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February 28, 2025
M&A #22-092-03

University City Fire Safe Council

Re: 2025 Brush Management Assessment on Government Land Conducted for the University City Fire Safe Council, City of San Diego, San Diego County

INTRODUCTION:

Many homes in the University City (UC) area are located immediately adjacent to the Rose Canyon and San Clemente Canyon tributary watersheds that border government owned lands including City of San Diego (City) designated Open Space and Caltrans right of way. Open Space is dedicated City parkland including canyons that is free from development and reflects natural environmental characteristics with various types of dense vegetation, including brush, shrubs, and trees. There is also considerable natural or naturalized vegetation in this area that occurs within private ownership.

State and local codes require a 100-foot defensible space between natural canyon brush and man-made habitable structures. Defensible space is the area where decreased amounts of combustible vegetation reduce the fire propagation potential between canyon brush and habitable structures. Citizens may not be permitted to manage brush in Open Space or Caltrans right of way. As per City code, brush management is required to conform to the City's adapted Brush Management Requirements (SDMC Section 142.0412). **Bulletin #1: Brush Management Guide** found in the City's Brush Management Regulations provides specific management techniques for managing vegetation. This guide (https://www.sandiego.gov/sites/default/files/legacy/fire/pdf/brushpdf.pdf) was used as a metric of the brush density evaluation conducted by Merkel & Associates (M&A).

In 2023 (original assessment) and again in 2024, M&A conducted biological surveys in the University City area to identify vegetation density in open space areas within the 100-foot defensible space zones. This letter provides a follow-up assessment of these areas approximately one year since the 2024 survey to determine changes that have occurred since that survey was conducted.

METHODS

A reassessment of vegetation occurring on government owned land that occurs within 100 feet of privately owned habitable structures was conducted by M&A in early February of 2025. The survey focused on areas specified by the University City Fire Council which included areas previously assessed in 2024 by M&A. These areas included northeast facing chaparral and/or coastal sage scrub dominated slopes that are susceptible to westerly Santa Ana wind conditions which have been shown to exacerbate fire conditions.

As with last year's survey, most of the study consisted of a desktop GIS analysis. An unmanned aerial vehicle (UAV) was used to acquire current aerial imagery in all areas of the study area. This

imagery was used to assist with documenting changes that have occurred since the 2024 analysis. Aerial imagery collected from drones over multiple years can provide valuable insights into changes in vegetation canopy. The clarity of drone imagery allows for detailed observation of canopy structure, while the ability to capture images from various angles enables the assessment of density and cover. By comparing imagery over time, we can track changes in canopy, identify areas of vegetation density growth or decline, and monitor the impacts of environmental factors or management practices.

Changes in mapping were relatively minor, and in most cases, previous mapping was further refined based on aerial photo alignment and perspective. A minimum threshold of 0.01 acre was used in consideration of true canopy change. Areas within 100 feet of habitable structures abutting government (i.e., City, Caltrans, San Diego Unified School District) owned land were analyzed based on density of vegetation and subsequent fire threat severity. Mapping was then field-truthed by using high powered binoculars (8 x 42) from accessible viewing locations. In areas that could not be accessed for viewing, the drone imagery was the only source used for mapping.

RESULTS

Maps for the investigated areas are attached with an overview (Overview Figure), followed by enlargement figures (Figures A-E). Additional maps have also been provided that show changed mapping from 2024. All maps display property lines between private and municipal property (SanGIS 2024). Areas of vegetation supporting the highest shrub/tree density were mapped as Severe Density. These areas were often dominated by dense phase coastal sage scrub or southern mixed chaparral which included relatively high fuel load species such as lemonade berry (*Rhus integrifolia*), toyon (*Heteromeles arbutifolia*), and common chamise (*Adenostoma fasciculatum*). In addition, these areas may also include native trees such as coast live oak (*Quercus agrifolia*), or non-native trees such as pine (*Pinus* spp.) and eucalyptus (*Eucalyptus* spp.). In some cases, coastal sage scrub dominated by coastal sagebrush (*Artemisia californica*) and flat-top buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*) was included in this category where shrub density was high. Most areas mapped as Severe Density exhibit conditions that exceed City Brush Management Zone (BMZ) 2 standards which require no more than 50 percent cover of shrubs greater than 2 feet in height. Areas mapped as Moderate Density likely exceed BMZ 2 standards but are dominated by lower growing, less woody, and lower fuel load coastal sage scrub species such as coastal sagebrush, flat-top buckwheat, white sage (*Salvia apiana*), coast monkey flower (*Diplacus puniceus*), as well as similar structured non-native ornamental plants. Areas mapped as sparse density support the least shrub/tree density and are typically dominated by low growing grasses and forbs (native and non-native), invasive non-native succulents (i.e., hottentot fig), as well as occasional native and non-native shrubs. These areas most likely meet BMZ 2 requirements.

Per correspondence with you, no brush management has occurred since the 2024 assessment. Changes in mapping were relatively minor, and in most cases, previous mapping was further refined based on aerial photo alignment and perspective provided by the 2025 UAV survey. Some areas were up-tiered to greater density due to an increase in shrub density or tree canopy growth, but these areas were relatively minor.

If you have any questions regarding this letter, please do not hesitate to contact me at kince@merkelinc.com or (858) 560-5465.

Sincerely,

Kyle L. Ince
Senior Biologist

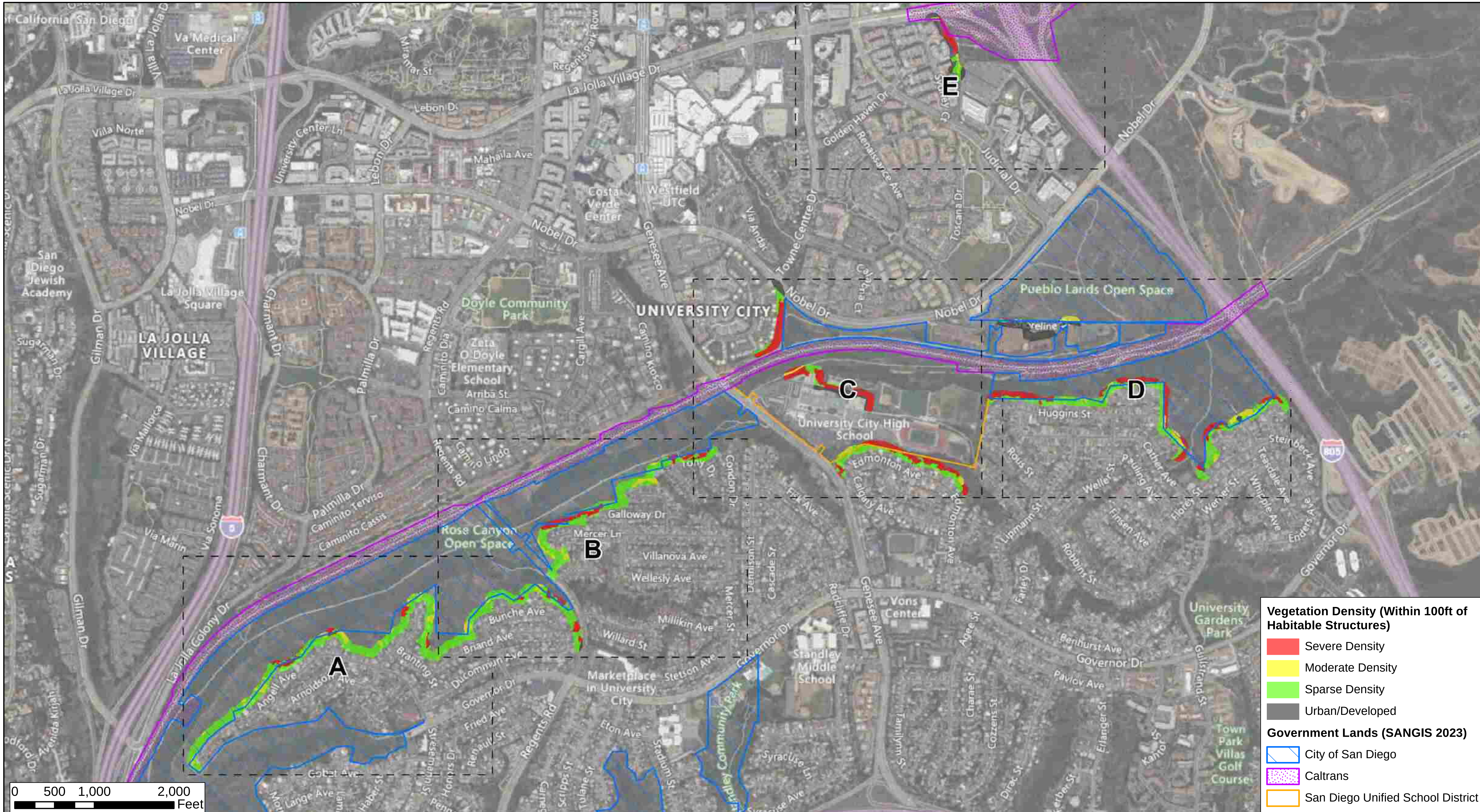
REFERENCES

City of San Diego 2023. Brush Management on City-owned Open Space Land: City of San Diego Park and Recreation Department Brush Management Section, (619) 685-1350. http://www.sandiego.gov/ park-and-recreation/Municipal Code:

San Diego Geographic Information Source (SanGIS). 2024. Taxable Parcels in San Diego County. Taxable Parcel Download (zip) updated 02/06/24 [Internet]. Available from: http://www.sangis.org/.

Attachment 1. Vegetation Density Figures

M&A #22-092-03



Vegetation Density

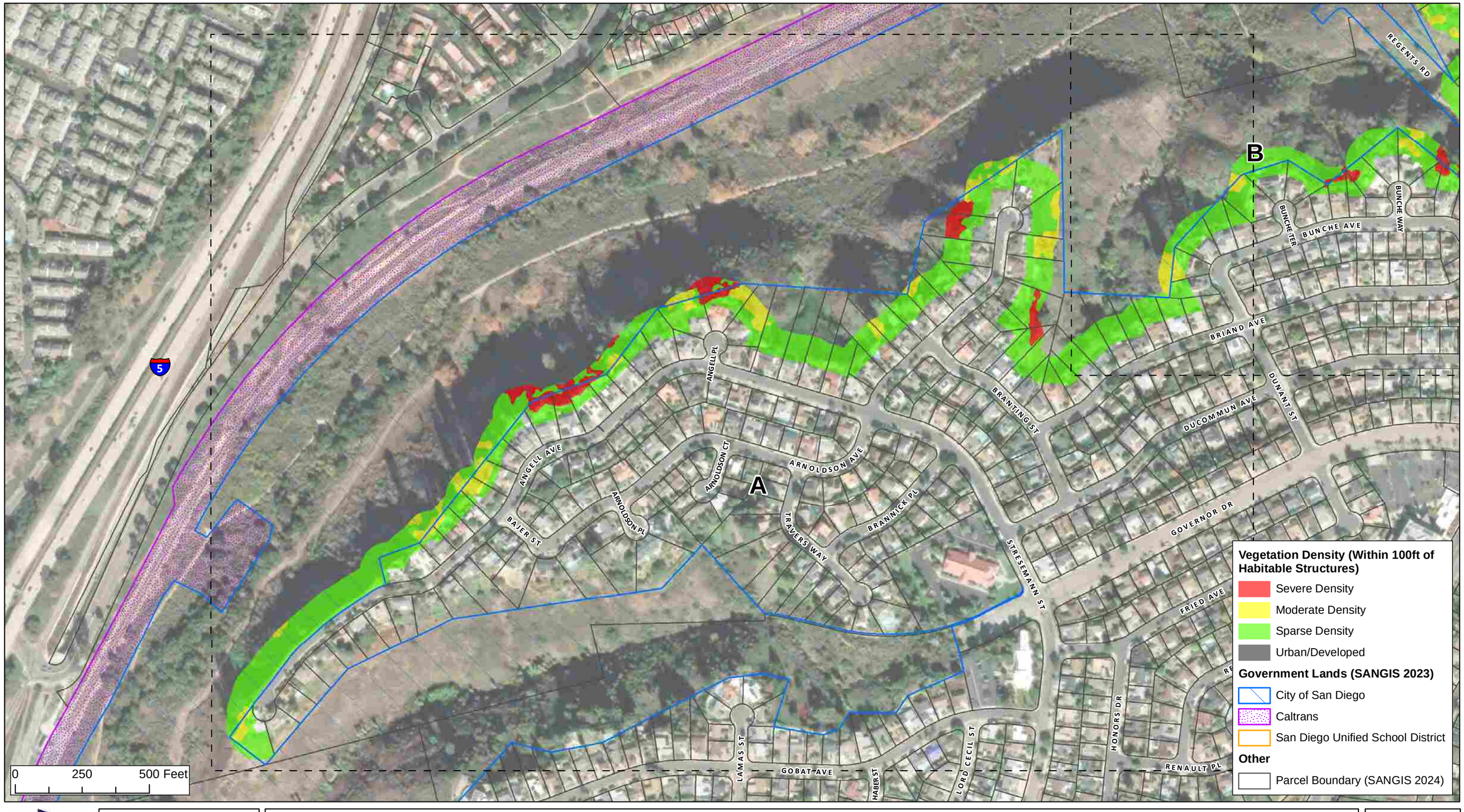
University City Fire Council Brush Management Assessment

Aerial Source: Bing 2022

Created on February 17, 2025

Overview Figure

Merkel & Associates, Inc.



Vegetation Density

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 17, 2025

Figure A

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Vegetation Density

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 17, 2025

Figure B

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Vegetation Density

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 17, 2025

Figure C

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W E
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Vegetation Density

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 17, 2025

Figure D

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Vegetation Density

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 17, 2025

Figure E

Attachment 2. Vegetation Density with Change Analysis Figures

M&A #22-092-03

Vegetation Density with Change Analysis

University City Fire Council Brush Management Assessment

Aerial Source: Bing 2022

Created on February 24, 2025

Overview Figure

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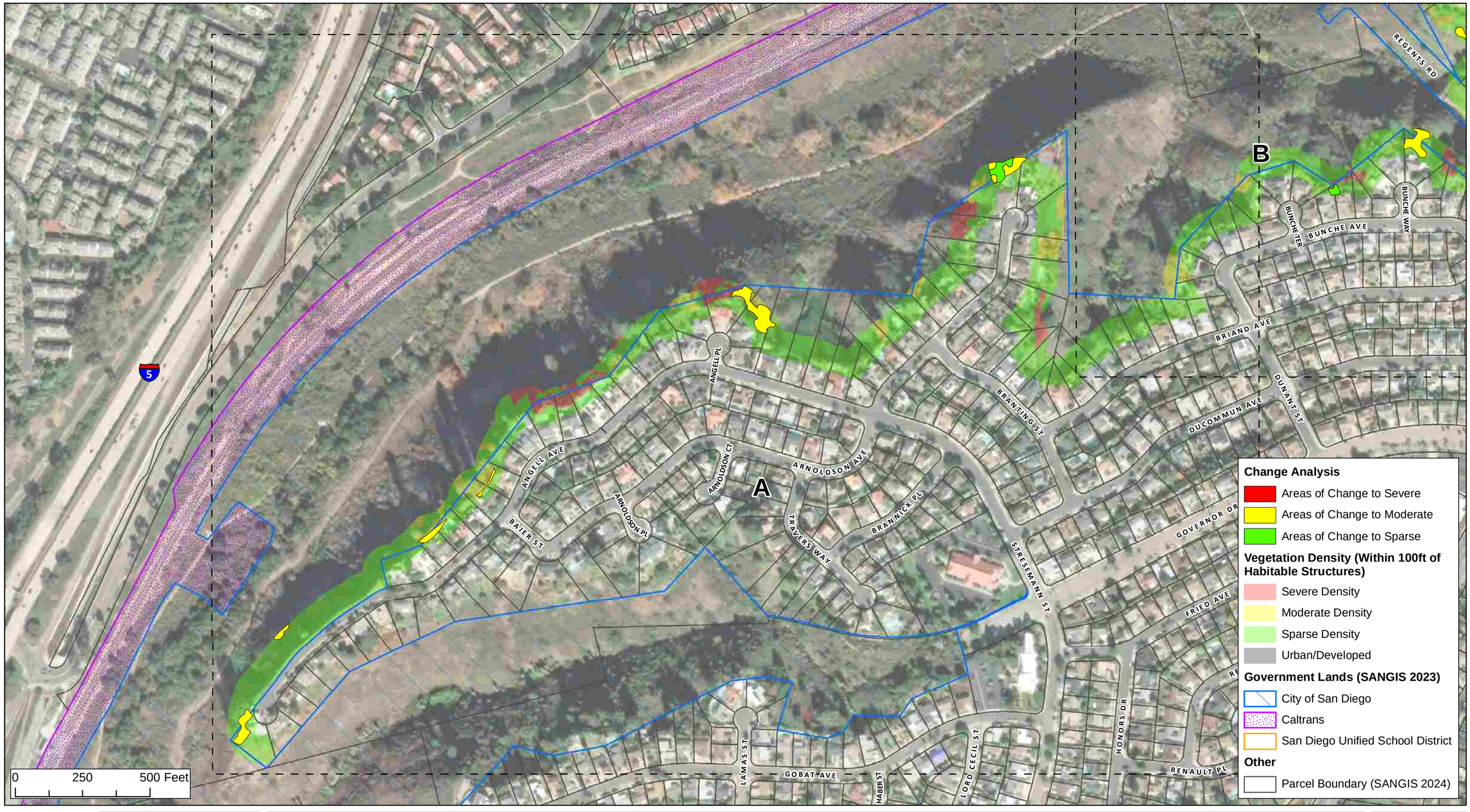

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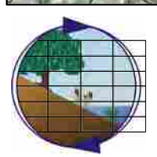
Vegetation Density with Change Analysis

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 24, 2025

Figure A



Vegetation Density with Change Analysis

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 24, 2025

Figure B

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Vegetation Density with Change Analysis

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 24, 2025

Figure C

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Vegetation Density with Change Analysis

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 24, 2025

Figure D

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Vegetation Density with Change Analysis

University City Fire Council Brush Management Assessment

Aerial Source: ESRI 2023

Created on February 24, 2025

Figure E