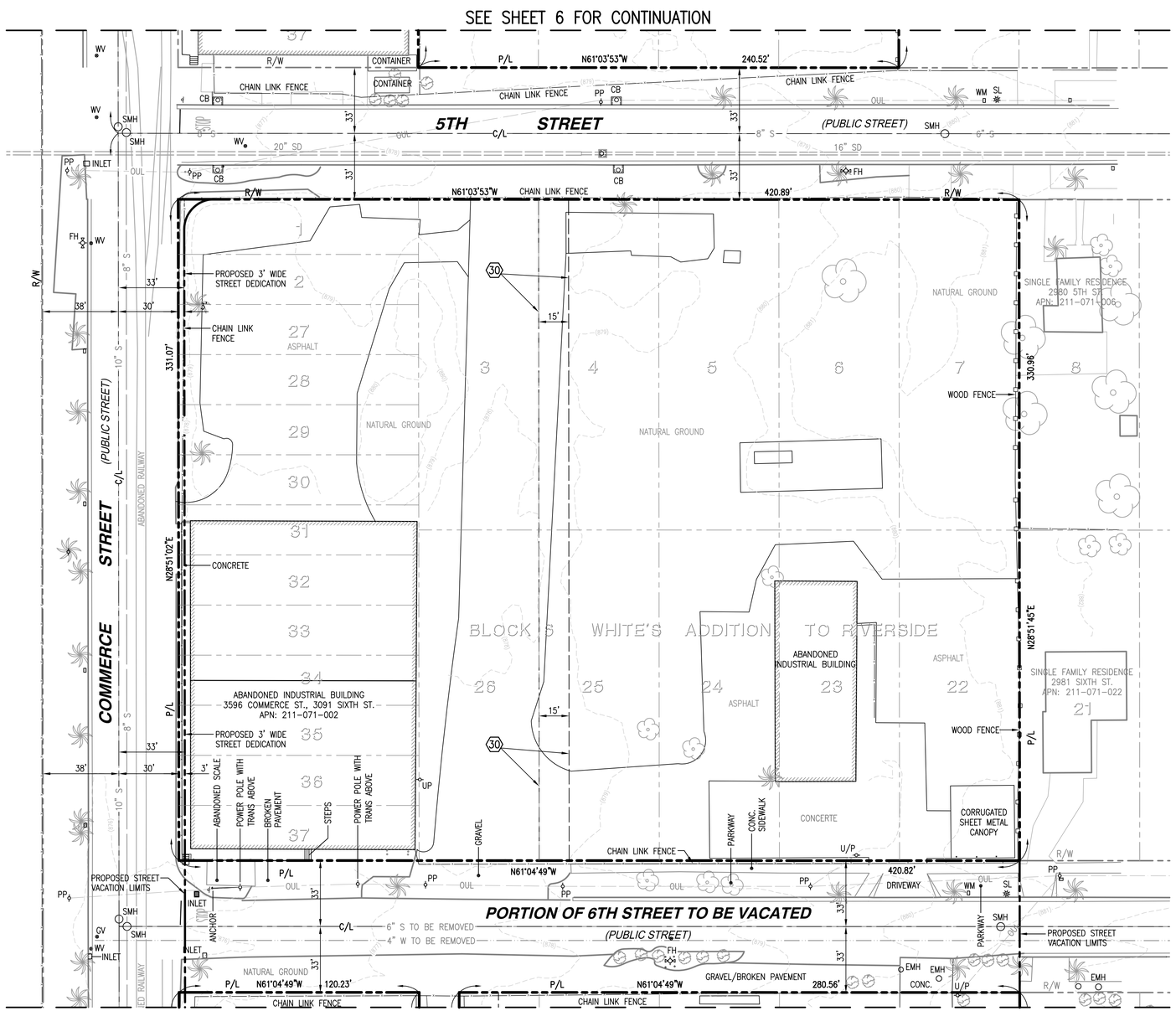
EXISTING SITE CONDITIONS



VICINITY MAP

SCALE: 1"=30' DATE: 12/9/2022

SEE SHEET 6 FOR CONTINUATION



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BENCHMARK

INDEX 6647 PAGE 42 DATED JANUARY 20, 2005

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AFFECTS: OVER, ACROSS AND UPON THE NORTHWESTERLY 15.00 FEET OF SAID LOTS 4 AND 25. ***AFFECTS, TO BE QUITCLAIMED.***

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5. EASEMENT(S) FOR TELECOMMUNICATIONS PURPOSE(S) AND RIGHTS INCIDENTAL THERETO, AS GRANTED TO QWEST COMMUNICATIONS COMPANY, LLC IN A DOCUMENT RECORDED DECEMBER 16, 2013 AS INSTRUMENT NO. 2013-0581753 OF OFFICIAL RECORDS.
   AFFECTS PARCEL 2, NOT PLOTTABLE PER RECORD, TO BE QUITCLAIMED.

NOTES

1. EXISTING NUMBER OF LOTS: 53
2. ALL EXISTING ON-SITE IMPROVEMENTS ARE TO BE REMOVED/ DEMOLISHED.
3. REMOVAL OR RELOCATION OF EXISTING UTILITIES TO BE COORDINATED WITH UTILITY COMPANIES, CITY OF RIVERSIDE, AND THE COUNTY OF RIVERSIDE.
4. THERE ARE NO PROPOSED PUBLIC STREETS AS A PART OF THIS DEVELOPMENT/SUBDIVISION.
5. VACATION OF 6TH ST. WILL REQUIRE THE ABANDONMENT OF THE EXISTING 8" WATERMAIN IN THE EXISTING STREET RIGHT OF WAY. ADDITIONAL ANALYSIS WILL BE NEEDED TO DETERMINE IF THE ABANDONMENT OF THAT SECTION OF MAIN WILL TRIGGER ANY ADDITIONAL OFFSITE UPGRADES OR THE NEED TO LOOP THE MAIN THROUGH AN EASEMENT WITHIN THE PROJECT.
6. 6" WATER MAIN IN MISSION INN REQUIRES UPGRADE TO 12" FROM COMMERCE ACROSS THE FRONTAGE AT A MINIMUM, AND POSSIBLY UP TO PARK DEPENDING ON REQUIRED FIRE FLOW VOLUME.
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8. THE PROPOSED PROJECT WILL REQUIRE REMOVAL OF A PORTION OF THE EXISTING SEWER MAIN LOCATED WITHIN 6TH STREET. A PUBLIC SEWER MAIN WILL BE CONSTRUCTED TO COLLECT EXISTING SEWER AND PROPOSED PROJECT DISCHARGE TO THE EXISTING CITY SEWER SYSTEM.
9. DATE OF SURVEY: JULY 22, 2020

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
17530 Von Karman Ave. - Suite 200 Tel (949) 756-6440
Irvine, California 92614

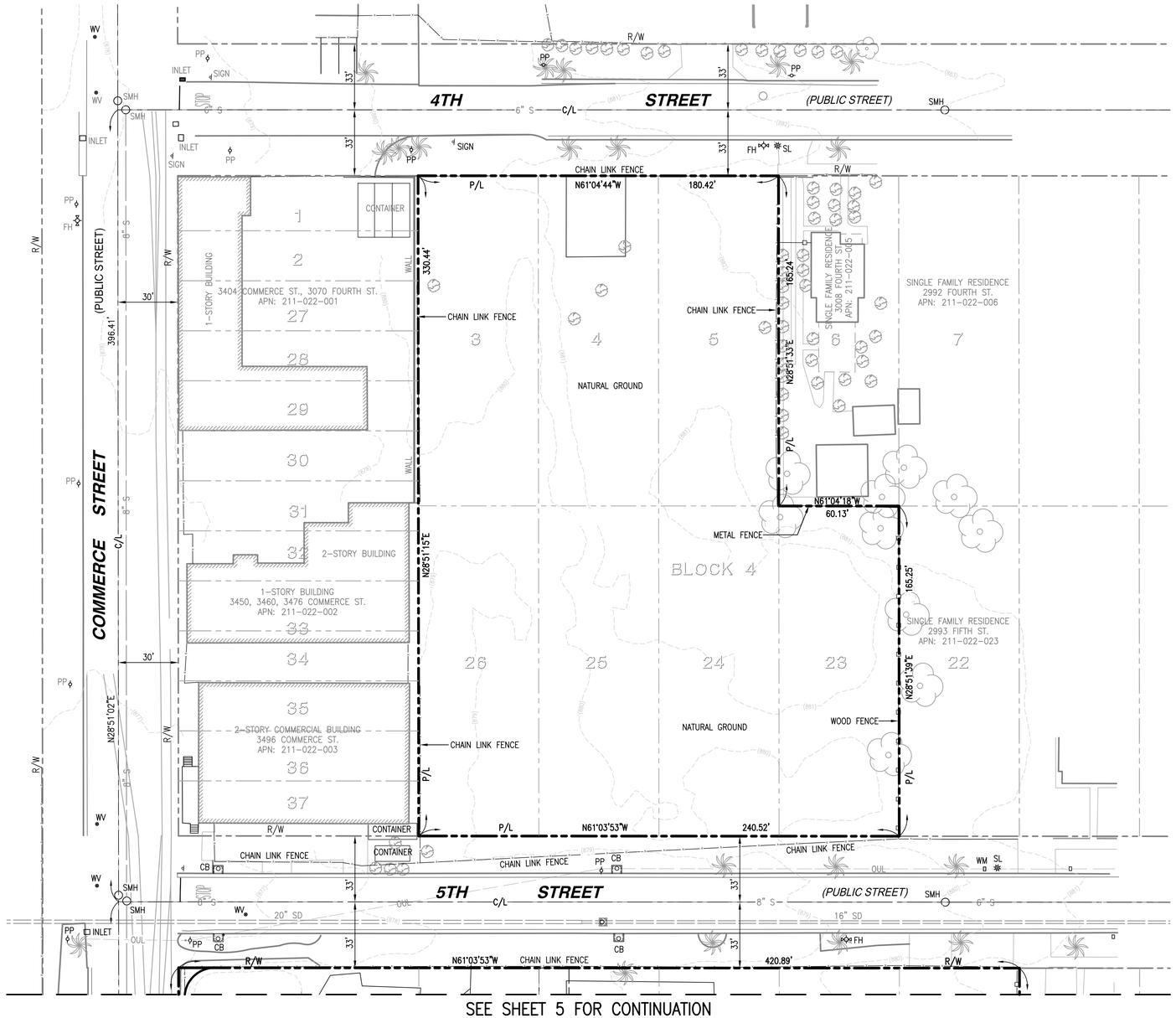
TENTATIVE TRACT MAP NO. 38624

IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
DECEMBER 9, 2022

EXISTING SITE CONDITIONS

0 15 30 60 180

SCALE: 1"=30' DATE: 12/9/2022



SEE SHEET 5 FOR CONTINUATION

ABBREVIATIONS

APN.	ASSESSOR'S PARCEL NUMBER
ABAND	ABANDON
B	BOLLARDS
BFD	BACKFLOW DEVICE
BLDG.	BUILDING
C/L	CENTERLINE
CATV	CABLE TELEVISION BOX
CB	CATCH BASIN
CHLK.	CHAIN LINK
CLR.	CLEAR
COMM.	COMMUNICATION
CONC.	CONCRETE
COR.	CORNER
ELEC.	ELECTRICAL
EPB	ELECTRICAL PULL BOX
EMH	ELECTRICAL MANHOLE
EV	ELECTRICAL VAULT
FD.	FOUND
FDC	FIRE DEPARTMENT CONNECTION
FH	FIRE HYDRANT
GI	GREASE INTERCEPTOR
GM	GAS METER
MON	MONUMENT
MH	MANHOLE
MW	MONITOR WELL
NE	NORTH EAST
NGAS	NATURAL GAS
OUL	OVERHEAD UTILITY LINE
P/L	PROPERTY LINE
PIV	POST INDICATOR VALVE
PP	POWER POLE
R/W	RIGHT OF WAY
S	SEWER
SD	STORM DRAIN
SE	SOUTH EAST
S.F.	SQUARE FEET
SL	STREET LIGHT
SMH	SEWER MANHOLE
TE	TRASH ENCLOSURE
TELE.	TELEPHONE
TMH	TELEPHONE MANHOLE
TRANS	TRANSFORMER
TS	TRAFFIC SIGNAL
TYP.	TYPICAL
UPB	UTILITY PULL BOX
UTIL.	UTILITY
W	WATER
WM	WATER METER
WV	WATER VALVE
W.I.	WROUGHT IRON (FENCE)
YL	YARD LIGHT

LEGEND

- BOUNDARY
- LOT LINE
- RIGHT OF WAY
- BUILDING
- CENTERLINE
- W.I. FENCE
- (880) CONTOUR
- CURB AND GUTTER
- FIRE HYDRANT
- SIGN
- WATER VALVE
- YARD LIGHT
- POWER POLE/ UTILITY POLE
- STREET LIGHT

BENCHMARK

INDEX 6647 PAGE 42 DATED JANUARY 20, 2005

FOUND PK NAIL AND CITY SURVEYOR TAG IN WESTERLY END OF CATCH BASIN ON THE SOUTHERLY SIDE OF UNIVERSITY AVENUE, 95'± EASTERLY OF CENTERLINE OF PARK AVENUE.

ELEVATION: 891.353 FEET

AREA

TOTAL AREA OF THE SUBJECT PROPERTIES CONSISTS OF: 341,265 S.F. (7.834 ACRES)

LEGAL DESCRIPTION

LOTS 3 THROUGH 5 INCLUSIVE AND LOTS 23 THROUGH 26 ALL INCLUSIVE, IN BLOCK 4 WHITE'S ADDITION, IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 48 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY.

AS RESERVED TO UNION PACIFIC RAILROAD COMPANY, A DELAWARE CORPORATION, FORMERLY KNOWN AS SOUTHERN PACIFIC TRANSPORTATION COMPANY, A DELAWARE CORPORATION, IN A DOCUMENT RECORDED APRIL 27, 2000 AS INSTRUMENT NO. 156950 OF OFFICIAL RECORDS.

APN: 211-022-026-4 AND 211-022-027-5

LOTS 1, 2, 3, 4, 5, 6, 7, 22 THROUGH 37 IN BLOCK 6 OF WHITES ADDITION, IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 48 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY.

APN: 211-07-024-4, 211-071-005-7, 211-071-023-3, 211-071-004-6, 211-071-001-3 AND 211-071-002-4

LOTS 1, 2, 3 THROUGH 7, INCLUSIVE, 22 THROUGH 37 INCLUSIVE, IN BLOCK 8 OF WHITE'S ADDITION, IN THE CITY OF RIVERSIDE, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 48 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY, CALIFORNIA.

APN: 211-072-021-4; 211-072-022-5, 211-072-004-9 AND 211-072-020-3, 211-072-001, 211-072-002

EASEMENTS

1. EASEMENT(S) FOR INGRESS, EGRESS AD PARKING PURPOSE(S) AND RIGHTS INCIDENTAL THERETO, GRANTED TO SOUTHERN PACIFIC COMPANY RECORDED MARCH 13, 1928 IN BOOK 755, PAGE 184 OF DEEDS.

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9. DATE OF SURVEY: JULY 22, 2020

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
17530 Von Karman Ave. - Suite 200 Tel (949) 756-6440
Irvine, California 92614

AIRPORT LAND USE COMMISSION MEETING
MINUTES
April 13, 2023

DRAFT

4-27-23

COMMISSIONERS PRESENT: Michael Geller, John Lyon, Steve Manos, Richard Stewart, Vernon Poole, Larry Smith (alternate for Russell Betts), Michael Lewis (alternate for Steven Stewart)

COMMISSIONERS ABSENT: Russell Betts, Steven Stewart

2.0 PUBLIC HEARING: CONTINUED ITEMS

None

3.0 PUBLIC HEARING: NEW CASES

3.1 Staff report recommended: **CONSISTENT**

Staff recommended at hearing: **CONSISTENT**

ALUC Commission Action: **CONSISTENT (Vote 7-0)**

Motion: Michael Lewis
Second: Richard Stewart

ZAP1121FV22 – Rancon MHS 20, LLC (Representative: Rancon Group) – City of Murrieta Case Nos. GPA2020-2580 (General Plan Amendment), ZC2022-2581 (Zone Change), DP2022-2579 (Development Plan), TTM2022-2583 (Tentative Tract Map). A proposal to construct a mixed-use development including a multi-family 151-unit apartment complex, and 5 commercial retail/restaurant/office buildings totaling 37,966 square feet on 18.05 acres located southerly of Murrieta Hot Springs Road, westerly of Date Street, easterly of Calle del Lago, and northerly of Calle de Fortuna. The applicant also proposes amending the site's general plan land use designation from Commercial to Multi-Family 2 Residential, Commercial and Open Space, and changing the site's zoning from CC (Community Commercial) to MF-3 (Multiple Family 3 Residential), CC (Community Commercial), and OS (Open Space). The applicant also proposes a tentative tract map to divide the site into 10 commercial parcels (Airport Compatibility Zone D of the French Valley Airport Influence Area). Staff Planner: Paul Rull at (951) 955-6893, or e-mail at prull@rivco.org

3.2 Staff report recommended: **CONSISTENT**

Staff recommended at hearing: **CONSISTENT**

ALUC Commission Action: **CONSISTENT (Vote 7-0)**

Motion: Michael Geller
Second: Larry Smith

ZAP1561MA23 – Brookhill Corporation (Representative: The Kaidence Group) – City of Perris Case Nos. SPA22-05349 (Specific Plan Amendment**),** DPR22-00032 (Development Plan Review). A proposal to construct a 300-unit multifamily apartment complex with recreational amenities on 16.68 acres, located southerly of Rider Street, westerly of Evans Road, and westerly of Murrieta Road. The applicant also proposes to amend the May Ranch Specific Plan Land Use Designation, changing the sites zoning from Commercial (C) to Multi Family Residential (MFR-22). (Airport Compatibility Zone D of the March Air Reserve Base/Inland Port Airport Influence Area). Staff Planner: Jackie Vega at (951) 955-0982, or e-mail at Javega@rivco.org

VIDEO:

A video recording of the entire proceedings is available on the ALUC website at www.rcaluc.org. If you have any questions please contact Barbara Santos, ALUC Commission Secretary, at (951) 955-5132 or E-mail at basantos@rivco.org

3.3 Staff report recommended:
CONSISTENT

Staff recommended at hearing:
CONSISTENT

ALUC Commission Action:
CONSISTENT (Vote 7-0)

Motion: Michael Geller
Second: Michael Lewis

ZAP1562MA23 – TTLC Riverside Chicago, LLC (Representative: T&B Planning Inc.) – County of Riverside Case Nos. GPA220009 (General Plan Amendment), CZ2200031 (Change of Zone), TTM38510 (Tentative Tract Map). A proposal to divide 140.8 acres into 232 single-family residential lots, located on the northwest corner of Chicago Avenue and Iris Avenue. The applicant also proposes to amend the site's land use designation from Very Low Density Residential (VLDR) to Low Density Residential (LDR) and change the site's zoning from Light Agricultural to One-Family Dwelling. (Airport Compatibility Zone D of the March Air Reserve Base/Inland Port Airport Influence Area). Staff Planner: Jackie Vega at (951) 955-0982, or e-mail at Javega@rivco.org

3.4 Staff report recommended:
CONSISTENT

Staff recommended at hearing:
CONSISTENT

ALUC Commission Action:
CONSISTENT (Vote 7-0)

Motion: Richard Stewart
Second: Steve Manos

ZAP1074TH23 – Santa Rosa Business Park, LLC (Representative: Terra Nova Planning & Research) City of Coachella Case No. GPA23-01 (General Plan Amendment). A proposal to amend the General Plan land use designation on 38.80 acres from Urban Employment Center to Industrial District, located on the southeast corner of 54th street and Tyler Street. No development is proposed at this time (Airport Compatibility Zones C and D of the Jacqueline Cochran Regional Airport Influence Area). Staff Planner: Jackie Vega at (951) 955-0982, or e-mail at Javega@rivco.org

3.5 Staff report recommended:
CONSISTENT

Staff recommended at hearing:
CONSISTENT

ALUC Commission Action:
CONSISTENT (Vote 7-0)

Motion: Michael Geller
Second: Richard Stewart

ZAP1090BD23 – HRI Development (Representative: Hamo Rostamian)– County of Riverside Planning Department Case Nos. GPA210003 (General Plan Amendment), CZ210010 (Change of Zone), PPT210015 (Plot Plan), TPM38113 (Parcel Map). A proposal to construct a 9,900 square foot day care center for children with a 12,500 square foot outdoor playground on 2.44 acres, located at 42500 Washington Street, northerly of Hidden River Road and southerly of 42nd Avenue. The applicant also proposes to amend the site's land use designation from High Density Residential and Medium Density Residential to Mixed-Use and change the site's zoning from General Residential (R-3-2000) and One-Family Dwellings (R-1-12000) to Mixed Use (MU). The applicant also proposes to divide the site into two parcels (Airport Compatibility Zone E of the Bermuda Dunes Airport Influence Area). Staff Planner: Jackie Vega at (951) 955-0982, or e-mail at Javega@rivco.org

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4.0 **PUBLIC HEARING: MISCELLANEOUS ITEMS**
None

5.0 **ADMINISTRATIVE ITEMS**

5.1 Director's Approvals – Information only

5.2 Update March Air Reserve Base Compatible Use Study (CUS)

Simon Housman, Director of MCUS informed the Commission that we finally received the final draft from Matrix. The 95% draft came out on the last day of March and was sent out to all the members of the working group and the policy committee for their comments. You can log into the ALUC website for the Compatible Use Study and look at the final draft.

5.3 Election of Officers (Chair/Vice Chair) and Re-election of At-Large position

Commissioner Larry Smith nominated Steve Manos as Chair, Commissioner Richard Stewart seconded. (Vote 7-0)

Commissioner Michael Lewis nominated Russell Betts as Vice Chair, Commissioner Larry Smith seconded. (Vote (7-0)

Chair Manos motioned to nominate Commissioner John Lyon to continue to serve as At Large. Seconded by Commissioner Geller (Vote 7-0)

6.0 **APPROVAL OF MINUTES**
Commissioner Geller motioned to approve the March 9, 2023 minutes, Commissioner Lyon seconded. Abstain: Commissioner Richard Stewart (Vote 6-0)

7.0 **ORAL COMMUNICATION ON ANY MATTER NOT ON THE AGENDA**
None

8.0 **COMMISSIONER'S COMMENTS**
Commissioner Richard Stewart announced that there will be an airshow at the March Air Reserve Base on April 22 and 23.

9.0 **ADJOURNMENT**
Steve Manos, Chair adjourned the meeting at 11:09 a.m.

VIDEO:
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