EXHIBIT 21

RO-6-154

Jamul/Dulzura Evacuation Route Study
Final Report

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1.0 Introduction

Northwestern Jamul, looking southwest from Alta Loma Drive

Within the County of San Diego, the unincorporated communities have developed around a backbone of existing and proposed Mobility Element roads. While these roads are generally adequate to serve daily commuter traffic, the need for additional roads for evacuations in times of emergencies, such as wildland fires, is a key concern for many in the unincorporated communities. Many existing non-Mobility Element roads do not connect. Many are private and narrow roads with short curve radii, and limited or no public access which do not conform to current fire code requirements. Several communities have requested that additional local public roads be developed to improve road connectivity and provide additional means of evacuation for the community in times of emergencies.

The Jamul/Dulzura Evacuation Route Study was initiated by the County of San Diego's Department of Planning and Land Use (DPLU) with the primary objective of identifying additional and potential corridors to enhance roadway connectivity in the unincorporated communities of the County. The intent is to prepare this Evacuation Route Study, along with a separate study for Valley Center, as pilot studies for the County's unincorporated communities. The primary purpose of this study is to identify potential evacuation routes that, if developed to acceptable standards, would serve as an evacuation route network for the community.

The Jamul/Dulzura Evacuation Route Study Final Report documents and summarizes the various analyses that were completed over the course of study. Four (4) individual issues papers were prepared including:

Issue Paper No. 1: Community Connectivity Assessment – documented the key areas of the community that are underserved by the public roadway network and areas of the community that could be impacted in the event of a community-wide emergency where an evacuation was to be required.

Issue Paper No. 2: Evacuation Corridor Identification – documented potential corridors within the Subregion that provide a connection between two critical evacuation points, provide additional access to deficient parts of the community, and/or provide additional regional access to major arterials and freeways serving the community.

Issue Paper No. 3: Emergency Evacuation Roadway Classification Scheme – documented potential roadway classifications appropriate for and supportive of emergency evacuations.

Issue Paper No. 4: Evacuation Corridor Feasibility Assessment- documented the analysis of the potential engineering and environmental issues that could have an effect on implementation. Preliminary cost estimates and a review of evacuation benefits associates with each of potential evacuation corridor were also provided.

A Stakeholder Review Committee was formed to facilitate the review of each of these issue papers. This Committee consisted of three members of the community, two of which were members of the Community Planning Group and a third member of the community at large. The Committee also included County staff members from the Department of Public Works, including representatives from the Transportation and Land Development Divisions, and representative from the Public Safety Group, Fire Authority, the Department of Planning and Land Use Project Planning Division.

1.1 Overview of Community Evacuation Route Study

Development of the Community Evacuation Route Study included the following tasks over an approximate 18-month period which began in September 2010:

1. Identification of key areas within the Subregion where roadway connectivity is lacking and could result in problems if a community-wide evacuation were to be necessary.
2. Identification of potential new evacuation route corridors, including review with the Stakeholder Review Committee and the Community Planning Group (CPG).
3. Evaluation of the feasibility of improving the potential new evacuation route corridors to desired conditions and roadway classifications, including consideration of physical and environmental constraints.

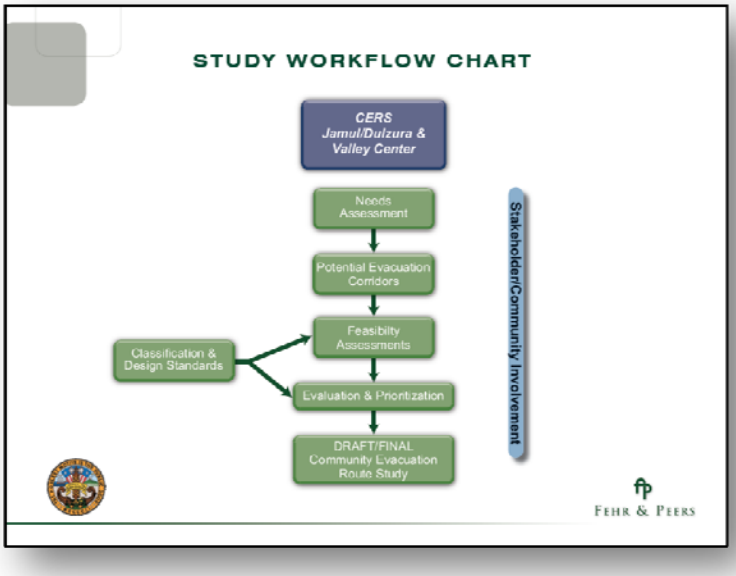

Figure 1-1 Study Process

4. Identification of a potential community evacuation route network based on route alignments and design requirements to classify the alignment as an evacuation route.
5. Identification of a community evacuation route classification system and identification of local community priorities and recommendations for implementation.

Figure 1-1 graphically displays the study process. As shown, the study included significant interaction with members of the community through a Stakeholder Review Committee and the Community Planning Group. The Stakeholder Review Committee met a total of four times over the duration of the study, and the Community Planning Group was provided project status reports at two key points during the study process.

1.2 Organization of Report

Following this introduction chapter, this Final Report is organized into the following chapters:

Chapter 2.0 Overview of Subregion – provides a general description of the Jamul/Dulzura Subregion including location, existing/forecast population, the existing and planned roadway network, public facilities and overview of local development patterns.

Chapter 3.0 Evacuation and Roadway Connectivity Needs Assessment - describes results of the needs analysis which, in addition to input from community representatives, focused on access and roadway connectivity issues within the Jamul/Dulzura Subregion.

Chapter 4.0 Evacuation Corridor Identification – documents the preliminary list of potential corridors (approximately a half-mile wide) which could serve the evacuation needs of the Jamul/Dulzura Subregion. These corridors then became the focus of more detailed feasibility and benefit evaluations in subsequent tasks of the Study.

Chapter 5.0 Relevant State and Local Standards - provides a general overview of the relevant state and local codes and regulations related to and governing emergency access and evacuation.

Chapter 6.0 Evacuation Corridor Roadway Classification Scheme – describes specific design features (right-of-way, cross-section, surface type), implementation options, and related issues relevant to designation and implementation of emergency evacuation routes.

Chapter 7.0 Evacuation Corridor Evaluation Process – documents the analysis of potential engineering and environmental issues associated with the potential evacuation corridors, as well as the effectiveness of the corridors in meeting the evacuation needs of the community.

Chapter 8.0 Implementation Considerations – provides a discussion of issues and local priorities relevant to local implementation of the evacuation corridors.

2.0 Overview of the Jamul/Dulzura Subregion

The Jamul/Dulzura Subregion spans approximately 168 square miles in the southeast region of unincorporated San Diego County. The Subregion is located generally south of Loveland Reservoir and the Sweetwater River, adjacent to and north of the Mexican border and east of the Rancho San Diego land development. Barrett Lake and the Cleveland National Forest are located in the northeastern portion of the community. State Route (SR) 94 traverses the community generally in an east-west direction. **Figure 2-1** displays the regional location of the Jamul/Dulzura Subregion.

2.1 Land Use and Population

The Jamul/Dulzura Subregion is generally rural in character, with no sewer system and imported water service limited to the northwestern portion. The Jamul/Dulzura Subregion includes several small rural or semi-rural communities, including Jamul, Steel Canyon, Dulzura, and Barrett Junction. Jamul is the largest of these communities and its surrounding hills and valleys accommodate a majority of the Subregion's population. **Figures 2-2** and **2-3** display the existing and future land uses respectively within the Subregion. **Figure 2-4** displays the patterns of public and private land ownership within the Subregion. Public lands include those administered by the Federal, State, and County Governments, and various public and utility districts.

BLM land in Central Jamul

Figure 2-5 displays the topographical features of the Subregion. As shown the Jamul/Dulzura Subregion is part of a mountainous region with several peaks and valleys and very limited flat land.

The Jamul/Dulzura Subregion currently has a residential population of approximately 9,900 people and 3,200 residential dwelling units. The Subregion is projected to grow to nearly 16,900 people and nearly 5,500 residential dwelling units with build-out of the General Plan *(Source: County of San Diego General Plan, 2011).* **Figures 2-6** and **2-7** display the existing and future residential densities, respectively, throughout Jamul/Dulzura Subregion.

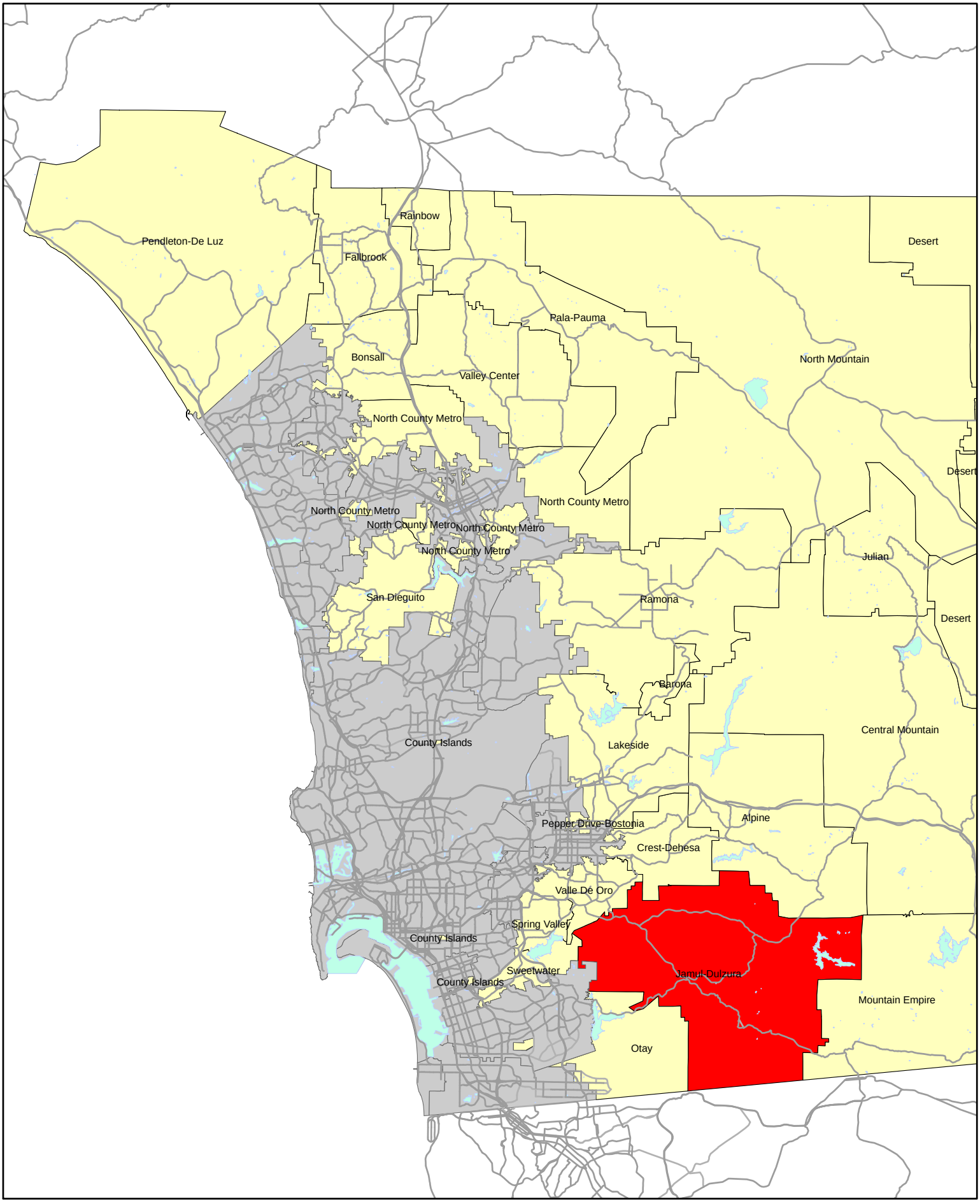

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FIGURE 2-1 - JAMUL-DULZURA - REGIONAL LOCATION MAP

County of San Diego Community Evacuation Route Study

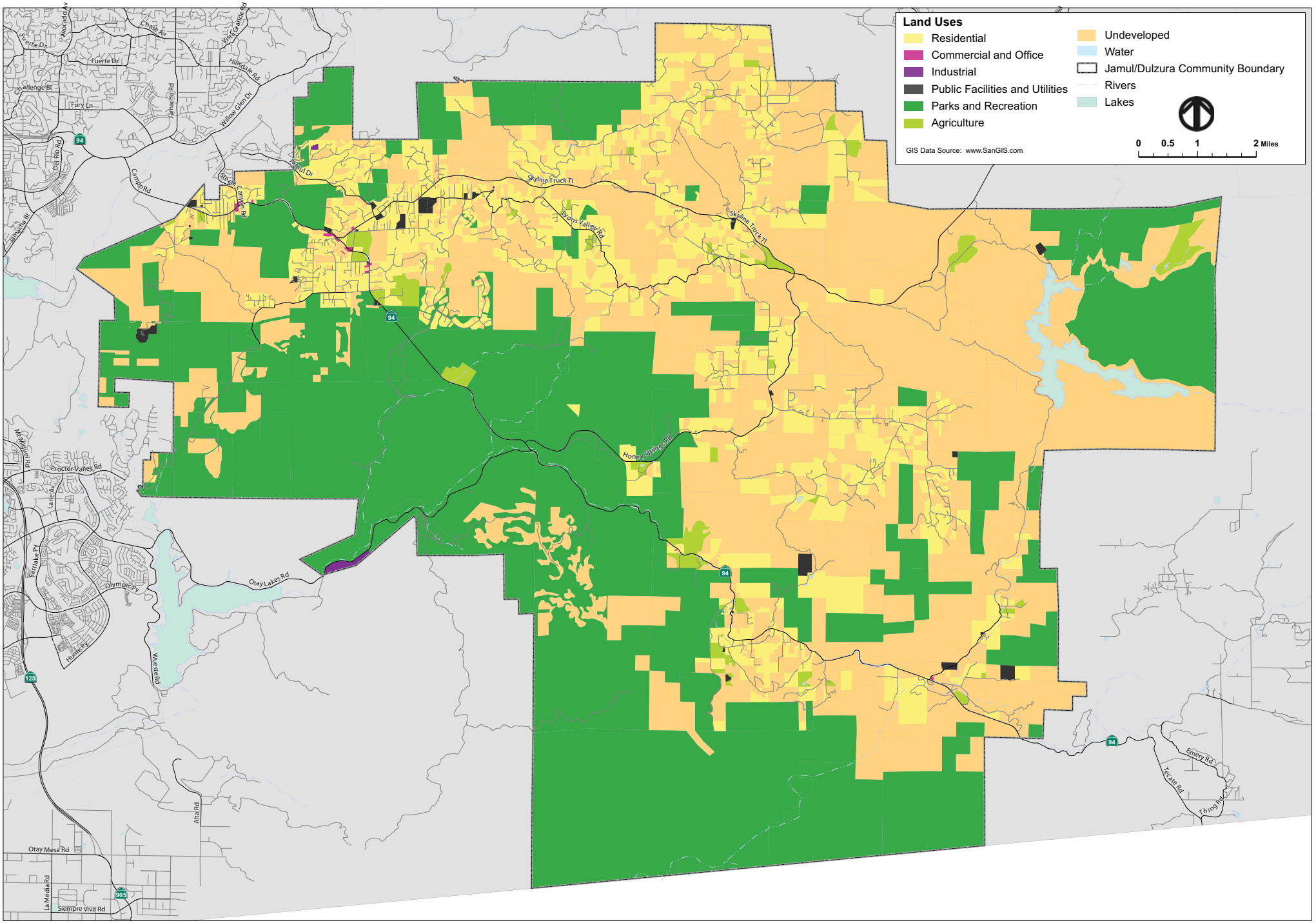

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FIGURE 2-2 - JAMUL/DULZURA - EXISTING LAND USES

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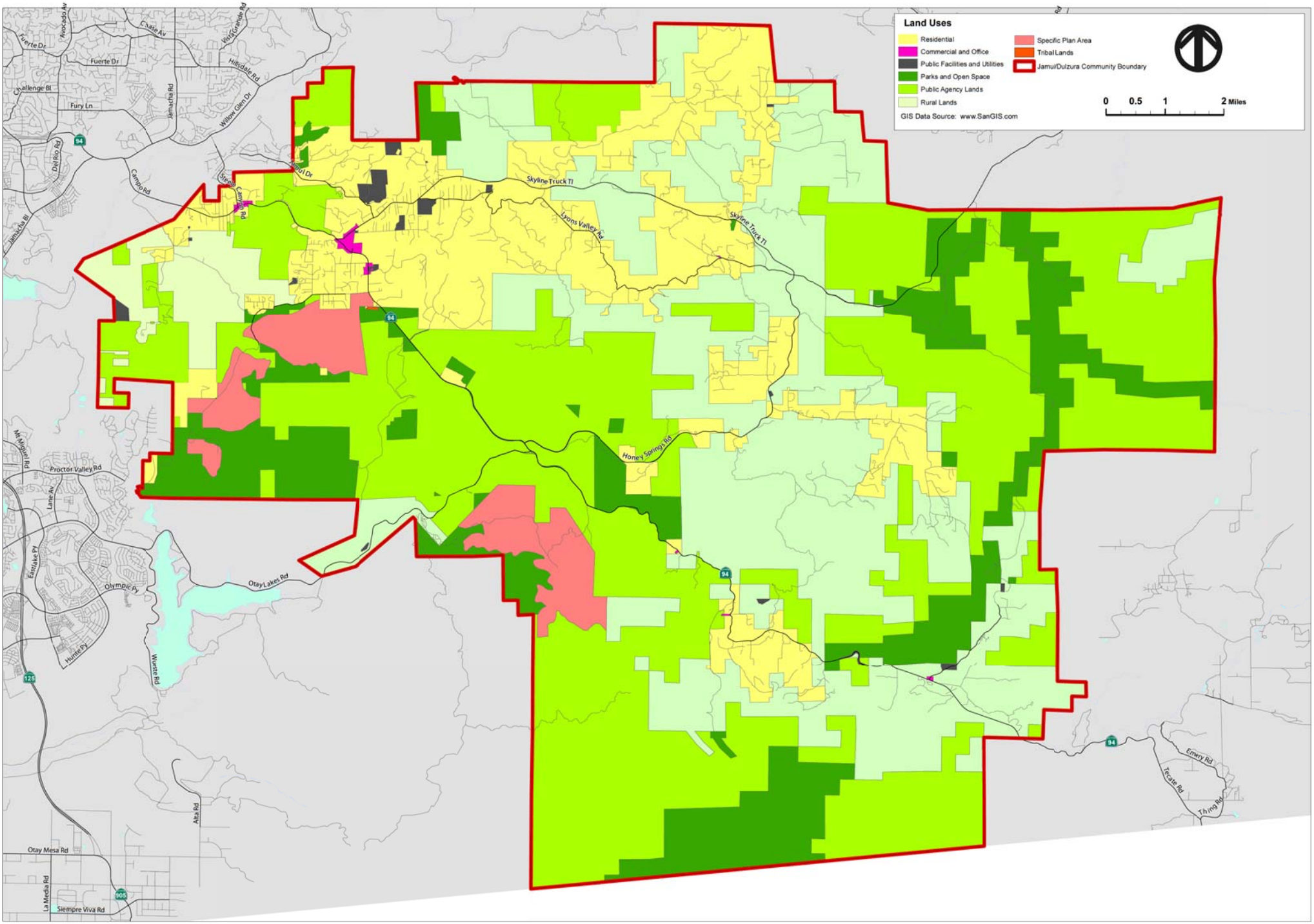

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FIGURE 2-3 - JAMUL/DULZURA - FUTURE LAND USES

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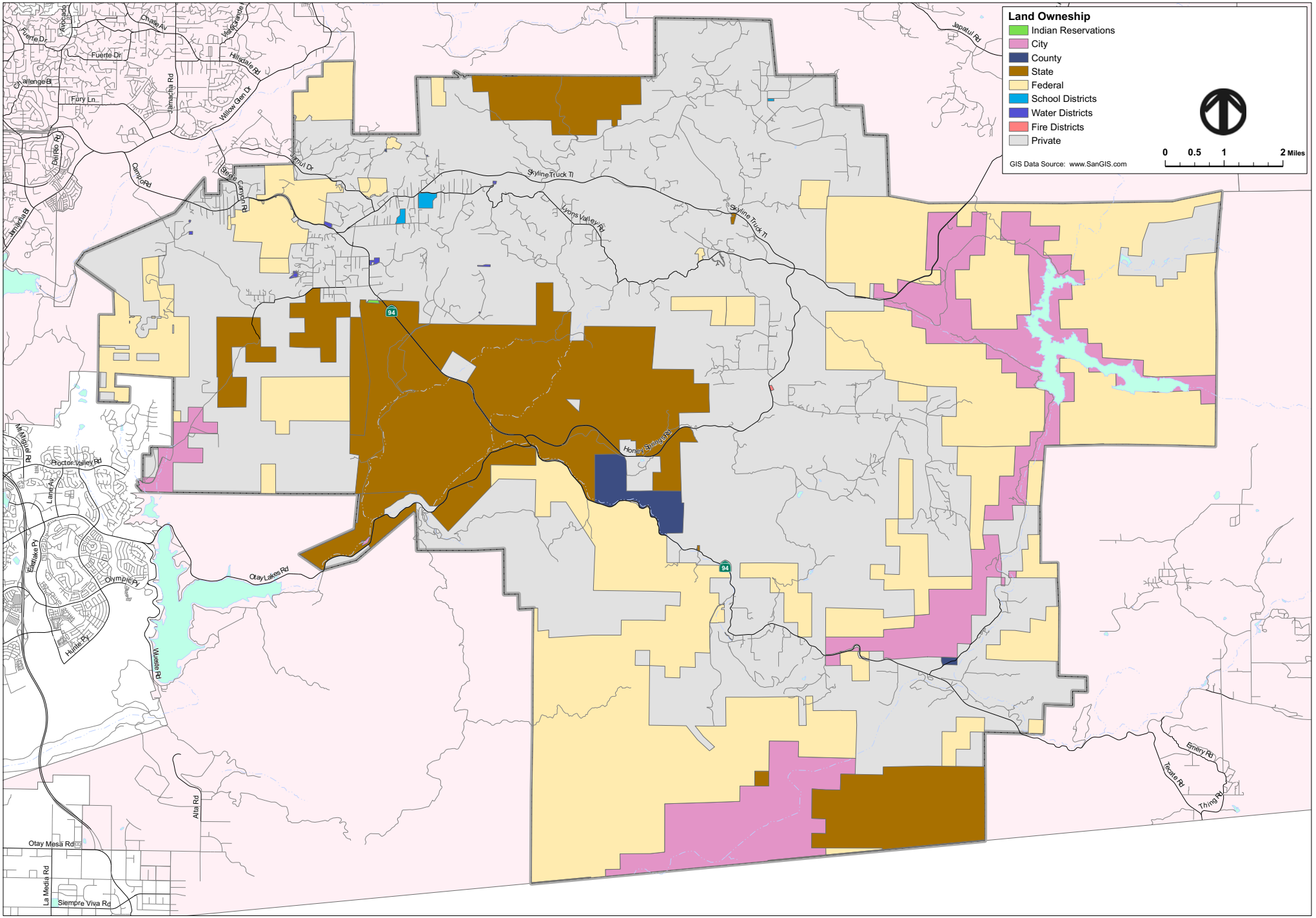

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FIGURE 2-4 - JAMUL/DULZURA - PUBLIC/PRIVATE LAND OWNERSHIP

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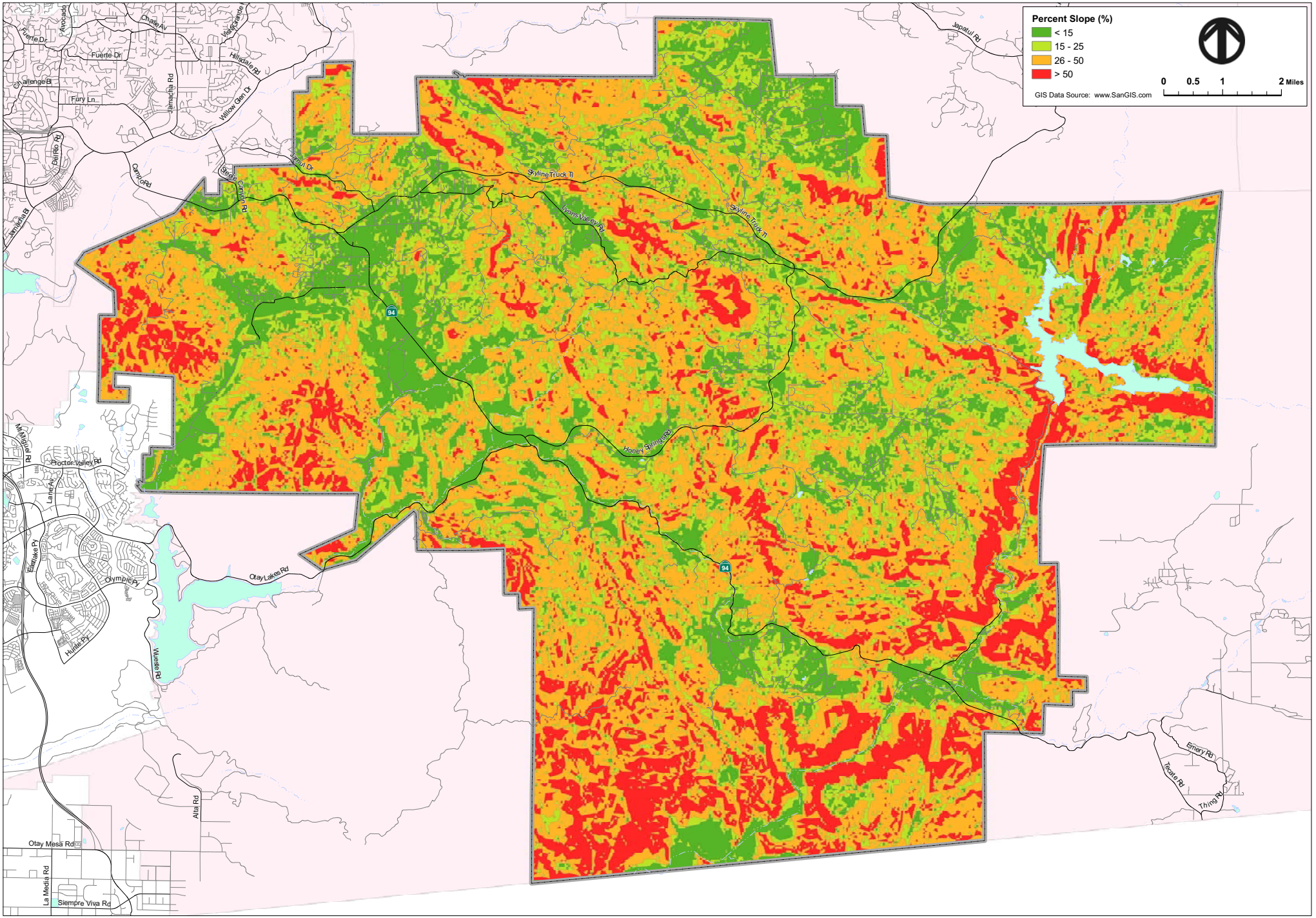

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FIGURE 2-5 - JAMUL/DULZURA - TOPOGRAPHY

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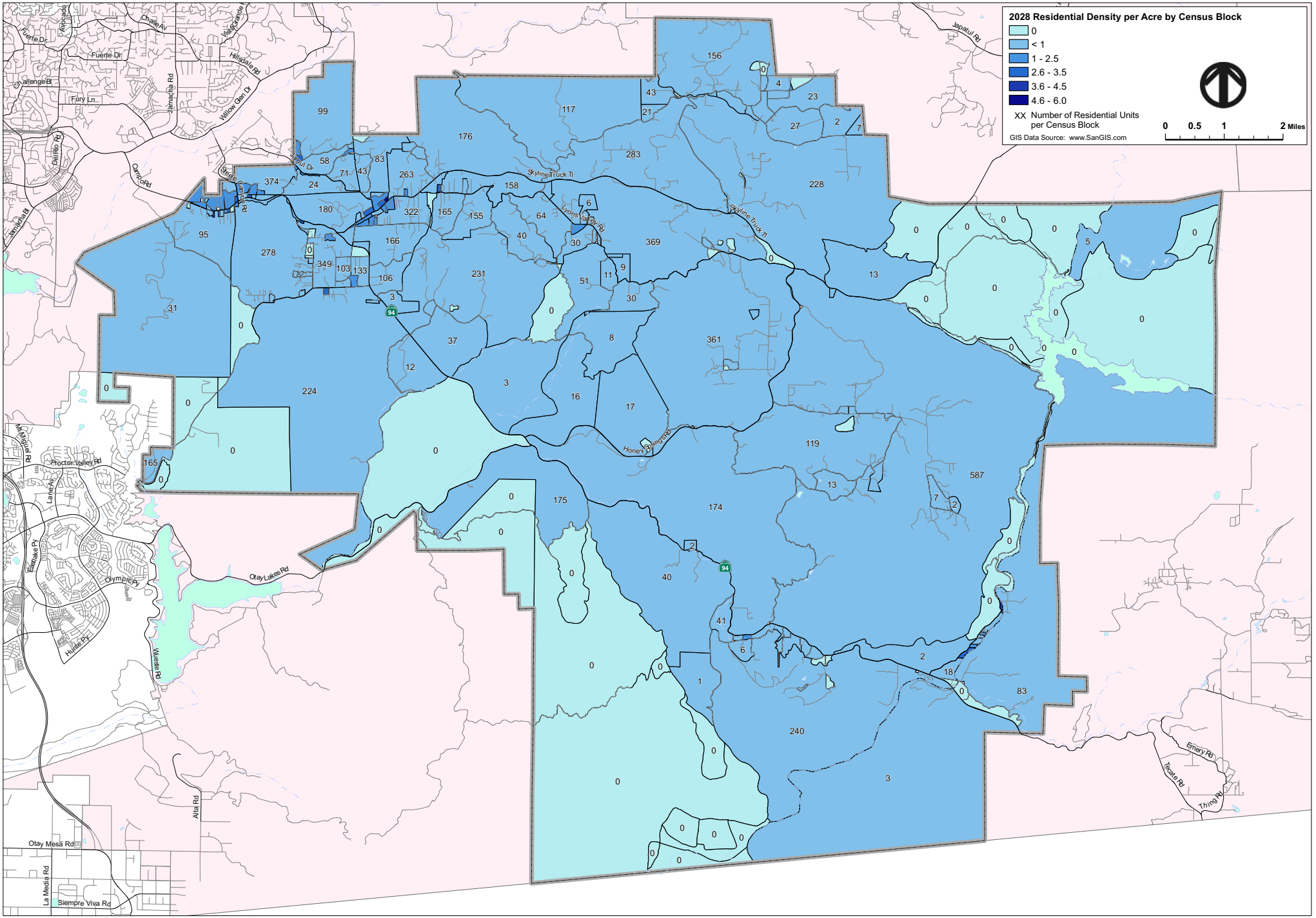

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FIGURE 2-6 - JAMUL/DULZURA - EXISTING RESIDENTIAL DENSITIES

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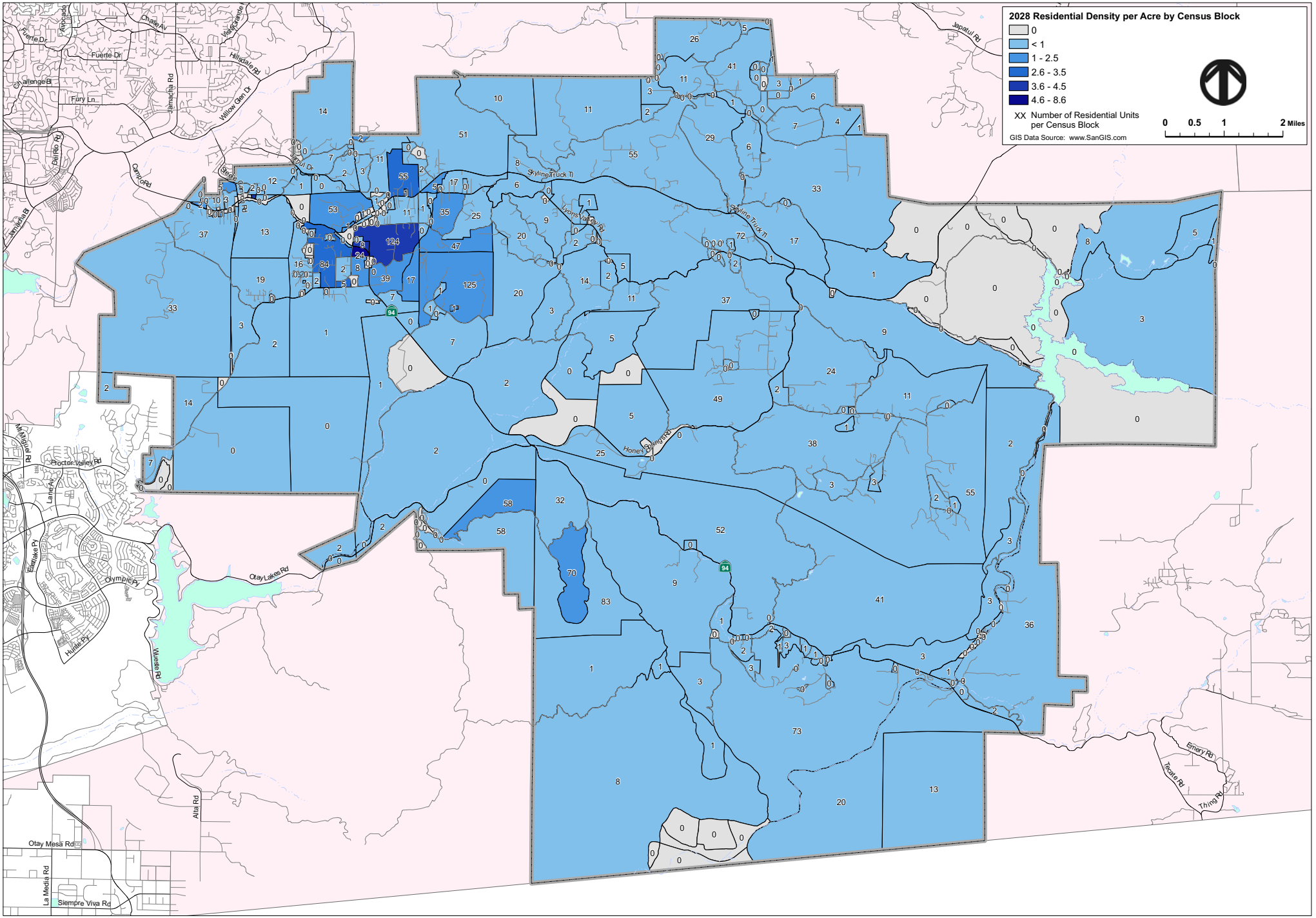

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FIGURE 2-7 - JAMUL/DULZURA - FUTURE RESIDENTIAL DENSITIES

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2.2 Local Public Facilities

The Jamul/Dulzura Subregion is located within the San Diego Rural Fire Protection District. There is currently one (1) full-time staffed fire station (Jamul), four (4) volunteer fire stations (Lawson, Lee Valley, Dulzura and Deerhorn) and two (2) CAL FIRE Stations (Lee Valley and Dulzura) spread throughout the Subregion.

The Jamul/Dulzura Subregion is served by the Lemon Grove Sheriff Station. There are no hospitals or related medical facilities located within the Subregion.

There are currently five (5) schools (Jamul Primary, Jamul Intermediate, Oak Grove Middle, the Greater San Diego Academy and one private school) and no public libraries located within the Jamul/Dulzura Subregion. **Figure 2-8** displays the location of the existing public facilities located in the Jamul/Dulzura Subregion.

2.3 Existing/Planned Roadway Network

There are currently 59.0 miles of Mobility Element roadways (arterials and collectors) and 19.7 miles of State Route facilities (SR-94) located within the Subregion. In addition, the County maintains 14.9 miles of Local Public roadways for a total of 93.6 miles of public roadways within the Subregion. In addition there are 120.1 miles of private roadways and 21.3 miles of unpaved roadways. Key roadway facilities within the Subregion include the following:

- *State Route 94* – State Route 94 is a two-lane undivided roadway with intermittent two-way left-turn lanes. The roadway traverses the entire Subregion in the northwest/southeast directions.
- *Skyline Truck Trail* – The Skyline Truck Trail is a two-lane undivided east/west roadway which runs between Lyons Valley Road to the west and the Honey Springs Road/Lyons Valley Road intersection to the east.
- *Lyons Valley Road* – Lyons Valley Road is a two-lane undivided east/west roadway which runs between SR-94 to the west and the community boundary with Alpine to the east.
- *Honey Springs Road* - Honey Springs Road is a two-lane undivided northeast/southwest roadway which runs between SR-94 and the Skyline Truck Trail/Lyons Valley Road intersection to the northeast.
- *Otay Lakes Road* – Otay Lakes Road is a two-lane undivided east/west roadway which runs between SR-94 to the east and the Otay Subregion to the west.

Figure 2-9 displays the existing roadway network within the Jamul/Dulzura Subregion.

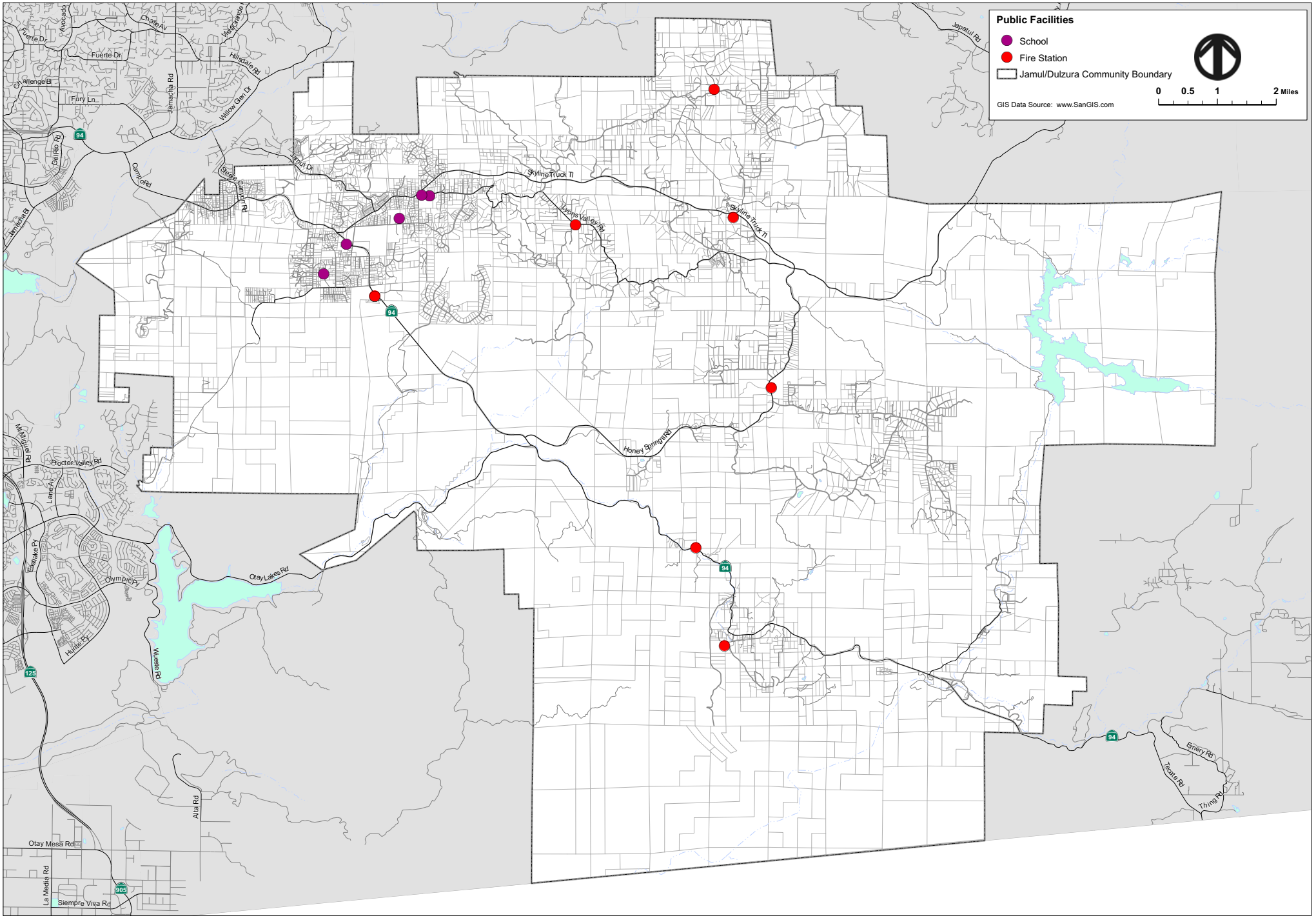

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FIGURE 2-8 - JAMUL/DULZURA - EXISTING PUBLIC FACILITIES

County of San Diego Community Evacuation Route Study

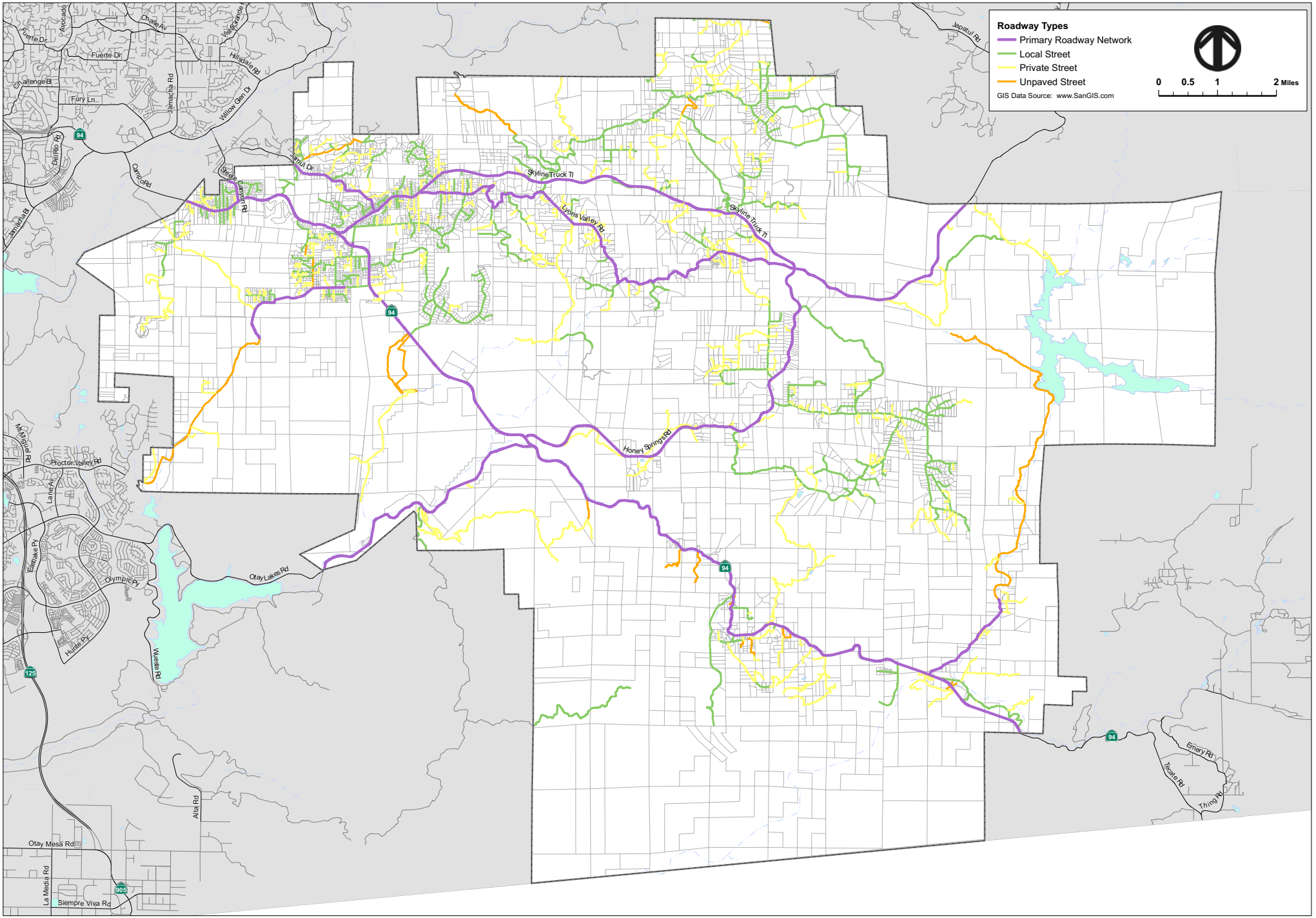

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FIGURE 2-9 - JAMUL/DULZURA - EXISTING ROADWAY NETWORK

County of San Diego Community Evacuation Route Study

Figure 2-10 displays the planned buildout roadway network for the Jamul/Dulzura Subregion as depicted by the County General Plan.

The County General Plan proposes to construct an additional 2.9 miles of Mobility Element roadways within the Jamul/Dulzura Subregion and includes the following improvements:

- Improvement of Proctor Valley Road from an unpaved roadway to a two-lane Light Collector.
- Improvement of Melody Road from a Local Public Road to a two-lane Light Collector.
- Improvement of State Route 94 from a two-lane road to a four-lane Major road from the Subregion boundary with the Valley de Oro Subregion to Proctor Valley Road.
- Inclusion of Olive Vista Road as a Local Public Road to complete its construction as a two-lane road from Jefferson Road east to Lyons Valley Road.

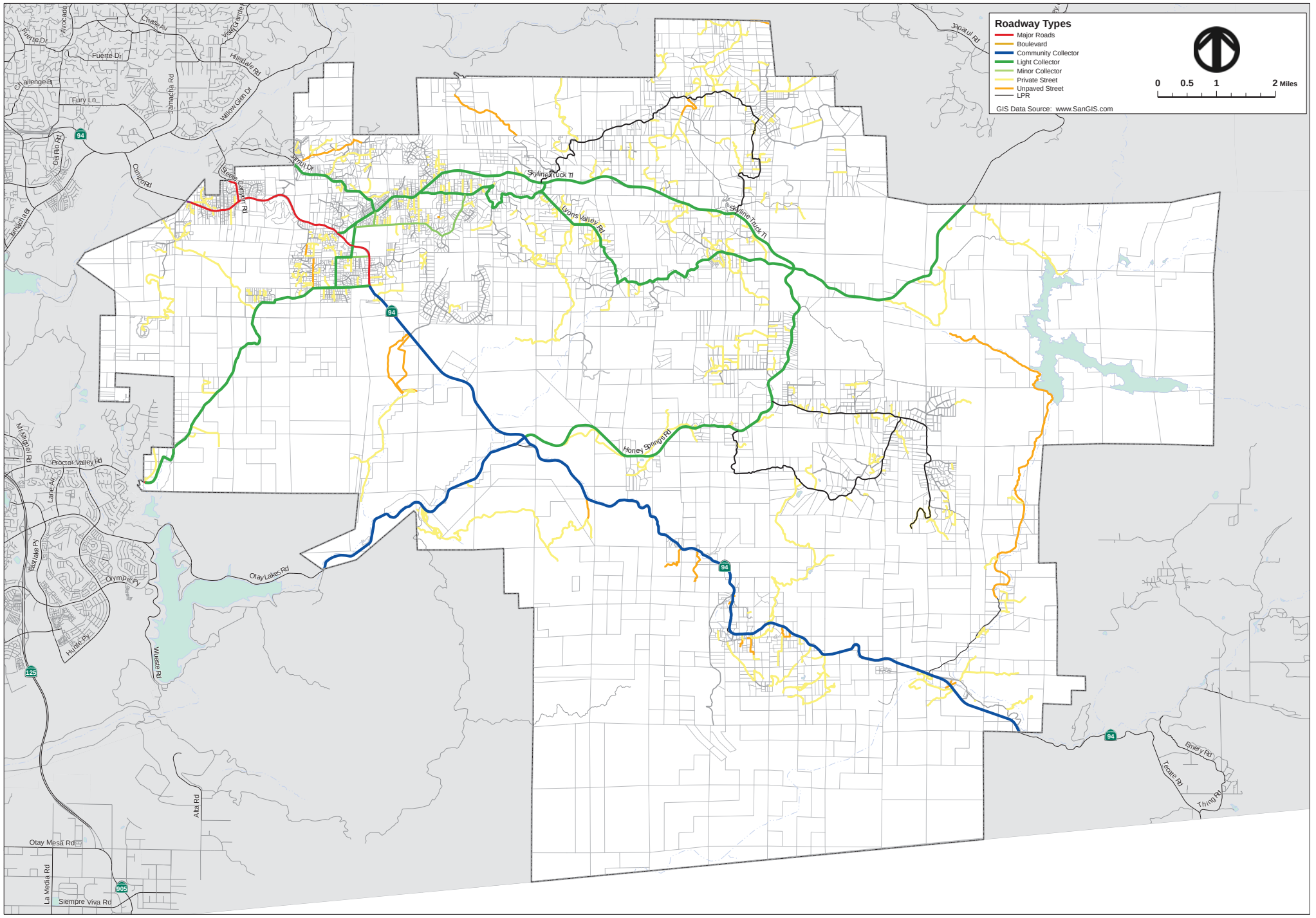

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FIGURE 2-10 - JAMUL/DULZURA - FUTURE PLANNED ROADWAY NETWORK

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3.0 Evacuation and Roadway Connectivity Needs Assessment

This section describes key objectives relating to local evacuation needs and the results of the needs and roadway connectivity analyses. In addition to input from local community representatives via the Stakeholders Review Committee, the needs analysis focused on both local access and roadway connectivity issues within the Jamul/Dulzura Subregion.

3.1 Local Evacuation Objectives

Consistent with the overall objectives of the Community Evacuation Routes Study, the following local community evacuation objectives were identified to assist in the needs assessment and the identification and evaluation of alternatives for improving community access and roadway connectivity:

1. Ensure a variety of emergency evacuation routing options for the community;
2. Ensure that all developed parcels have an adequate level of access and options for emergency evacuations;
3. Ensure access to all major public facilities including fire stations, schools and parks;
4. Ensure access to the village core area of the community; and
5. Ensure access to the major arterial roadways (SR-94, Lyons Valley Road, Skyline Truck Trail, Otay Lakes Road, and Honey Springs Road) providing broader regional connectivity.

Closed segment of Barret Smith Road, looking to the west

3.2 Needs Assessment Criteria

A variety of information and associated criteria were utilized to assist the process of identifying the community's evacuation roadway and connectivity needs. Input from the local community, and specifically the Stakeholder Review Committee, was most important. Criteria utilized included the following:

- Lack of Access Options – subareas of the community lacking an adequate level of local access
- Lack of Access Via Public Roadways – subareas of the community with excessive reliance upon non-publicly maintained roadways for access
- Lack of Roadway Network Connectivity – extent of local roadways without intersecting public roads and resulting poor levels of connectivity
- Community Input – subareas identified by the community as lacking adequate access and/or connectivity

3.3 Local Access Assessment

Access and connectivity needs within the Jamul/Dulzura Subregion were analyzed by reviewing the availability of multiple access points and the reliance on private and unpaved roads. Clearly emergency evacuation of subareas served by limited points of access would be constrained should those points of access become blocked or overloaded with evacuees. On a similar basis, the constrained access points would also provide few options for the deployment and movement of emergency equipment. Additionally, subareas totally reliant upon either private and/or unimproved roadways cannot safely depend on those roadways should they be unavailable due to locked gates or inclement weather affecting roadway driving conditions.

Subareas Lacking Multiple Access Points

The intent of providing multiple access points and limiting the allowable length of roadway without multiple access points is to ensure that residents have safe, reliable and known evacuation alternatives during emergencies, and that firefighters have access flexibility to deal with changing dynamics in wildfires and other emergencies. To ensure that parcels are developed with an adequate number of reliable access points the *County Fire Code and County Consolidated Fire Code* provide a Dead-End Road Standard which governs the length of dead-end roadway a parcel would have to rely on as a singular access point.

Conducting a detailed assessment of the extent of developed parcels within the Jamul/Dulzura Subregion which do not meet the current Dead-End Road Standard is beyond the scope of this current study. However, as a preliminary indicator of need, a sketch-level exercise was undertaken to identify areas that may be potentially at risk in times of a community wide evacuation due to a lack of multiple access points and/or a reliance on dead-end roads. These criteria are based upon the length of the access roadway between a sub-area and the closest roadway in which a vehicle has two directional options for a safe evacuation (i.e. neither direction will lead to a dead-end roadway). The length of required roadway varies based upon zoned parcel size as displayed in **Table 3.1**.

Table 3.1
Maximum Access Road Length by Parcel Size

Parcel Size	Maximum Length of Access Road
Less than 1 Acre	800’
1 to 4.99 Acres	1,320’
5 to 19.99 Acres	2,640’
Over 20 Acres	5,280’

Source: *County Fire Code and County Consolidated Fire Code*

Using GIS, the above criteria were applied on an individual parcel basis within the Jamul/Dulzura Subregion, with the results shown in **Figure 3-1.**

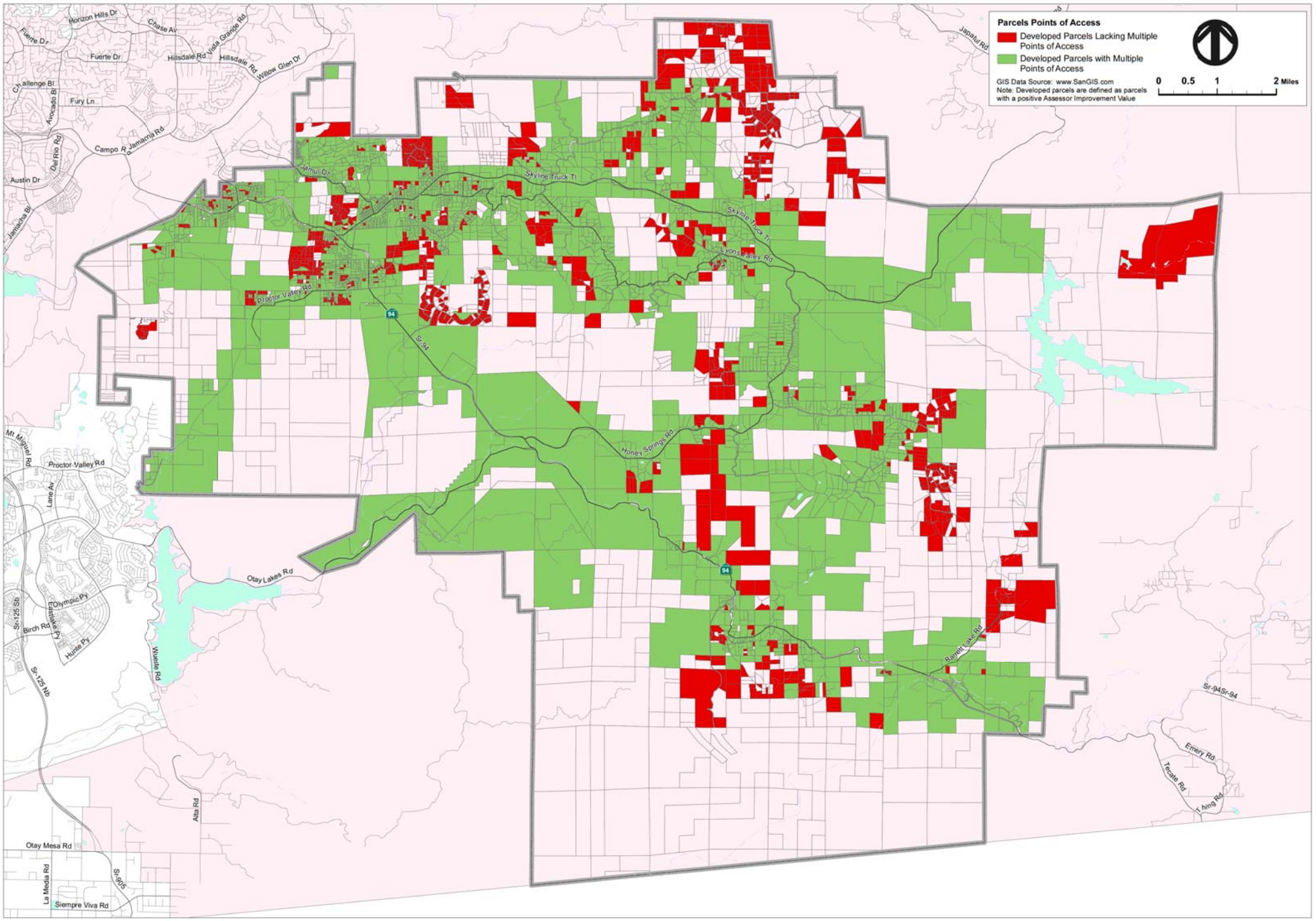

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FIGURE 3-1 - JAMUL/DULZURA - MAP OF PARCELS LACKING MULTIPLE POINTS OF ACCESS

County of San Diego Community Evacuation Route Study

The figure displays the existing developed areas in the Jamul/Dulzura Subregion that do not, at a minimum, have sufficient points of access based upon application of the criteria. The results as depicted, while illustrative of the nature of the issue, likely understate the extent or magnitude of the issue in Jamul/Dulzura. A strict application of the Dead-End Road Standard would likely result in far more areas of the community being depicted as deficient relative to parcel points of access. Additionally, the development potential of many currently undeveloped parcels is currently limited by the lack of adequate points of access.

Subareas Reliant on Private and Unpaved Roads

Due to the uncertain accessibility of private and unpaved roads during evacuation conditions, an analysis was conducted to determine the extent of developed parcels which rely exclusively upon private or unpaved roads as a primary or secondary access point. **Figure 3-2** displays the developed parcels in the Jamul/Dulzura Subregion which rely on private and/or unpaved roadways for access. It is estimated that approximately one-quarter ($1/4^{th}$) of the total developed parcels in the Jamul/Dulzura Subregion currently rely upon private and/or unpaved roads for access.

3.4 Roadway Connectivity Assessment

The number of accessible roadways as well as their connectivity with one another is important in an evacuation situation. A greater number of roadways and connection points give both motorists and emergency responders multiple route options under evacuation conditions.

A Connectivity Index based upon intersection spacing was developed as a means of measuring the connectivity of the public roadway network in the Jamul/Dulzura Subregion. **Table 3.2** displays the intersection spacing index as applied. The underlying assumption is that a roadway network with extensive connectivity includes numerous access points between roadways, (e.g. intersections), and therefore a variety of alternatives for evacuation routings.

Table 3.2
Connectivity Index
Maximum Distance between Intersections on Public Roadway Facilities

Facility Type	Distance (Miles)
Mobility Element Roadways	1.0
Local Public Roadways	0.5

Source: Fehr & Peers

Figure 3-3 displays the roadways within the Jamul/Dulzura Subregion which were found to not conform to the above connectivity index. As shown, a number of roadway connectivity limitations exist throughout the Subregion which can affect the ability to evacuate under emergency conditions.

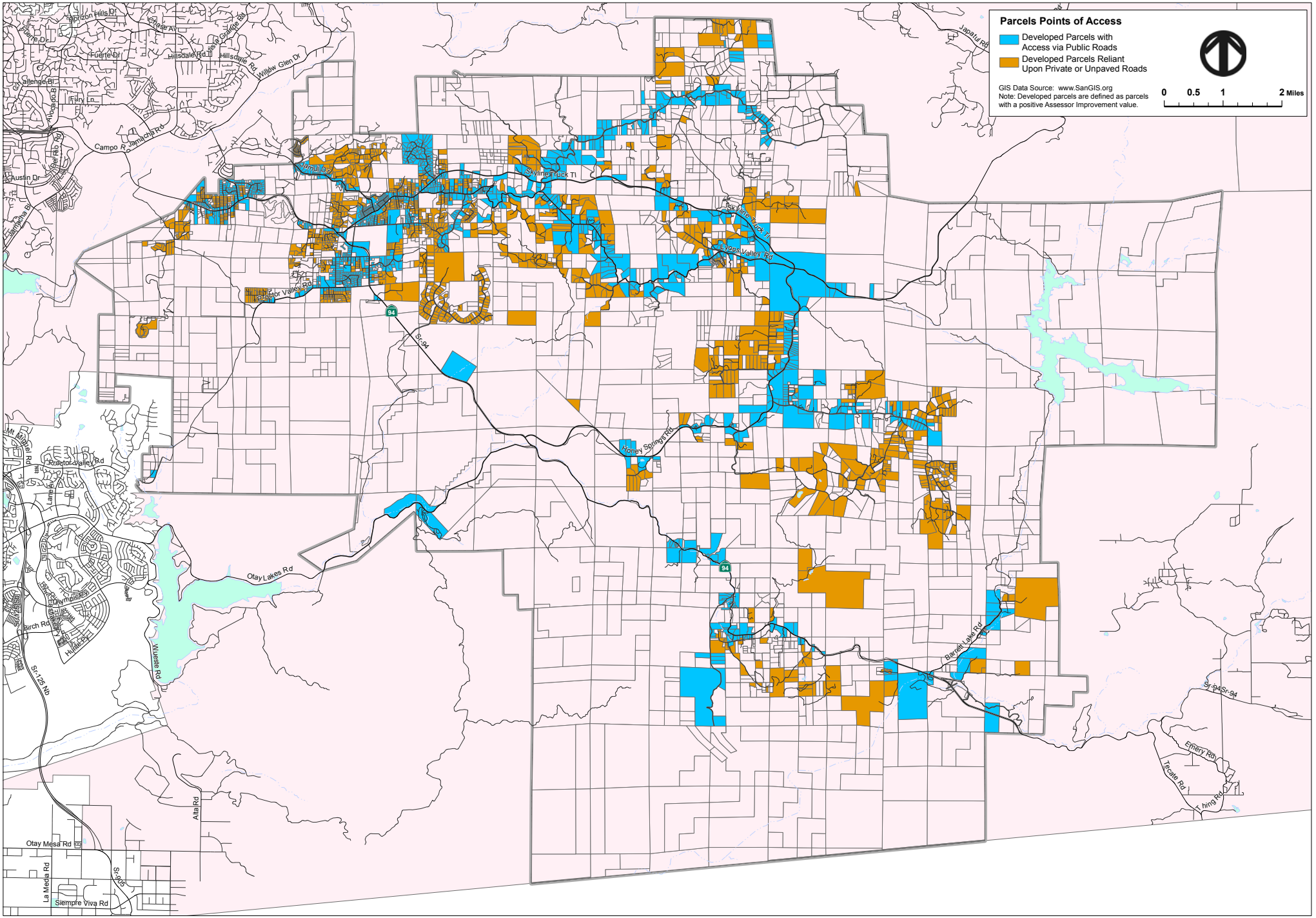

FIGURE 3-2 - JAMUL/DULZURA - PARCELS RELIANT UPON PRIVATE AND/OR UNPAVED ROADWAYS

County of San Diego Community Evacuation Route Study

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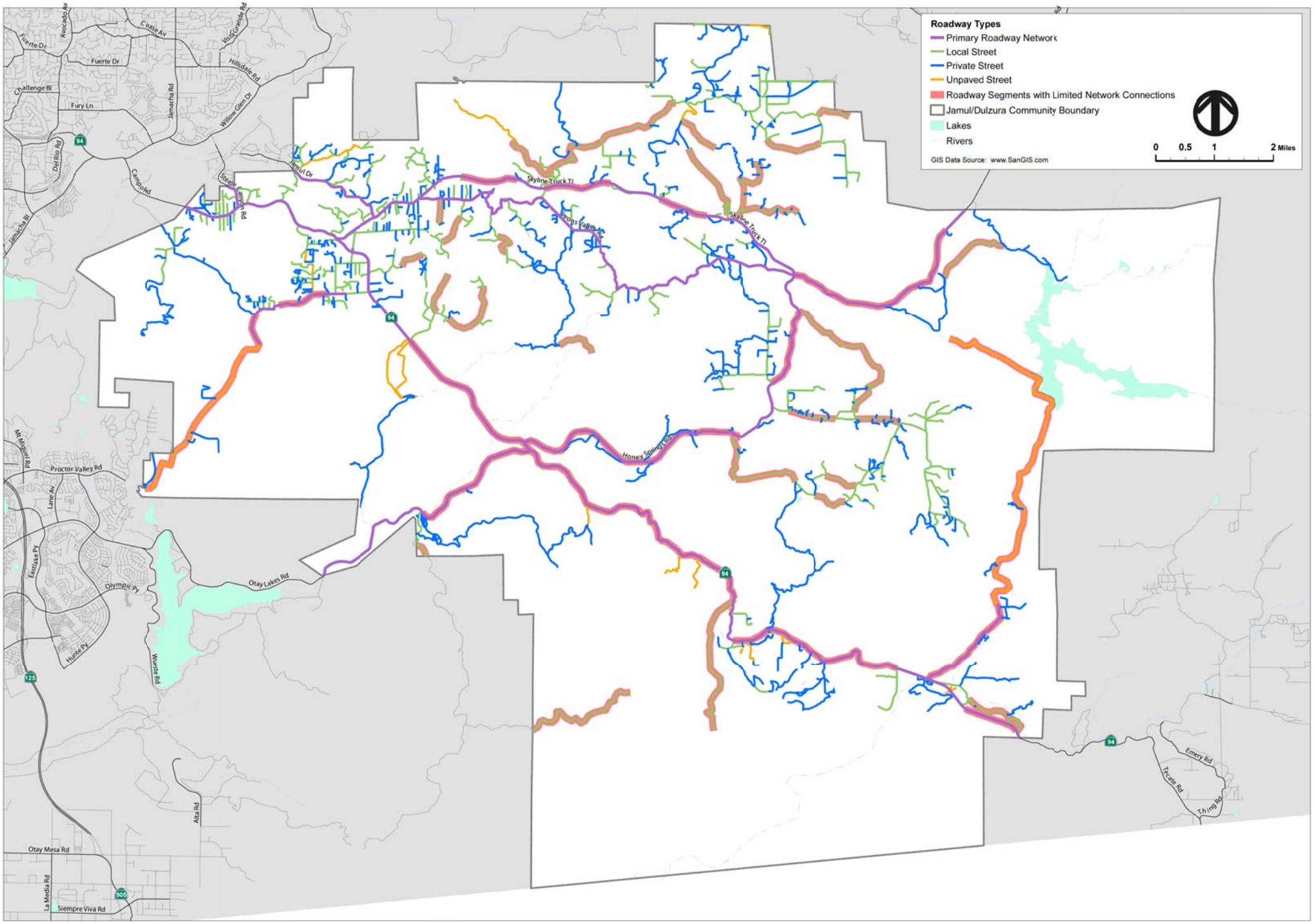

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FIGURE 3-3- JAMUL/DULZURA - PRELIMINARY MAP OF LACK OF ROADWAY NETWORK CONNECTIVITY

County of San Diego Community Evacuation Route Study

3.5 Community Identified Needs and Issues

The needs assessment information was presented to the Jamul/Dulzura Stakeholder Review Committee for their input and further refinement. Based upon this review, the Committee identified specific areas within the community which they felt lacked adequate access and connectivity. The following access needs and issues were identified:

1. Need for additional access points and improved internal circulation within the Alta Loma/Jamacha Hills neighborhoods. Currently Alta Loma Dive provides the only access point for these neighborhoods.
2. Need for additional access points for the Lawson Valley neighborhood. Lawson Valley Road currently provides the only point of access.
3. There are currently no north/south public roadway facilities connecting between SR-94 and Proctor Valley Road.
4. Connectivity along Olive Vista Drive and within the adjacent areas is discontinuous, with numerous private roads and limited through access.
5. Need for additional access points and internal connectivity within the Rancho Jamul Estates area. Rancho Jamul Drive currently provides the only point of access.
6. Need for additional access points and internal connectivity within the Deerhorn Valley neighborhood. Currently there are numerous private roads and limited access throughout the neighborhood, with the eastern section only accessible via Deerhorn Valley Road.

Southern end of Jamul Highlands Road

7. There are currently no major north/south public roadway connectors in the eastern portion of the community.
8. The washed-out bridge along Barrett Smith Road disconnects the eastern and western portions of the roadway, limiting overall connectivity and accessibility in the area.

Figure 3-4 generally displays the location of the issues/needs as identified by the Stakeholder Review Committee.

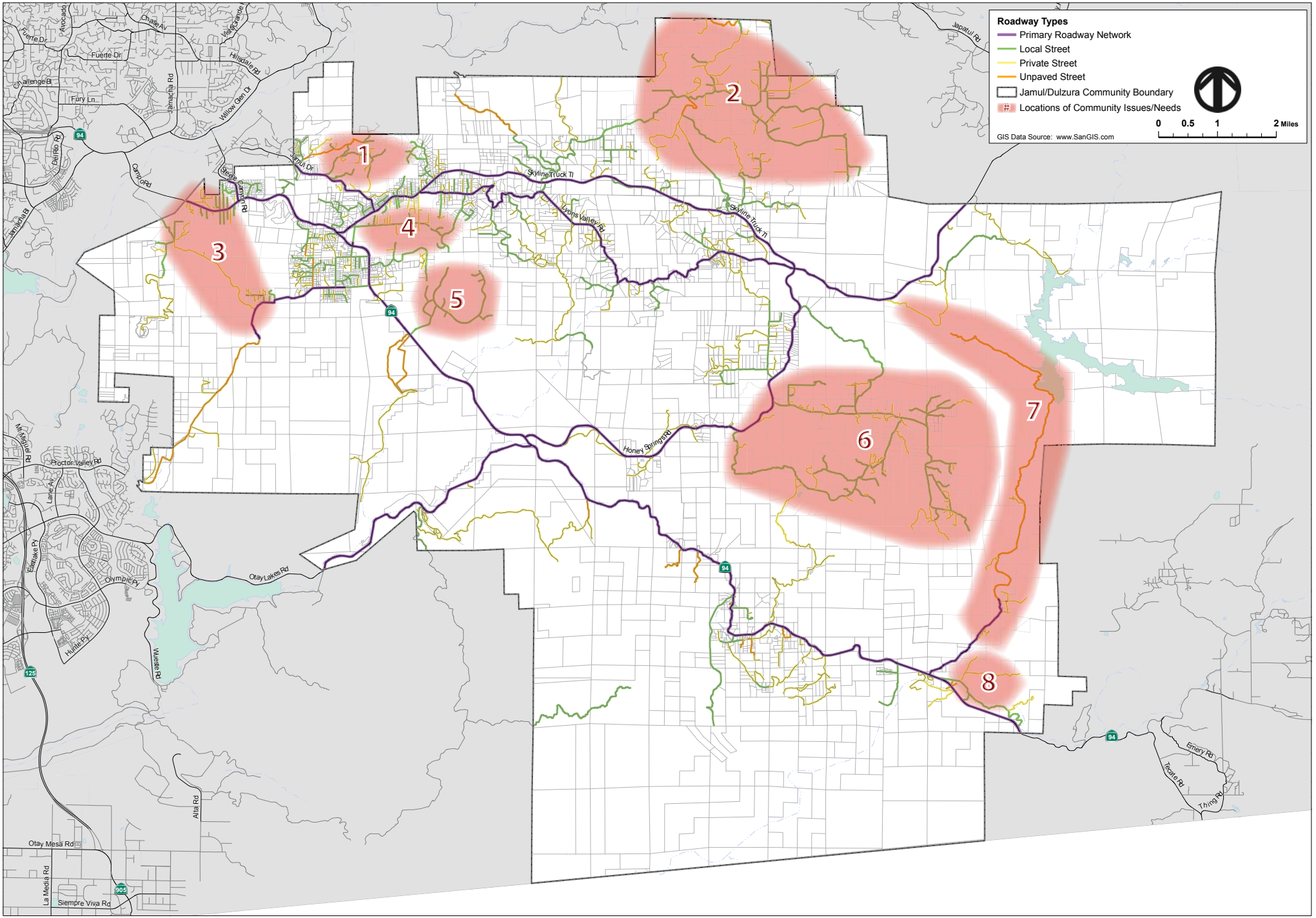

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FIGURE 3-4 - JAMUL/DULZURA - COMMUNITY IDENTIFIED ISSUES AND NEEDS

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In summary, the Jamul/Dulzura Subregion faces a number of challenges in ensuring safe evacuation routings for all residents:

- Many currently developed areas lack adequate points of access. Areas served by single points of access are at risk, should that point of access become blocked or overloaded with evacuees. In a similar manner, limited points of access also provide few options for emergency equipment.
- Many currently developed parcels rely upon private and/or unpaved roadways for access. These parcels cannot safely depend on these roadways for emergency evacuation should they be unavailable due to locked gates or inclement weather affecting roadway driving conditions.
- The connectivity of the roadway system, as measured by the prevalence of intersecting roadways, varies throughout the Subregion. These findings were reinforced by members of the Stakeholder Review Committee, which identified numerous areas of the Subregion lacking proper access and roadway connectivity.

4.0 Evacuation Corridor Identification

This chapter documents potential corridors (approximately a half-mile wide) within the Jamul/Dulzura Subregion that could provide a connection between two critical evacuation points, provide additional access to deficient parts of the community, and/or provide additional regional access to major arterials and freeways. Subject to subsequent evaluations provided in the following chapters, these corridors establish, on a preliminary basis, the general location for potential new roadway connections intended to improve access and support for community emergency evacuations.

The identification of the evacuation corridors at this point in the study process was conceptual, with the potential for a variety of actual roadway alignments and configurations within the broadly defined corridors. The evacuation corridors were preliminary, with the objective of considering all potential connections that may service an evacuation need. Subsequent evaluations addressed the feasibility and benefits associated with these corridors (included in Chapter 7.0), including the effects of land topography, the potential for significant environmental impacts, and land ownership issues.

Gate at the eastern end of Olive Vista Drive, between Heide Lane and Kemberly Lane

Within the Jamul/Dulzura Subregion, a total of 18 potential evacuation corridors were identified for further analysis, as listed in **Table 4.1** and displayed in **Figure 4-1**.

Table 4.1
Preliminary Jamul/Dulzura Evacuation Corridors

#	Termini	Community Need/Objective
1	Campo Road & Proctor Valley Road	Enhance north/south connectivity
2	Jamul Drive & Jamul Drive	Additional access and improved internal circulation within the Alta Loma/Jamacha Hills neighborhoods
3	Hidden Ridge Road & Lyons Valley Road	Additional access and improved internal circulation within the Alta Loma/Jamacha Hills neighborhoods
4	Lyons Valley Road & Olive Vista Drive	Enhance overall connectivity/local access Proposed Local Public Road shown in the ME
5	Lyons Valley Road & Presilla Drive	Improve access and connectivity along Olive Vista Drive
6	Presilla Drive & SR-94	Enhance north/south connectivity
7	Dehesa Road & Lawson Valley Road	Provide connection to communities to the north
8	Lyons Valley Road & Honey Springs Road	Enhance north/south connectivity
9	Otay Mountain Truck Trail & Marron Valley Road	Provide additional access points to the west
10	Lawson Valley Road & Skyline Truck Trail	Additional access and improved connectivity within the Lawson Valley neighborhood
11	Honey Springs Road & Deerhorn Valley Road	Provide additional access to the Deerhorn Valley neighborhood
12	Corridor 11 & SR-94	Enhance north/south connectivity Provide additional access to the Deerhorn Valley neighborhood
13	Lyons Valley Road & Marron Valley Road	Enhance north/south connectivity Provide additional access to the Deerhorn Valley neighborhood
14	Corridor 13 & Corridor 16	Provide additional access to the Deerhorn Valley neighborhood
15	Corridor 13 & SR-94	Enhance east/west connectivity
16	Lyons Valley Road & SR-94	Enhance north/south connectivity
17	Corridor 16 & Round Potrero Road	Provide additional access to the east
18	SR-94 & SR-94	Enhance connectivity along Barrett Smith Road

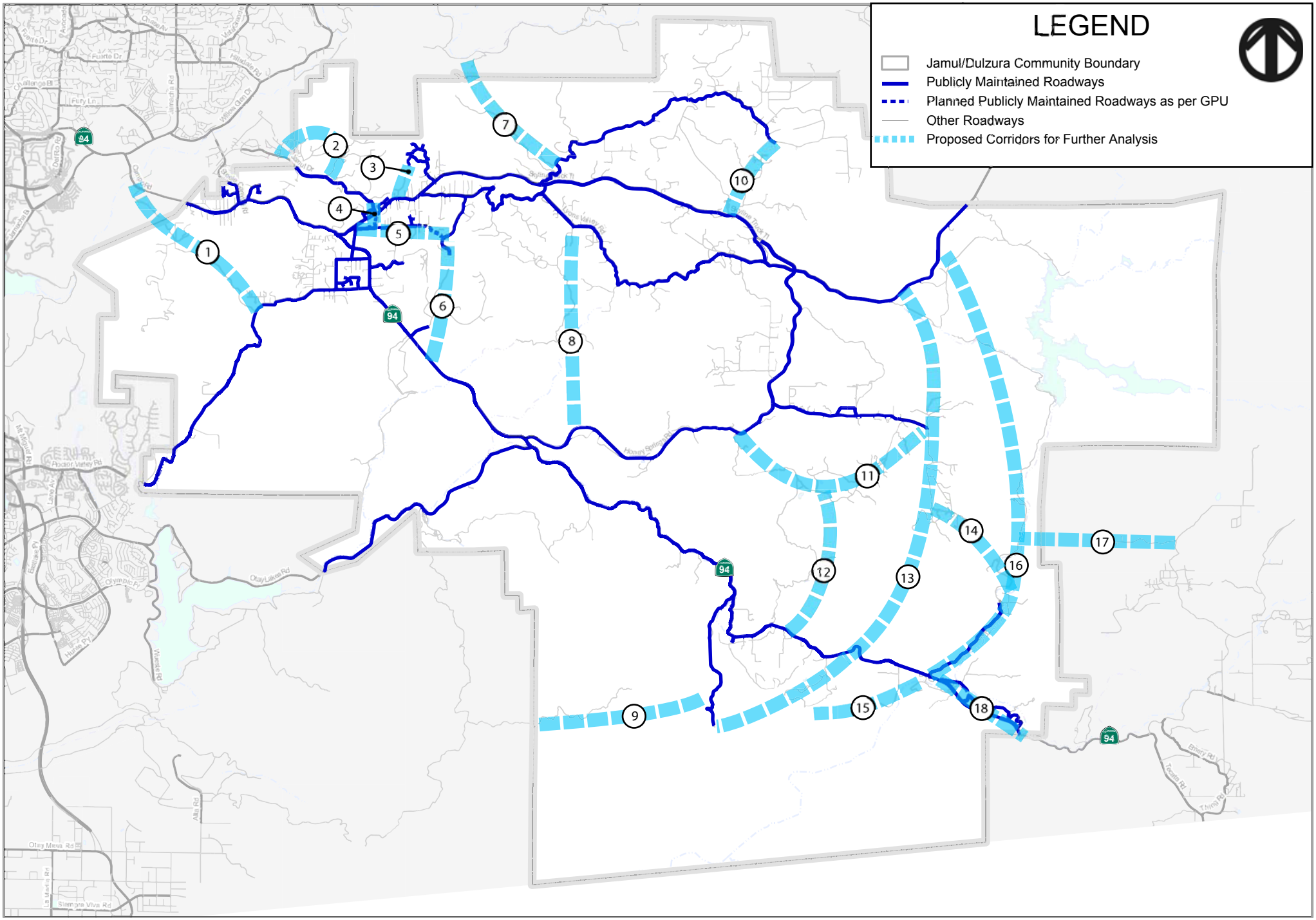

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FIGURE 4-1
JAMUL/DULZURA - POTENTIAL EVACUATION CORRIDORS
County of San Diego Community Evacuation Route Study

MAY 10, 2011

5.0 Relevant State and Local Standards

This chapter provides a general overview of the relevant state and local codes and regulations related to and governing emergency access and evacuation. The following information was derived from the *County of San Diego Public & Private Roadway Standards* and *County of San Diego Fire Code and County of San Diego Consolidated Fire Code*.

5.1 County Fire Code and County Consolidated Fire Code

Development projects with inadequate access (e.g. long roads with a single access point, roads over steep grades, improper road surfaces, and/or narrow roads) can significantly contribute to the inability to effectively evacuate residents during an emergency. Adequate access is not only necessary for local evacuations, but also necessary to provide emergency access for fire, ambulance, or law enforcement personnel.

The *County Fire Code and County Consolidated Fire Code* detail the minimum design elements and standards for all fire access roads including roadway width, longitudinal slope, and minimum curve radius. These standards are described in the table below.

Classification	Graded Width	Road Surface Width	Min. Curve Radius	Maximum Grade
Fire Access Road	24’	24’	200’	20%

Source: County Fire Code and County Consolidated Fire Code

Maximum Length of Dead-End Roads

The allowable length of a dead-end road is limited by the *County Fire Code and County Consolidated Fire Code* to ensure that firefighters have access flexibility to deal with changing dynamics in wildfires and other emergencies, and that civilians have safe, reliable and known evacuation alternatives during emergencies. The allowable length of dead-end roads is a function of zoned parcel size, with larger parcels allowed longer access roads; however, where a dead-end road crosses areas of differing zoned parcel sizes requiring different length limits, the shortest allowable length shall apply. The intent is to limit the number of persons attempting to evacuate on a single roadway and the time needed for a safe evacuation. Steep, narrow and winding roads can delay an evacuation. Long dead-end roads in rural wild land areas can place people and emergency personnel at increased risk.

Access Roadway Width

The minimum roadway width as identified in the *County of San Diego Public & Private Road Standards, County Fire Code and County Consolidated Fire Code* should remain unobstructed at all times. The County Fire Code and County Consolidated Fire Code allow the Fire Officials to modify the minimum required road widths (for documented cause supported by material facts and accompanied by appropriate mitigation) if it is documented determined that the modification does not impair emergency access of operations. In no case shall a modification be authorized that would tend to lessen the health, life and/or fire safety requirements.

Access Roadway Grades

The grades of designated fire access roads must be in full compliance with the standards set forth in the *County of San Diego Fire Code and County Consolidated Fire Code*. The grade requirements are based largely on the ability of an emergency vehicle to maintain proper speed, line-of-site, to get proper traction at a standstill and, to a lesser degree, on the potential for fire hose or other equipment to spill out of the engine because of extreme grades.

Access Roadway Surface Type

The *County of San Diego Fire Code and County Consolidated Fire Code* stipulates that access roads shall be designed and maintained to support the imposed loads of fire apparatus (not less than 50,000 lbs.) and shall be provided with an approved surface so as to provide all-weather driving capabilities.

5.2 County of San Diego Public & Private Road Standards

The *County of San Diego Public & Private Road Standards* details the design elements and standards for all County public roads, including arterial, collector, and local roadways. A minimum requirement of a two lane roadway indicates either a Rural Collector or a Rural Residential classification. Both of these roads are 2-lane roads (one 12' lane in each direction) plus a 2' paved shoulder on each side for a total paved width of 28'. The roadway design speed is 30 mph with the road centered within a 48' wide right-of-way which includes a 10' parkway on each side. The Rural Collector classification is bounded by a maximum 12% longitudinal slope, a minimum centerline curve radius of 300', and is for use only in areas with lots greater than two acres and no demand for on-street parking. The Rural Residential classification is bounded by a maximum 15% longitudinal slope and a minimum centerline curve radius of 200'.

The standards for these roads are described in the table below, including a description of road surface width, longitudinal grade and minimum curve radius.

Classification	# Lanes/ Width	R/W	Road Surface Width
Rural Collector	**2/12'**	**48'**	**28'**
Rural Residential	**2/12'**	**48'**	**28'**

Source: County of San Diego Public Road Standards

The County Roadway Design Standards also detail the design elements and standards for all County private roads dependent on average daily traffic (ADT). There are two options for private roads, those serving 750 or less ADT and those serving 751-2500 ADT. Any road serving more than 2500 ADT must follow the Public Road Standards. Both roads would be two-lane roads and the other standards are detailed in the table below.

Classification	Graded Width	Road Surface Width	Min. Curve Radius	Design Speed	Maximum Grade
750 ADT or Less	**32'**	**24'**	**200'**	**25 MPH**	**15%**
751-2500 ADT	**32'**	**24'**	**300'**	**30 MPH**	**15%**

Source: County of San Diego Private Road Standards

The road standards described in the Consolidated Fire Code are all met or exceeded by the Rural Collector and Rural Residential roads listed in the County Public Road Standards as well as the minimum roadway design in the Private Road Standards. Therefore the roads standards from the County Public and Private Road standards are adequate to satisfy the Consolidated Fire Code.

6.0 Evacuation Corridor Roadway Classification Scheme

This chapter documents the potential evacuation route roadway classifications (and the related public roadway design standards) appropriate for and supportive of emergency evacuations within the unincorporated portions of the County of San Diego. Subject to future considerations and evaluations, these classifications will provide the basis for the future design of roadways designated as emergency evacuation routes.

6.1 Design Basis and Objectives

The community needs assessment identified a number of findings and conclusions regarding evacuation needs in the unincorporated portions of the County of San Diego:

1. Lack of a comprehensive, fully connected roadway network can result in severe traffic congestion or blocked routes of ingress that limit the timely response of emergency vehicles or trap residents trying to depart during an emergency.
2. Inadequate roadway widths and turning radii can make it difficult to maneuver rescue equipment during an emergency. Dead-end and one-way roads can impair emergency access and cause delays.
3. Gates can obstruct access for emergency vehicles and obstruct egress routes for residents departing in the event of an emergency.
4. Private roads have potential to impair emergency access as they can be unpaved and poorly maintained. Poorly maintained roads can cause damage to emergency vehicles, and/or impede access to a site.

Gate at the north end of the Lucky Six Truck Trail

The designation of a roadway classification scheme will need to address and consider each of the above needs and issues. The overriding key to implementing a network of evacuation routes is the need to ensure both the suitability and availability of individual emergency evacuation routes. Proper roadway design in terms of width, grades, and turning radii, along with an adequate level of maintenance will ensure the suitability of the routes for emergency evacuation purposes. Designations of publicly accessible roadways and elimination of gates and other obstructions will ensure the availability of the routes for emergency evacuation purposes.

6.2 Relevant Classifications/Design Standards and Potential Design Exceptions

Understanding the intended function of the roads to be proposed as evacuation routes is critical to determining the appropriate road classification. Based upon discussions with County staff (Department of Planning and Land Use, Public Works, and County Fire), it was determined that the width of evacuation roadways would need to be the minimum allowable for two (2) vehicles to pass each other, basically a two-lane roadway with minimum shoulders within an appropriate right-of-way in compliance with County Public Road Standards. Roadway surface would be dependent upon the location and anticipated use of the roadway. Curbs, berms, sidewalks and such would not be necessary. The list of road classifications from the County Public Road Standards applicable for designation to evacuation routes includes the Rural Collector and Rural Residential types. These roadways include two lanes, and a surface width of 28' within a 48-foot wide right-of-way.

During the course of the study, members of both the Community Stakeholder Group and the Community Planning Group voiced specific concerns relating to the need for publically designated evacuation roadways, and specifically the resulting design requirements and associated implications, including:

- Excessive roadway widths and right-of-way requirements
- Inducement of additional traffic
- Maintenance and liability
- Impacts to rural community character

As with improvements to the public road network, design exceptions may be necessary under certain circumstances for designated evacuation routes in situations where one or more of the County roadway standards could not be met. The basis of the proposed design and exception would need to be supported on a case-by-case situation by sound engineering judgment along with facts and/or calculations, and be an allowable exception under the Public Road Standards as discussed in Flexibility in County Road Design.
http://www.sdcounty.ca.gov/dpw/docs/roads/FlexibilityInRoadDesign.pdf

Design exceptions would need to be submitted to the County Department of Public Works on a case-by-case basis and would need to be presented, reviewed and approved prior to implementation.

6.3 Roadway Design Options

As noted previously, the overriding key to implementing a network of evacuation routes is the need to ensure both the suitability and availability of individual emergency evacuation routes. Proper roadway design in terms of width, grades, and turning radii, along with an adequate level of maintenance will ensure the suitability of the routes for emergency evacuation purposes.

Designations of publicly accessible roadways and elimination of gates and other obstructions will ensure the availability of the routes for emergency evacuation purposes.

The preferred approach relies upon an expanded network of new public roadways based upon the County's Roadway Design Standards (Rural Collectors and Rural Residential Roadways). As noted previously, conformance with these roadway classifications could present right-of-way and related design issues to the local community; however, conformance with applicable Public Road Standards or allowable exceptions must be met for a road to be classified as an evacuation route. This document identifies potential evacuation routes so that funding can be sought for improvements that would upgrade these roads to designated evacuation routes.

Expanded Network of Local Public Roads – The updated Mobility Element includes implementation of relatively few new local public roads. The evacuation needs of the community could be addressed through implementation of a more robust network of local public roads, improving local connectivity and circulation. Many of the identified evacuation corridors could be implemented as new local public roadways.

Potential design parameters for these roads are included in the table below. These preliminary design parameters meet the County Fire Code and County Consolidated Fire Code design standard for road widths, but do not satisfy the minimum right-of-way requirements for a local public roadway in the Public Road Standards. At this time, the application of these preliminary design parameters to specific corridors would need to be determined on a case-by-case basis using the above described design exception process.

Preliminary Design Parameters for Evacuation Routes

Classification	# Lanes/ Width	R/W	Surface Width
Evacuation Route A	2/12'	28'	24'
Evacuation Route B	2/12'	32'	28'
Evacuation Route C	3/12'	40'	36'

Community Access Easements – The Jamul/Dulzura Subregion includes an extensive number of private roads, many with restricted access, limited improvements, and lack of regular maintenance. If these roads are dedicated to the County they would need to be brought up to Public Road Standards. If gates are present, they would need to be removed. This may not always be a feasible alternative due to funding limitations for road upgrades and maintenance or a lack of community support for a road built to Public Road Standards in very rural areas.

An alternative to implementation of publically dedicated roadways for evacuation purposes would be provision of community access easements utilizing existing private roadways where property owners dedicate an easement that would make the road available during emergencies. Private roadways with a community access easement would only need to be brought up to the applicable and specified County standards if dedicated to the County and recognized as evacuation routes. If not maintained by the County, provisions for on-going maintenance by an entity such as a homeowners association (HOA), maintenance district, or equivalent would need to be instituted. However, these routes would not be recognized as County-designated evacuation routes. Grading and surface type could vary depending upon location and projected utilization (ADT). These roads could be considered potential emergency evacuation routes and identified as candidates for grant funding to improve the condition of the roadway, constructed either to Public Road Standards or some lesser condition. This allows for improvements to a more comprehensive network. Since the entire roadway would not need to be brought up to County Public Road Standards, then funding could be sought for localized improvements to a segment of the road rather than the entire roadway. This would improve the accessibility of the overall network for use during emergencies.

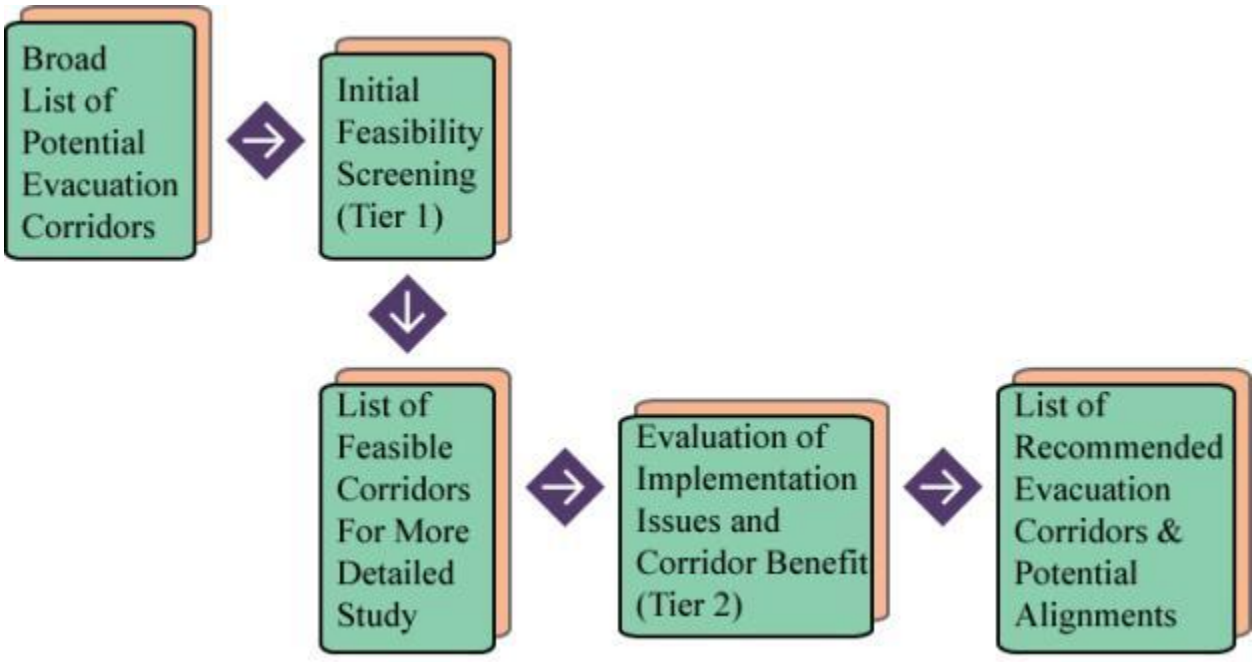
However, it is very important to note that these routes could not be designated as evacuation routes unless brought up to County Public Road Standards.

7.0 Evacuation Corridor Evaluation Process

This chapter presents the results of the preliminary evaluation of the evacuation corridor alignments and associated engineering and environmental issues that could have an effect on implementation. Preliminary cost estimates and a review of evacuation benefits associated with each of the potential evacuation corridors are also provided

7.1 Corridor Evaluation Process

The evacuation corridor evaluation process utilized a two (2) tiered screening process, initially taking a more generalized look at the feasibility of evacuation corridors, followed by a more detailed look at the alignment options, costs and benefits of the more feasible corridors. The flowchart below graphically depicts the evacuation corridor evaluation process.



The corridor evaluation process was conducted in a manner to narrow down the initial broader list of potential evacuation corridors to a more manageable set of feasible corridors for further evaluation. The evaluation process initially screened out clearly infeasible corridors due to topography, environmental constraints, and/or likely cost constraints, with the intent of defining a set group of corridors for the Jamul/Dulzura Subregion that show reasonable promise in accommodating new evacuation roadways and connections.

Table 7.1 displays the evaluation criteria associated with each tier of the evacuation corridor evaluation process.

Table 7.1
Corridor Evaluation Criteria by Tier

Tier	Evaluation Criteria
1. Initial Screening	• Engineering and implementation feasibility • Major environmental effects • Compatibility with the Updated County General Plan
2. Detailed Screening	• Evacuation benefits/effectiveness • Engineering constraints • Environmental compatibility • Conceptual construction costs

7.2 Tier 1 Screening Results

This section summarizes the initial corridor screening results and identifies the evacuation corridors which were selected for further analysis as part of the Tier 2 evaluation process.

Scoring and Ranking

The following criteria were applied as part of the initial corridor screening process:

- **Engineering Feasibility** – including topography and cost considerations
- **Implementation Constraints** – consideration of right-of-way and alignment availability and potential issues associated with land ownership
- **Significant Environmental Effects** – consideration of potential impacts to sensitive habitats, wetlands, and/or conserved lands
- **Compatibility with the Updated County General Plan** – including whether or not corridor had been or is currently part of previous and/or current County General Plans.

The corridors were scored on a ++ /- - basis, with ++ representing a very positive score, + being positive, zero (0) being neutral in regard to the criteria, - being negative, and - - representing a very negative score. For each evacuation corridor, the individual criteria scores were summed to derive a composite score for the corridor as a whole. The resulting composite scores for the evacuation corridors were then arrayed to assist in identifying those corridors for elimination from further study. The worksheets summarizing the Tier 1 evaluation criteria scoring results for the individual evacuation corridors in the Jamul/Dulzura Subregion are included in **Appendix A.**

7.3 Tier 1 Evaluation Results

The community evacuation corridors recommended for either further study or elimination from further study are identified and discussed below. **Figure 7-1** graphically displays the evacuation

corridors in the Jamul/Dulzura Subregion which were identified for further more detailed evaluation as part of Tier 2 and those that were eliminated from further consideration.

Of the 18 potential evacuation corridors evaluated in Jamul/Dulzura, a total of ten received a positive score and were retained for further study as listed in **Table 7.2** below.

Table 7.2
Jamul/Dulzura Evacuation Route Corridors for Further Study

Corridor	Segment	Composite Score
Corridor 1	Campo Road to Proctor Valley Road	+3
Corridor 2	Jamul Drive to Jamul Drive	+5
Corridor 3	Hidden Ridge Road to Lyons Valley Road	+7
Corridor 4	Lyons Valley Road to Olive Vista Drive	+6
Corridor 5	Lyons Valley Road to Presilla Drive	+6
Corridor 6	Presilla Drive to SR-94	+2
Corridor 10	Lawson Valley Road to Skyline Truck Trail	+4
Corridor 11	Honey Springs Road to Deerhorn Valley Road	+4
Corridor 12	Corridor 11 to SR-94	+1
Corridor 16	Lyons Valley Road to SR-94	+1

The following summarizes the evacuation corridors in the Jamul/Dulzura Subregion which were not recommended for further study:

- **Corridor 7 - Dehesa Road to Lawson Valley Road** – A portion of this corridor traverses extreme grades (+20% slope) which would make implementation difficult and costly. Implementation would also likely result in significant potential for impacts to sensitive lands, including localized wetlands and drainage areas, as well as to lands under the jurisdiction of State Fish and Game.
- **Corridor 8 - Lyons Valley Road to Honey Springs Road** – This 3.5 mile corridor is fairly lengthy and traverses an area with environmentally sensitive lands, including natural habitats controlled by State Fish and Game. Implementation would be difficult and costly based upon the undisturbed nature of the area. No current roadways or rights-of-way of any sort currently exist in the corridor.

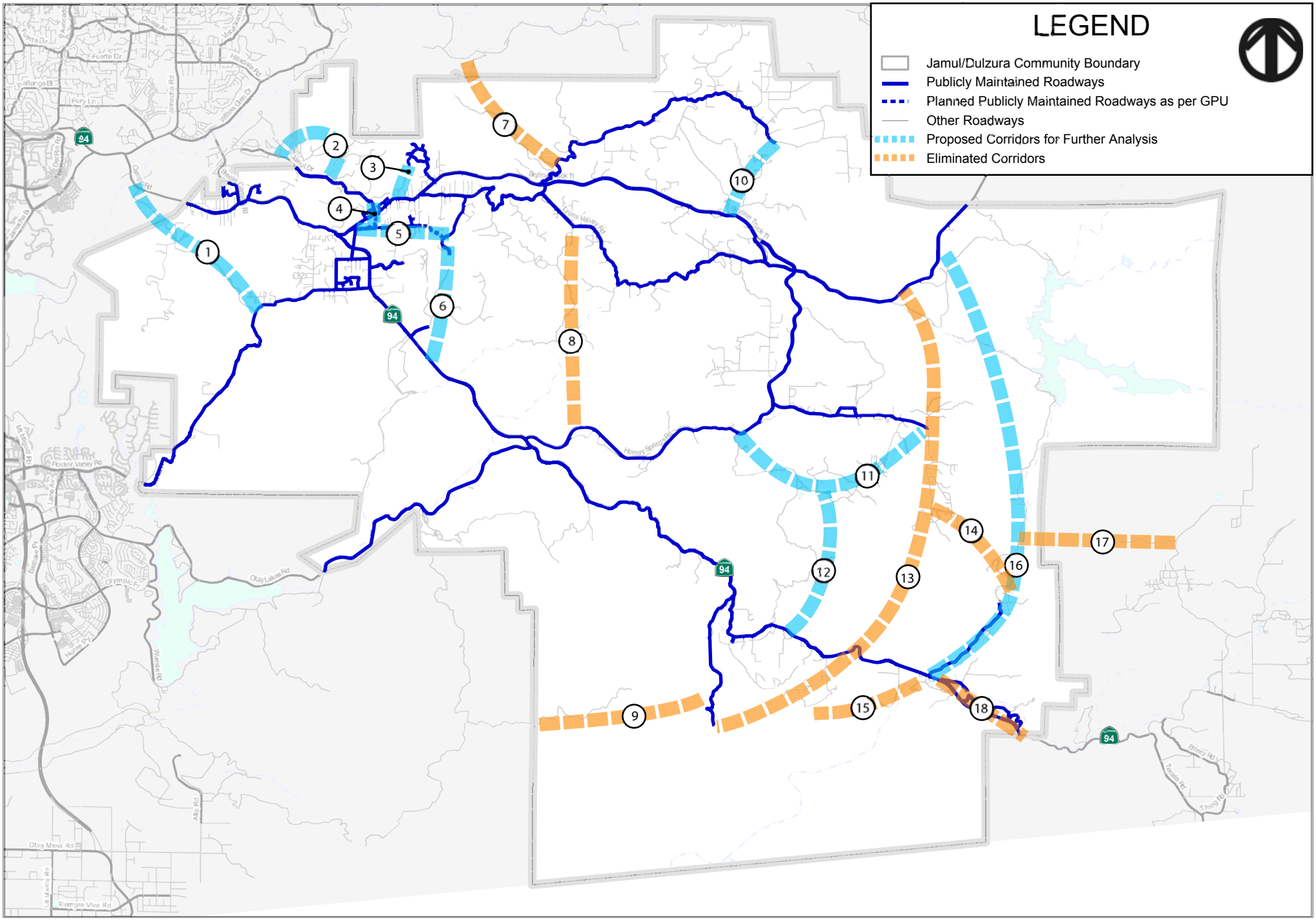


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FIGURE 7-1 JAMUL/DULZURA - TIER 1 CORRIDORS FOR FURTHER STUDY

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- **Corridor 9 - Otay Mountain Truck Trail to Marron Valley Road** – Corridor presents a number of topographic challenges, land ownership issues (BLM lands), and potential for significant environmental issues. The existing meandering unimproved roadway would require significant and costly upgrades to ensure its suitability as an evacuation route.

- **Corridor 13 - Lyons Valley Road to Marron Valley Road** – The corridor includes some extreme topography (20+ % slope), and would likely result in costly and difficult implementation. National Forest Service lands could also impact the availability of right-of-way.

- **Corridor 14 – Corridor 13 to Corridor 16** – This corridor includes some severe topographic challenges and associated right-of-way issues.

- **Corridor 15 - Corridor 13 to SR-94** – This corridor traverses some fairly significant topographic features, likely to result in costly and difficult implementation. There are no existing unimproved roadways in the corridor, hence acquisition of new right-of-way would be required.

- **Corridor 17 – Corridor 16 to Round Potrero Road** – Corridor presents a number of topographic challenges, land ownership issues (BLM lands), and potential for significant environmental issues.

- **Corridor 18 – SR-94 to SR-94** – A through connection in this corridor requires replacement of an existing bridge. The associated costs and potential environment issues will make implementation difficult, with limited area-wide benefits for emergency evacuation.

7.4 Tier 2 Feasibility Evaluation

This section presents the results of the Tier 2 feasibility evaluations, including description of the preliminary evacuation corridor alignments, the associated engineering and environmental assessments, along with an estimate of the implementation costs and benefits associated with each of the evacuation corridors.

Preliminary Evacuation Corridor Alignments

For purposes of the feasibility assessment, a preliminary alignment was identified for each evacuation corridor. A review of both the horizontal and vertical features of the various alignments was then undertaken to identify potential physical constraints, such as steep grades, available/conflicting rights-of-way, and related physical obstructions. Figures documenting both the horizontal and vertical features associated with the preliminary corridor alignments are provided in **Appendix B**.

In laying out the various alignments within the evacuation corridors, a number of design assumptions were applied:

- Two-lane roadway (Rural Collector or Rural Residential)
- 12 foot lanes and surface width of 28 feet
- Paved/all weather surface provided on new segments of roadway
- Use of existing roadways/rights-of-way wherever possible

It is important to note that the identified alignments as shown are very preliminary in nature, and are only intended to be illustrative of one particular option among potentially many in locating the physical roadway within the more broadly defined evacuation corridors. For the most part, the illustrated alignments represent utilization of existing roadways without regard to ownership and/or right-of-way availability. Ultimately, the preferred alignments will need to be identified based upon much more detailed engineering and environmental studies than the considerations undertaken thus far at this very preliminary stage in the process.

Conceptual Construction Costs

Based upon the review of the individual corridor alignments, estimates of the construction costs associated with each of the evacuation corridors were developed as displayed **Table 7.3.** Estimates are for construction only, inclusive of such items as earthwork, surfacing, utilities, permitting, etc. with a 30% contingency. Pavement and/or all-weather surfacing was assumed only on new/non-existing roadway segments. The costs as presented also do not include any right-of-way costs or associated acquisitions.

Table 7.3
Corridor Evacuation Routes
Conceptual Capital Costs

Corridor	Alignment Length (miles)	Construction Costs
1: Campo Road to Proctor Valley Road	3.36	$4,700,000
2: Jamul Drive to Jamul Drive	2.49	$2,500,000
3:Hidden Ridge to Lyons Valley Road	0.71	$900,000
4: Lyons Valley Road to Olive Vista Drive	0.25	$500,000
5: Lyons Valley Road to Presilla Drive	2.72	$2,500,000
6: Presilla Drive to SR-94	1.77	$700,000
10: Lawson Valley Road to Skyline Truck Trail	2.30	$2,500,000
11: Honey Springs Road to Deerhorn Valley Road	5.02	$8,700,000
12: Mother Grundy Truck Trail to SR-94	4.26	$7,300,000
16: Lyons Valley Road to SR-94	9.11	$15,400,000

(Source: AECOM; April 2011)

As shown, estimated construction costs range from a low of $0.5 Million for Corridor 4 - Lyons Valley Road to Olive Vista Drive, to a high of $15.4 Million for Corridor 16 - Lyons Valley Road to SR-94. More detailed costing sheets for each of the Tier 2 evacuation route corridors are included in **Appendix C**.

Environmental Review

The initial evaluation of potential environmental impacts was generally based on the CEQA initial study checklist. Each of the proposed evacuation corridors and alignments were compared against GIS base layer data under the assumption that the project would involve only the construction of emergency evacuation roads as displayed in the illustrative alignment drawings, and would not include any major structures, additional lighting, or related encroachment beyond the roadway itself. GIS data for cultural resources were not available; however, there could be some unknown impacts.

Based on this cursory evaluation of GIS data, there would be no significant impacts that would severely impact the likelihood of approval and implementation. The potential for minor to moderate impacts does, however, exist in a number of areas, as described below:

Aesthetics

Potential aesthetic impacts could occur in areas where construction of the roadway alignment require cut and fill activity, resulting in corresponding visual impacts. This could result in areas with more significant topographic feature including steep slopes and grade variations.

Agriculture

The potential for impacts to agricultural resources could occur in areas where the alignments traverse land use designations associated with the Farmland Mapping & Monitoring Program (FMMP), National Wetlands Inventory land, and the County's Multiple Species Conservation Program (MSCP).

Air Quality

Air quality impacts would be anticipated during construction; however, these impacts would be temporary and would require the most basic of mitigation measures during construction.

Biological Resources

The potential for impacts to biological resources would occur in areas of sensitive wildlife habitat and wetland areas. Biological impacts would likely require mitigation in the form of monitors on-site during construction and possibly post-construction mitigation/restoration if encroachments were required. Approximate costs for mitigation in these areas would likely range from $40,000 - $60,000 per acre, including an assumed one-year establishment and potentially five years of monitoring. Pre-Approved Mitigation Area (PAMA) boundaries are somewhat

flexible and encroachments less than 25% can generally be completed without major mitigation issues.

Land Use & Planning

Potential land use & planning impacts could occur in situations where implementation of the evacuation corridor and the associated changes in local accessibility lead to additional growth and development, and associated changes to the community character. This would be dependent on the nature of existing and planned land uses, changes in parcel accessibility, and changes in local travel patterns.

Noise

Noise impacts would be anticipated during construction; however, these impacts would be temporary and would require the most basic of mitigation measures during construction.

Transportation and Traffic

Potential transportation and traffic impacts could occur as the result of increased traffic volumes on local streets and/or resulting capacity issues on Mobility Element roadways.

Figures 7-2 through **7-11** display the preliminary corridor alignments, including a brief corridor description and documentation of the potential environmental issues associated with the evacuation corridors.

Figure 7-2 Corridor 1 – Campo Road to Proctor Valley Road

Length: 3.36 Miles
Construction Cost: $4.7 Million
Description: This 3.36 mile long route utilizes existing asphalt and dirt roadways of varying size. From the north (Campo Rd) the proposed alignment would be along Millar Ranch Rd. which would need to be widened 8'-10'. The alignment then traverses ~10,800' of dirt road that would need widening and paving ending at Proctor Valley Road.

Preliminary Environmental Assessment

- **Aesthetics:** Few topography constraints exist and minimal aesthetic impacts are anticipated.
- **Agriculture:** Corridor 1 traverses FMMP land designated as Farmland of Local Importance and Grazing Land. However, with the use of existing roads and trails, the anticipated impact would be less than significant.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** The northern portion of the proposed corridor traverses USFWS critical habitat for Costal California gnatcatcher, Least Bell's vireo, and San Diego ambrosia. Mitigation/Restoration would likely be needed, including biological monitoring during construction.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:** No anticipated impacts
- **Hydrology and Water Quality:** A small portion of the proposed corridor is located within the FEMA floodway and 100-year flood zone. However, since the road would not place housing or structures within said area, significant impacts are not anticipated.
- **Land Use and Planning:** Corridor 1 is located within the MSCP and traverses hard-line preserve area. Mitigation would likely be needed. Corridor 1 is intended to improve regional access with no significant effects on local access. Therefore, Corridor 1 would have minimal effects on the development potential of surrounding land uses.
- **Noise:** Temporary impacts from construction are anticipated
- **Transportation and Traffic:** While Corridor 1 connects two regionally significant roadway facilities (SR-94 & Proctor Valley Road), it would traverse generally rural lands, resulting in relatively low traffic demands.

Summary of Potential Mitigation Requirements: Corridor 1 may affect agricultural and biological resources and land use planning. Temporary impacts to air quality and noise may also be anticipated. Project would likely need to mitigate for biological impacts.

Figure 7-3 Corridor 2: Jamul Drive to Jamul Drive

Length: 2.49 Miles
Construction Cost: $2.5 Million
Description: This 2.49 mile long route utilizes mostly existing roadways of varying size and surface. From the west (Jamul Dr) the proposed alignment follows Trinas Way which would need no improvements for the first 2,100'. The following ~1,850' is a dirt road that would need widening and paving. The alignment then traverses ~2,300' of asphalt paved roadway that would need to be widened 8'-13'. Another dirt road (~950' long) follows, then ~2400' long asphalt paved roadway needing 10' of widening. The last section (Alta Loma Lane) is paved with concrete (~650 long) needing 10' of widening and ~1950' of dirt road. The terminus is at Jamul Drive approximately 7,000' east of the beginning of this corridor.

Preliminary Environmental Assessment

- **Aesthetics:** Due to the short length of this corridor, minimal to no aesthetic impacts are anticipated.
- **Agriculture:** Corridor 2 traverses FMMP land designated as Farmland of Local Importance (along Trina's Way). However, with the use of existing roads and trails, the anticipated impact would be less than significant.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** The proposed route traverses USFWS critical habitat for Costal California gnatcatcher. Most of Corridor 2 is located within MSCP PAMA and MSCP preserve land. Mitigation/Restoration would likely be needed, including biological monitoring during construction.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:** No anticipated impacts.
- **Hydrology and Water Quality:** A small portion of the proposed corridor (near Jamul Drive) is located within the FEMA floodway and 100-year flood zone. However, since the road would not place housing or structures within said area, significant impacts are not anticipated.
- **Land Use and Planning:** Most of Corridor 2 is located within MSCP PAMA and MSCP preserve land. However, it is not anticipated to conflict with the applicable land use policy. Corridor 2 would provide a secondary access point for the Alta Loma neighborhood which may allow additional development in the neighborhood.
- **Noise:** Temporary impacts from construction are anticipated
- **Transportation and Traffic:** Improvements to Corridor 2 would provide a secondary access point for the Alta Loma neighborhood and is projected to have a low to moderate traffic demand.

Summary of Potential Mitigation Requirements: Corridor 2 may affect agricultural and biological resources, as well as land use planning. Temporary impacts to air quality and noise may also be anticipated. Mitigation for impacts to biological resources would likely be necessary.

Figure 7-4 Corridor 3: Lyons Valley Road to Hidden Range Road

Length: 0.71 Miles

Construction Cost: $900K

Description: This 0.71 mile long route utilizes existing roadways of varying size and surface. From the south (Lyons Valley Road) the proposed alignment follows Peg Leg Mine Road, an asphalt road which would need 8'-11' of widening. The following ~1,800' is a dirt road that would need widening and paving terminating at Hidden Range Road.

Preliminary Environmental Assessment

- **Aesthetics:** Due to the short length of this corridor, minimal aesthetic impacts are anticipated.
- **Agriculture:** No anticipated impacts.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** No anticipated impacts.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:** No anticipated impacts.
- **Hydrology and Water Quality:** No anticipated impacts.
- **Land Use and Planning:** Corridor 3 would provide a secondary access point for the Hidden Trails neighborhood which may allow additional development in the neighborhood.
- **Noise:** Temporary impacts from construction.
- **Transportation and Traffic:** Improvements to Corridor 3 would provide a secondary access point for the Hidden Trails neighborhood and is projected to have a low to moderate traffic demand.

Summary of Potential Mitigation Requirements: Temporary impacts to air quality and noise may be anticipated. Minor mitigation may be necessary

Figure 7-5 Corridor 4: Lyons Valley Road to Olive Vista Drive

Length: 0.25 Miles

Construction Cost: $500K

Description: This 0.25 mile long route will connect the northern end of Calle De Oro to Jamul Drive. From the south (Olive Vista Drive) the proposed alignment follows Calle De Oro for ~950', an asphalt paved road which would need 10'-12' of widening. The last segment, about 350' of dirt road would need widening and paving as well as a box culvert (~8'x 3'). The terminus would align with the intersection of Jamul Drive and Lyons Valley Road.

Preliminary Environmental Assessment

- **Aesthetics:** Due to the short length of this corridor, minimal aesthetic impacts are anticipated.
- **Agriculture:** No anticipated impacts.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** No anticipated impacts.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:** No anticipated impacts.
- **Hydrology and Water Quality:** No anticipated impacts.
- **Land Use and Planning:** Corridor 4 is intended to provide regional access and is not projected to provide additional access to any underserved local neighborhoods. Therefore, Corridor 4 is not projected to affect surrounding land uses.
- **Noise:** Temporary impacts from construction.
- **Transportation and Traffic:** Improvements to Corridor 4 would provide a second connection between a Mobility Element roadway (Lyons Valley Road) and Olive Vista Drive, a Local Public Road through a semi-rural area. Therefore, Corridor 4 is projected to have a moderate to high traffic demand.

Summary of Potential Mitigation Requirements: Corridor 4 could result in a moderate to high level of traffic volumes. Temporary impacts to air quality and noise may be anticipated. Minor mitigation may be necessary.

Figure 7-6 Corridor 5: Lyons Valley Road to Presilla Drive

Length: 2.72 Miles
Construction Cost: $2.5 Million
Description: This 2.72 mile long route utilizes mostly existing asphalt roadways of varying size. From the west (Lyons Valley Road) the proposed alignment follows Olive Vista Drive for ~9,000' which needs 3'-13' of widening. The following segment is along ~1,600' of Jamul Highlands Road, an asphalt roadway needing 0'-8' of widening. The alignment then traverses an undisturbed area for roughly 1,600' which would need a full road section (grading & paving.) The last segment is ~2,200' long, along an asphalt paved road needing 14'-18' of widening terminating at Presilla Drive.

Preliminary Environmental Assessment

- **Aesthetics:** Due to few topography constraints and primary use of existing roadways, minimal aesthetic impacts are anticipated.
- **Agriculture:** Corridor 5 traverses FMMP land designated as Unique Farmland, Farmland of Local Importance, and Grazing Land. However, since the proposed corridor follows existing roads, the anticipated impact is less than significant.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** No anticipated impacts.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:** No anticipated impacts.
- **Hydrology and Water Quality:** No anticipated impacts.
- **Land Use and Planning:** Corridor 5 would provide a secondary access point for both the Olive Vista neighborhood and Jamul Highlands neighborhood which may result in the potential for additional development.
- **Noise:** Temporary impacts from construction.
- **Transportation and Traffic:** Improvement to Corridor 5 would provide a connection between two semi-rural neighborhoods (Olive Vista and the Jamul Highlands). Therefore, Corridor 5 is projected to have a moderate traffic demand.

Summary of Potential Mitigation Requirements: Corridor 5 could result in a moderate level of traffic volumes. Corridor 5 may affect agricultural resources. Temporary impacts to air quality and noise may also be anticipated. Some mitigation may be needed.

Figure 7-7 Corridor 6: Campo Road to Jamul Highlands Road

Length: 1.77 Miles

Construction Cost: $700K

Description: This 1.77 mile long route utilizes mostly existing asphalt roadways of varying size. From the south (at Campo Road) the proposed alignment follows Rancho Jamul Drive for ~3,800', then Presilla Drive for ~3,800'. These segments require no improvements. The last ~1,750 of this alignment traverses an undisturbed area which would need a full road section (grading & paving) terminating at Jamul Highlands Road.

Preliminary Environmental Assessment

- **Aesthetics:** Few topographic constraints exist and minimal aesthetic impacts are anticipated.
- **Agriculture:** Corridor 6 traverses FMMP land designated as Farmland of Local Importance and Grazing Land. However, with the use of existing roads and trails, the anticipated impact would be less than significant.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** The southernmost portion of the corridor abuts USFWS designated critical habitat for Quino checkerspot butterfly. Impact to Quino checkerspot critical habitat has very high mitigation costs that would likely exceed the approximate range already provided. Restoration would likely be needed, including biological monitoring during construction.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:** No anticipated impacts.
- **Hydrology and Water Quality:** Corridor 6 would cross a riverbed. However, there are no anticipated significant impacts to hydrology and water quality.
- **Land Use and Planning:** Corridor 6 would provide a secondary access point for both the Olive Vista neighborhood and Jamul Highlands neighborhood which may result in the potential for additional development.
- **Noise:** Temporary impacts from construction.
- **Transportation and Traffic:** Improvement to Corridor 6 would provide a connection between two semi-rural neighborhoods (Olive Vista and the Jamul Highlands). Therefore, Corridor 6 is projected to have a moderate traffic demand.

Summary of Potential Mitigation Requirements: Corridor 6 could result in a moderate level of traffic volumes. Corridor 6 may affect agricultural resources and may potentially have a significant impact on biological resources. Temporary impacts to air quality and noise may also be anticipated. Some mitigation would likely be needed.

Figure 7-8 Corridor 10: Lawson Valley Road to Skyline Truck Trail

Length: 2.30 Miles

Construction Cost: $2.5 Million

Description: This 2.30 mile long route utilizes existing roadways of varying size and surface. From the south (Skyline Truck Trail) the proposed alignment follows Wisecarver Truck Trail and Wisecarver Lane for ~2,750', needing 3'-8' of widening. A short (~625' long) dirt road follows needing a full widening and paving section, then ~500' long pavement section needing 15' of widening, followed by an ~5,125' long dirt road needing a full widening and paving section. The final 3,150' traverses paved roadway (Mark Lee Drive & Rudnick Drive) needing 0'-15' of widening. The route ends at the intersection of Rudnick Drive and Lawson Valley Road.

Preliminary Environmental Assessment

- **Aesthetics:** Few topographic constraints exist and minimal aesthetic impacts are anticipated.
- **Agriculture:** No anticipated impacts.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** No anticipated impacts.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:** No anticipated impacts.
- **Hydrology and Water Quality:** Corridor 10 would cross a riverbed. In addition, the northernmost portion of the corridor is within the FEMA floodway and 100-year flood zone. However, since the road would not place housing or structures within the floodway or flood zone area, significant impacts are not anticipated.
- **Land Use and Planning:** Corridor 10 would provide a secondary access point to the Lawson Valley neighborhood and could possibly result in additional development.
- **Noise:** Temporary impacts from construction.
- **Transportation and Traffic:** Improvements to Corridor 10 would provide a secondary access point to the Lawson Valley neighborhood (Semi-Rural). Therefore, it is projected that corridor 10 would have a low to moderate traffic demand.

Summary of Potential Mitigation Requirements: Corridor 10 could result in a moderate level of traffic volumes. Corridor 10 may likely have temporary impacts to air quality and noise. Some mitigation may be needed.

Figure 7-9 Corridor 11: Honey Springs Road to Deerhorn Valley Road

Length: 5.02 Miles

Construction Cost: $8.7 Million

Description: This 5.02 mile long route utilizes mostly existing dirt roadways of varying size. From the west (Honey Springs Rd) the proposed alignment follows an asphalt road for ~1,500' which would need to be widened 3'-8'. The alignment then traverses ~25,000' of dirt road, known as Mother Grundy Truck Trail, and would need to be widened and paved. The terminus of this route is Deerhorn Valley Road.

Preliminary Environmental Assessment

- **Aesthetics:** Topographic constraints could result in moderate levels of construction related cut-and-fill activity and associated visual impacts.
- **Agriculture:** Corridor 11 traverses FMMP land designated as Agricultural Preserve. However, with the use of existing roads and trails, the anticipated impact would be less than significant.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** No anticipated impacts.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:**
- **Hydrology and Water Quality:** Corridor 11 would cross Dulzura Creek and various surface catchments. However, since the road would follow existing roads, significant impacts are not anticipated.
- **Land Use and Planning:** Corridor 11 would provide a secondary access point to the Deerhorn Valley neighborhood and could possibly result in additional development.
- **Noise:** Temporary impacts from construction.
- **Transportation and Traffic:** Improvement to Corridor 11 would provide a secondary access point for the Deerhorn Valley neighborhood and is therefore projected to have a moderate traffic demand.

Summary of Potential Mitigation Requirements: Corridor 11 could result in a moderate level of traffic volumes. Corridor 11 may affect agricultural resources. Temporary impacts to air quality and noise may also be anticipated. Some mitigation may be needed.

Figure 7-10 Corridor 12: Mother Grundy Truck Trail to SR-94

Length: 4.26 Miles

Construction Cost: $7.3 Million

Description: This 4.26 mile long route utilizes mostly existing dirt roadways of varying size. From the south (Mother Grundy Truck Trail) the proposed alignment follows an asphalt road for ~2,000' which would need to be widened 3'-8'. The alignment then traverses ~20,500' of dirt road, known as Lucky 6 Truck Trail, and would need to be widened and paved. The terminus of this route is SR-94.

Preliminary Environmental Assessment

- **Aesthetics:** Topographic constraints could result in moderate levels of construction related cut-and-fill activity and associated visual impacts.
- **Agriculture:** No anticipated impacts.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** Corridor 12 traverses MSCP preserve land designated as Hard-line Preserve. Mitigation/Restoration would likely be needed, including biological monitoring during construction.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:** No anticipated impacts.
- **Hydrology and Water Quality:** Corridor 12 would cross Dutchman Canyon stream and various surface catchments. However, since the road would follow existing roads and trails, significant impacts are not anticipated.
- **Land Use and Planning:** Corridor 12 traverses MSCP preserve land designated as Hard-line Preserve. Mitigation may be necessary. Corridor 12 would provide a secondary access point to the Deerhorn Valley neighborhood and could possibly result in additional development.
- **Noise:** Temporary impacts from construction.
- **Transportation and Traffic:** Improvement to Corridor 12 would provide a secondary access point for the Deerhorn Valley neighborhood and is therefore projected to have a moderate traffic demand.

Summary of Potential Mitigation Requirements: Corridor 12 could result in a moderate level of traffic volumes. Corridor 12 may affect biological and land use resources. Temporary impacts to air quality and noise may also be anticipated. Some mitigation would likely be needed.

Figure 7-11 Corridor 16: SR-94 to Lyons Valley Road

Length: 9.11 Miles

Construction Cost: $15.4 Million

Description: This 9.11 mile long route utilizes mostly existing dirt roadways of varying size. From the south (SR-94) the proposed alignment follows Barret Lake Road, a dirt road, for ~42,800' which would need to be widened and paved. The alignment then traverses ~5,300' of asphalt roadway, known as Lyons Valley Road, and would need to be widened 3'-13'. The terminus of this route is along Lyons Valley Road.

Preliminary Environmental Assessment

- **Aesthetics:** Topographic constraints could result in moderate levels of construction related cut-and-fill activity and associated visual impacts.
- **Agriculture:** A small portion of corridor 16 traverses FMMP land designated as Farmland of Local Importance. However, with the use of existing roads and trails, the anticipated impact would be less than significant.
- **Air Quality:** Temporary impacts from construction.
- **Biological Resources:** Corridor 16 abuts Seasonal Wetlands recognized by the National wetlands Inventory along Barrett Lake, a 305(b) assessed water body. There is also Riparian Woodland and Seasonal Wetland along the southernmost portion of the proposed corridor. Mitigation / Restoration would likely be needed, including biological monitoring during construction.
- **Cultural Resources:** No anticipated impacts.
- **Geology:** No anticipated impacts.
- **Hazards and Hazardous Materials:** No anticipated impacts.
- **Hydrology and Water Quality:** No anticipated impacts.
- **Land Use and Planning:** Corridor 16 is intended to provide regional access and is not projected to provide additional access to any underserved local neighborhoods. Therefore, Corridor 16 is not projected to effect surrounding land uses.
- **Noise:** Temporary impacts from construction.
- **Transportation and Traffic:** While Corridor 16 connects two regionally significant roadway facilities (SR-94 & Proctor Valley Road) it would connect through rural lands and is therefore projected to have a low traffic demand.

Summary of Potential Mitigation Requirements: Corridor 16 may likely have a significant impact on biological resources. Temporary impacts to air quality and noise may also be anticipated. Some mitigation would very likely be needed.

7.5 Corridor Evacuation Benefits and Effectiveness

This section discusses the methodology and results of the evaluation process to determine the relative benefits and effectiveness of the identified evacuation corridors in terms of meeting the emergency evacuation needs of the community. This information will assist the local community and County decision makers in establishing local priorities for subsequent implementation, recognizing the likely limitations on funding.

In order to determine the relative benefits and effectiveness of the proposed evacuation corridors, a number of evaluation measures were utilized:

- **Population Served** – General estimate of the magnitude of population likely to utilize the corridor during an emergency evacuation. For example, a corridor serving higher density locations within the community would have the potential to serve a higher population and would therefore receive a higher ranking under this category. Conversely a corridor traversing and serving the more rural/undeveloped portions of the community would have a lower ranking.

- **Connectivity** – Degree to which the evacuation corridor would provide a key linkage/connection to/from an underserved area(s). For example, implementation of a corridor which provides new and improved connectivity between two existing regional arterials would receive a higher ranking under this category.

- **Access** – Degree to which the evacuation corridor would provide key additional point(s) of access to an area lacking such. . For example, implementation of a corridor which provides important secondary/additional access to an underserved subarea would receive a higher ranking under this category.

A ranking system (1 to 5) was utilized in applying each measure, with a score of "5" representing the highest level of potential benefit/effectiveness and a score of "1" representing the least. A score was assigned to each of the evacuation corridors for each of the evaluation measures listed above. The individual scores were then totaled to derive a composite score, as shown in **Table 7.3.**

Table 7.3
Evacuation Corridor Benefit/Effectiveness

#	Corridor	Population Served	Connectivity	Access	Composite Score
1	Campo Road to Proctor Valley Road	2	3	2	7
2	Jamul Drive to Jamul Drive	3	4	5	12
3	Hidden Ridge Road to Lyons Valley Road	3	4	5	12
4	Lyons Valley Road to Olive Vista Drive	4	2	2	8
5	Lyons Valley Road to Presilla Drive	4	2	5	11
6	Presilla Drive to SR-94	3	3	5	11
10	Lawson Valley Road to Skyline Truck Trail	3	3	5	11
11	Honey Springs Road to Deerhorn Valley Road	3	4	5	12
12	Mother Grundy Truck Trail to SR-94	3	4	5	12
16	Lyons Valley Road to SR-94	1	4	1	6

Source: Fehr & Peers, July 2011

As shown, the following corridors are projected to provide the most benefit/effectiveness to the community:

Corridor 2 - Jamul Drive to Jamul Drive
Corridor 3 - Hidden Ridge Road to Lyons Valley Road
Corridor 11 - Honey Springs Road to Deerhorn Valley Road
Corridor 12 - Mother Grundy Truck Trail to SR-94

Corridors 5, 6 and 10 also would provide a relatively similar level of benefit/effectiveness.

8.0 Implementation Considerations

This concluding chapter provides a preliminary perspective on local implementation issues, community priorities and related factors, and considerations regarding the proposed community evacuation routes.

8.1 Community Priorities

As discussed in the previous sections, there are a range of community evacuation corridors and alignments for possible implementation. Implementation costs will vary, as will the associated environmental impacts and populations served.

It is the intent of the County that the subsequent implementation of any of the evacuation routes be driven by and based upon the expressed desires and needs of each individual local community. To assist in the identification of local priorities, this section summarizes some of the previous findings relating to the evacuation corridors, specifically:

1. Review of the evacuation corridors relative to identified needs
2. Grouping of the evacuation corridors based upon benefits/effectiveness

Relationship of Potential Evacuation Corridors to Needs Assessment

Figure 8-1 displays the Tier 2 evacuation corridors in the Jamul/Dulzura Subregion overlaid on a graphic displaying the roadway connectivity needs and issues developed during the initial tasks of the Community Evacuation Route Study process. (Reference: Issue Paper #1: Community Evacuation and Roadway Connectivity Needs Assessment).

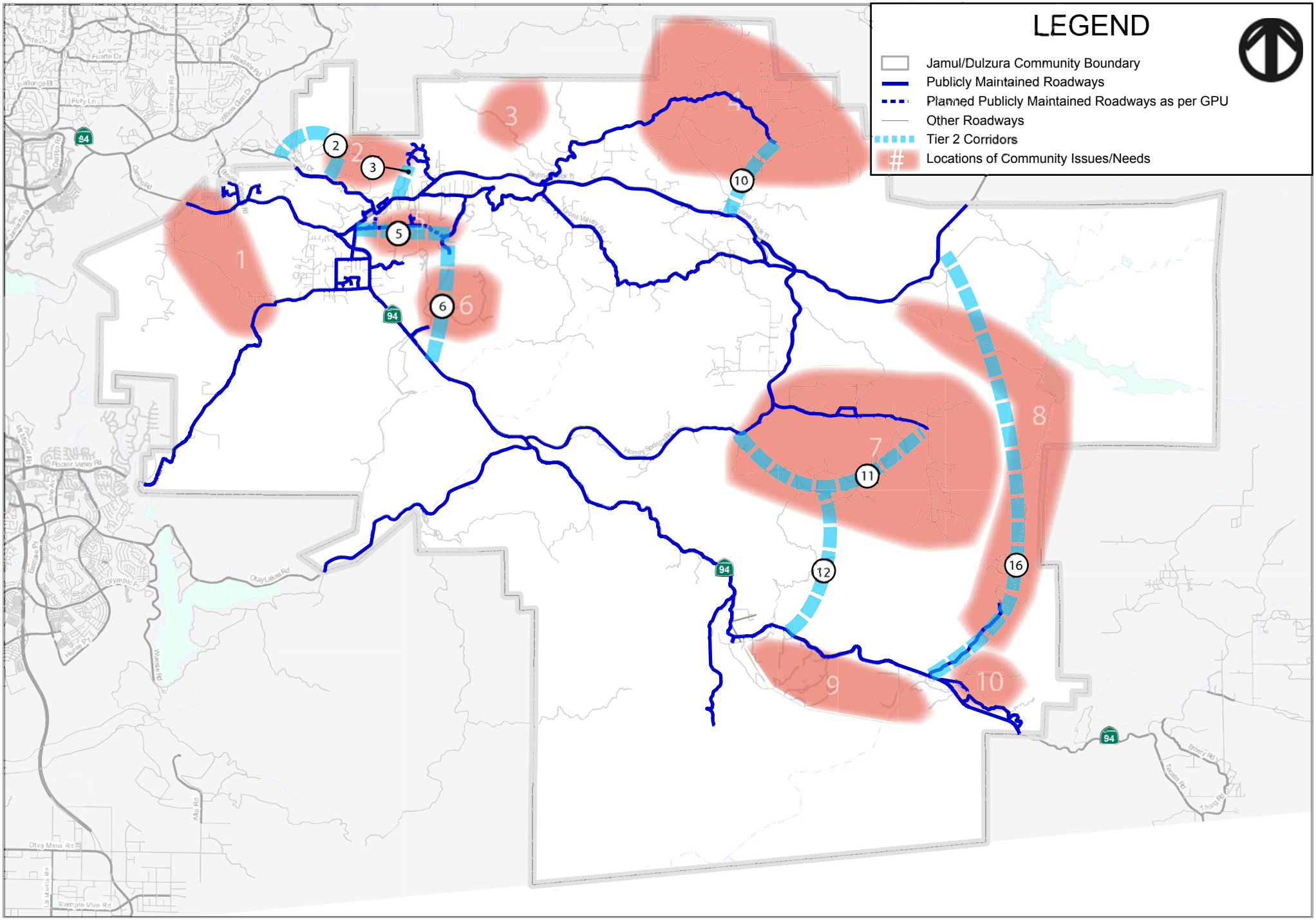
As shown, the proposed Tier 2 corridors would address all identified access and connectivity needs, with the exception of areas 1, 3, 9 & 10. Potential evacuation corridors serving these areas were eliminated from further consideration based upon the following:

Area 1 Corridor 1 was developed to address this need, but was eliminated from further consideration by the Jamul Dulzura Community Planning Group due to issues and concerns related to increased traffic volumes on intersecting and adjacent roadways.

Area 3 Corridor 7 was designated to address this need but was eliminated from further consideration in Tier 1 due to topographic and environmental constraints.

Area 9 Corridors 13 and 15 were designated to address this need. Both corridors were eliminated in Tier 1 due to topographic constrains and environmental concerns.

Area 10 Corridor 18 was designated to address this need, but was eliminated due to environmental constraints.



FEHR PEERS

FIGURE 8-1
JAMUL/DULZURA - TIER 2 CORRIDORS
County of San Diego Community Evacuation Route Study

AUGUST 3, 2011

Primary/Secondary Potential Evacuation Corridors

The community evacuation corridors in the Jamul/Dulzura Subregion were grouped into primary and secondary categories based upon their overall benefit/effectiveness score. The Primary corridor category includes the corridors that are anticipated to provide the most benefit and effectiveness to the community, while the Secondary category includes corridors that do provide some level of benefit to the community, but are considered to be secondary alternatives.

Based upon the evaluations to date and the respective benefit/effectiveness scores, the following seven (7) evacuation route corridors are candidates for consideration as Primary Corridors:

- Corridor 2: Jamul Drive to Jamul Drive
- Corridor 3: Hidden Ridge Road to Lyons Valley Road
- Corridor 5: Lyons Valley Road to Presilla Drive
- Corridor 6: Presilla Drive to SR-94
- Corridor 10: Lawson Valley Road to Skyline Truck Trail
- Corridor 11: Honey Springs Road to Deerhorn Valley Road
- Corridor 12: Mother Grundy Truck Trail to SR-94

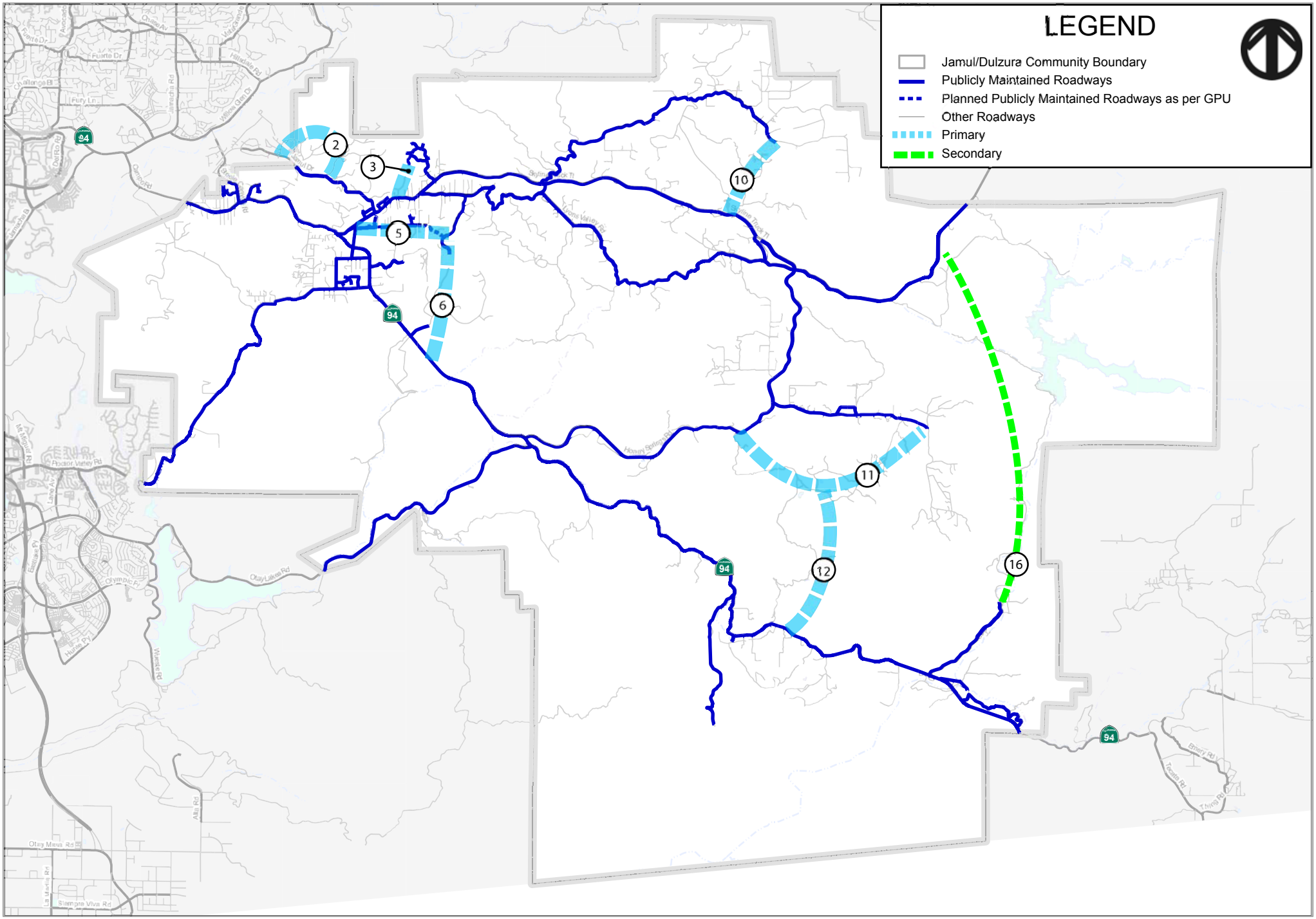
The remaining corridors, while still providing benefit/effectiveness to the community, are not anticipated to provide as much benefit/effectiveness as the corridors classified as Primary, and can therefore be considered as Secondary Corridors.

Figure 8-2 displays the primary and secondary evacuation route corridors for further consideration by the community and County decision makers.

Community Priorities

The proposed Tier 2 corridors were reviewed at a special meeting of the Jamul/Dulzura Community Planning Group meeting on June 28, 2011. Based upon community input and an action by the Planning Group, a motion was made that the identified corridors should be further analyzed to determine if the design standards could be revised in a way that a public thoroughfare would not be created, this motion passed. A second motion was made that would eliminate Corridors 1 and 4 totally from the study, this motion passed. In general, members of the Community Planning Group and local residents in Jamul expressed significant opposition to the construction of evacuation routes which would be open to the public during non-emergency situations.

In a subsequent meeting of the Jamul/Dulzura Stakeholder Review Committee (September 1, 2011) interest was expressed in those evacuation routes serving the Dulzura community; specifically Corridors 11, 12, and 16. It was agreed that if there were local support from Dulzura residents, the broader Community Planning Group could endorse those specific routes.



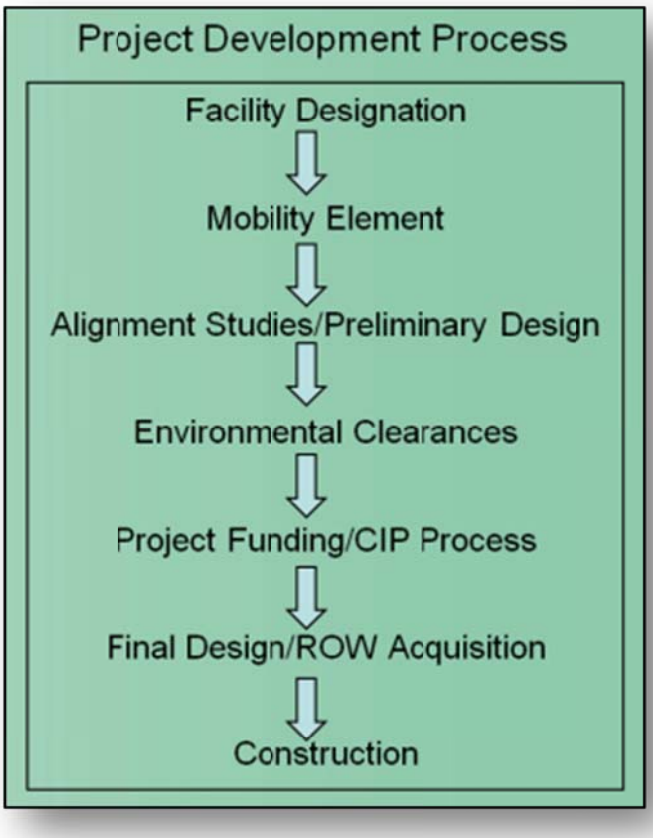
FEHR PEERS

FIGURE 8-2
JAMUL/DULZURA - PRIMARY & SECONDARY CORRIDOR PRIORITIES
County of San Diego Community Evacuation Route Study

AUGUST 3, 2011

A community meeting was held on October 10, 2011 at the Dulzura Community Building at which time the study background and findings were presented and the public subsequently voted in support of the subject corridors. At the October 11, 2011 meeting of the full Jamul/Dulzura Community Planning Group, members passed a motion supporting the inclusion of Corridors 11, 12 and 16 in the subsequent evacuation corridor recommendations for presentation to the County Board of Supervisors for approval and subsequent addition to the local Mobility Element.

8.2 Implementation and Funding



The purpose of this study was to identify a community evacuation network plan; however, this plan should not give the expectation that the County will assume the responsibility for funding the roads identified. External funding sources would need to be considered to pursue construction of the evacuation routes identified in this study. If implementation of one of more of the community evacuation routes were to be pursued, a number of steps would need to occur as detailed below.

The primary external funding options to construct the community evacuation routes are identified below.

Future Development — The County Subdivision Ordinance requires both major and minor subdivisions offer both on-site and off-site roads for dedication or obtain offers for dedication, where applicable to the requirements of the Ordinance. Depending on individual circumstances, discretionary development projects are required to either construct or to agree to irrevocable offers of dedication for roads and bicycle facilities identified in the Mobility Element of the General Plan. Amending the Mobility Element and/or applicable community plan to also include community evacuation routes would require future development to dedicate or obtain offers for dedication in a manner similar to a Mobility Element roadway.

State and Federal Grants ─ A number of grant programs maybe available under the auspices of the United States Department of Transportation and/or Caltrans specifically focused on enhancement public safety.

Assessment Districts – Includes the designation of geographic area (district) and parcel assessments to fund a specified improvement or set of improvements. Formation of the district must be premised upon the need for the improvements and proportional to the benefit provided and would have to be approved by the affected property owners via a special election.

Appendix A
Tier 1 Evaluation Worksheets

JAMUL/DULZURA

Initial CERS Corridor Feasibility Screening

#	Corridor	Engineering Feasibility	Implementation Constraints	Significant Environment Effects	General Plan Compatibility	Notes	Composite Score
1	Campo Road & Proctor Valley Road	Areas approaching 10% slope: +	Existing unimproved / paved private roadway (Millar Ranch Road): +	Potential impacts to Conserved Species location (northern portion): 0	Previous consideration- but not included in Update: 0	•Existing paper street •Potential use of Miller Ranch Road •North section currently paved	+2
2	Jamul Drive & Jamul Drive	•Few topographic constraints •Variety of alignment: +	Variety of existing private / unimproved roadways: +	Developed area: ++	Previously considered as Local Public Road: +	•Potential Improvement of Alta Loma Lane •Fowler Canyon as a potential connection between Corridors 2 & 3	+5
3	Hidden Ridge Road & Lyons Valley Road	No constraints: ++	Existing unimproved roadways: ++	Developed area: ++	Previously considered as Local Public Road: +	•Local Public Road	+7
4	Lyons Valley Road & Olive Vista Drive	No constraints: ++	Potential ROW issues: 0	Developed area: ++	Proposed in Update as Local Public Road: ++	•Community opposition to Local Public Road •Potential use of Jamul Drive alignment	+6
5	Lyons Valley Road & Presilla Drive	Existing roadway: ++	Potential ROW issues: 0	Developed area: ++	Proposed in Update as Local Public Road: ++	•Desirable connection •Private road section/Local Public Road	+6
6	Presilla Drive & SR-94	No constraints: ++	Potential ROW issues: 0	Potential localized habitat impacts / Fish & Game land: 0	Previous consideration - but deleted: 0	•Private road	+2
7	Dehesa Road & Lawson Valley Road	20%+ slope in northern area: -	Potential ROW issues: 0	Drainage ways / Fish & Game Lands: -	No previous consideration: 0	•Existing unimproved road - meandering	-2
8	Lyons Valley Road & Honey Springs Road	Few topographic constraints (<5%): +	New ROW required: -	Potential habitat area (Fish & Game Lands); Undisturbed: -	No previous considerations: 0	•3.5 mile corridor	-1

More Positive ++ + 0 - -- More Negative

JAMUL/DULZURA

Initial CERS Corridor Feasibility Screening

#	Corridor	Engineering Feasibility		Implementation Constraints		Significant Environment Effects		General Plan Compatibility		Notes	Composite Score
9	Otay Mountain Truck Trail & Marron Valley Road	Topographic challenges	-	BLM land	-	MSCP, Sensitive habitat areas	--	No previous considerations	0	•Existing meandering unimproved roadway	-4
10	Lawson Valley Road & Skyline Truck Trail	Limited topography	+	Potential ROW issues	0	Developed area	++	Previously considered as Local Public Road	+	•Redraw corridor utilizing existing unimproved roadway to the east (Wisecarves Lane)	+4
11	Honey Springs Road & Deerhorn Valley Road	Limited topography	+	Cost/ROW	0	Developed area	++	Previously considered as Local Public Road	+	•Existing unimproved roadway Truck Trail •Possible County ROW?	+4
12	Corridor 11 & SR-94	Limited topographic constraints	0	ROW and cost issues	0	Potential issues relating to BLM Land	0	•Designated as fire access road •Previously considered as Local Public Road	+		+1
13	Lyons Valley Road & Marron Valley Road	18% grades on northern area / alignment options	-	Need ROW	0	Forest Service lands in northern area	-	Previously considered as Local Public Road between Corridors 11 & 14	0	•Requires new roadway alignment •Northern portion constrained / potential use of southern section	-2
14	Corridor 13 & Corridor 16	Significant topographic constraints	-	ROW issues - new roadway	-	Potential issues relating to BLM land	0	Not previously considered	0	•Possible network value in connecting Corridors 13 & 16	-2
15	Corridor 13 & SR-94	Moderate topographic constraints	-	Cost/Grading - new ROW	-	Limited effects	+	Not previously considered	0	•No existing roadway •Consider connecting Bee Canyon to Summit Road	-1
16	Lyons Valley Road & SR-94	Existing roadway	+	ROW issues	0	Potential impacts to Forest Service land (northern section)	0	•Previously considered as Local Public Road •Community desire as fire access road	+	•Existing roadway	+2

More Positive ++ + 0 - More Negative --

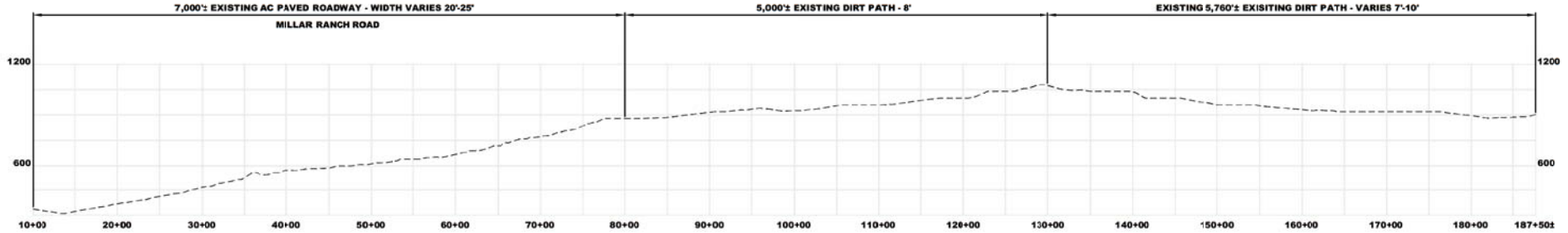
JAMUL/DULZURA

Initial CERS Corridor Feasibility Screening

#	Corridor	Engineering Feasibility	Implementation Constraints	Significant Environment Effects	General Plan Compatibility	Notes	Composite Score
17	Corridor 16 & Round Potrero Road	Topographic constraints: -	Cost/ROW needs: -	Creek/Drainage ways: -	No previous considerations: 0		-3
18	SR-94 & SR-94	Limited topography: +	•Bridge replacement •Cost •Existing ROW: 0	Adjacent to enviromentally sensitive lands: -1	No previous considerations: 0	•Repair of bridge / need for connection	0

More Positive ++ + 0 - -- More Negative

Appendix B
Alignment Plan/Profiles



PROFILE:
HORIZONTAL: 1"=300'
VERTICAL: 1"=150'

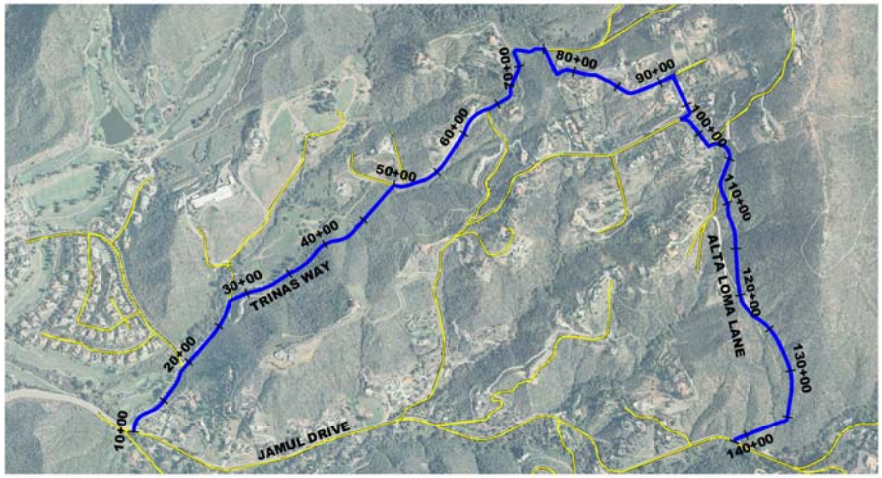
EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

PLAN:
SCALE: 1"=300'

CORRIDOR		
1	AECOM 7807 Convoy Court Suite 200 San Diego, Ca. 92111 T 858.268.8080 F 858.292.7432 www.aecom.com	COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2 COMMUNITY EVACUATION ROUTE STUDY CAMPO ROAD TO PROCTOR VALLEY ROAD

ORIGINAL SCALE IN INCHES

PROFILE:
HORIZONTAL: 1"=400'
VERTICAL: 1"=200'



400 0 400 800
SCALE: 1"=400'

EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

PLAN:
SCALE: 1"=400'

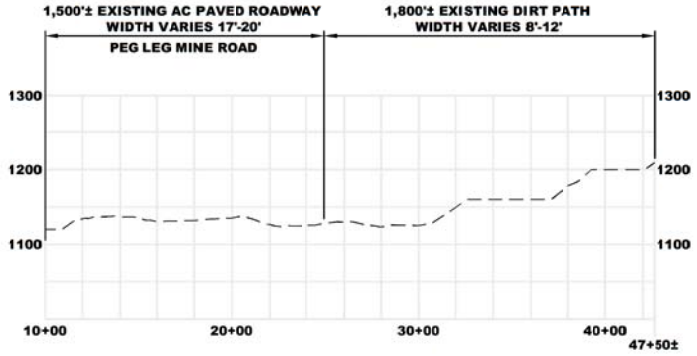
CORRIDOR
2

AECOM
7807 Convoy Court Suite 200
San Diego, Ca. 92111
T 858.268.8080 F 858.292.7432
www.aecom.com

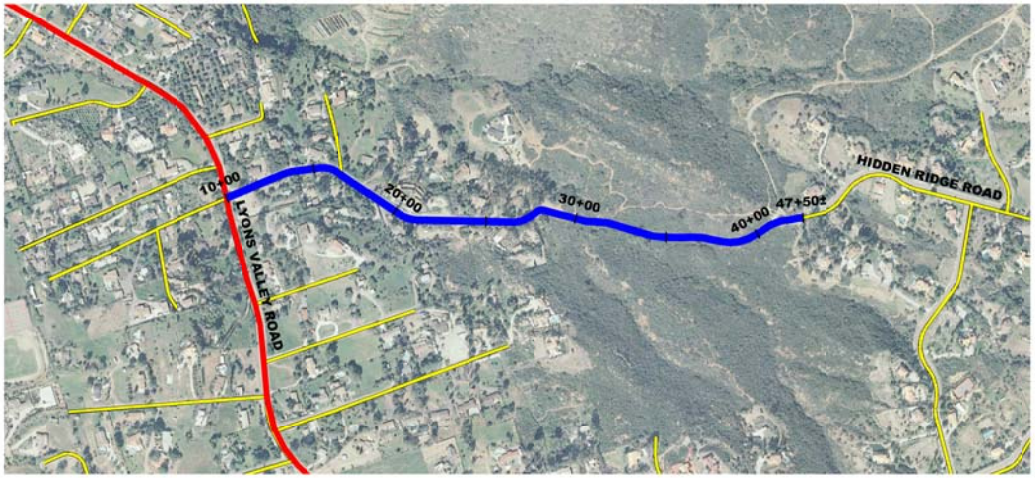
COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2 COMMUNITY EVACUATION ROUTE STUDY

JAMUL DRIVE TO JAMUL DRIVE

ORIGINAL SCALE IN INCHES



PROFILE:
HORIZONTAL: 1"=200'
VERTICAL: 1"=50'



200 0 200 400
SCALE: 1"=200'

EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

PLAN:
SCALE: 1"=200'

CORRIDOR
3

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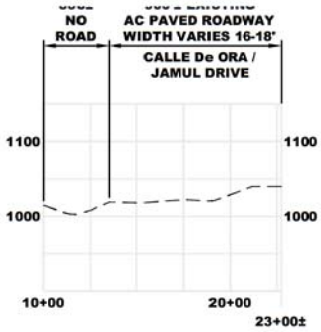
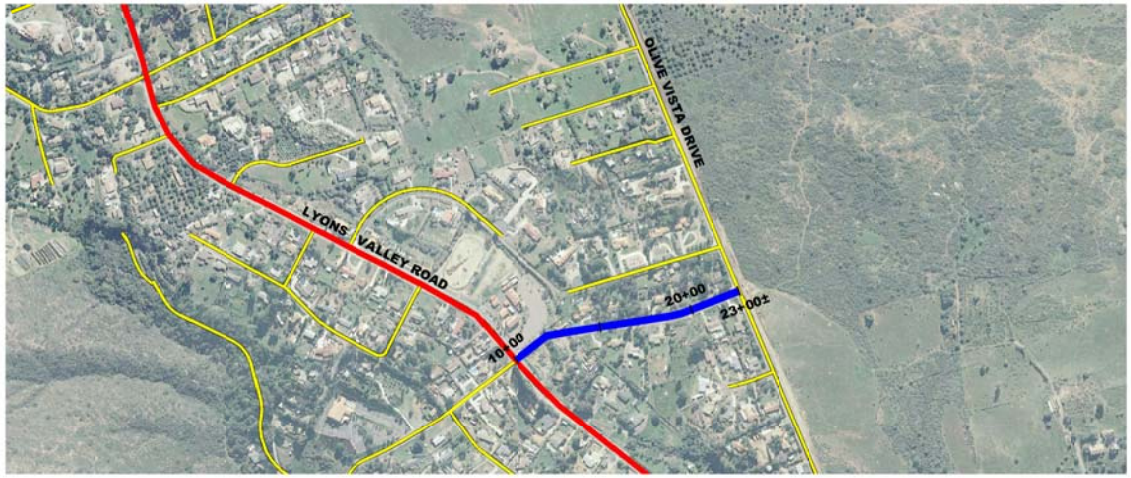
COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2
COMMUNITY EVACUATION ROUTE STUDY

LYONS VALLEY ROAD TO HIDDEN RANGE ROAD

ORIGINAL SCALE IN INCHES



PROFILE:
HORIZONTAL: 1"=200'
VERTICAL: 1"=50'



200 0 200 400
SCALE: 1"=200'

EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

PLAN:
SCALE: 1"=200'

CORRIDOR
4

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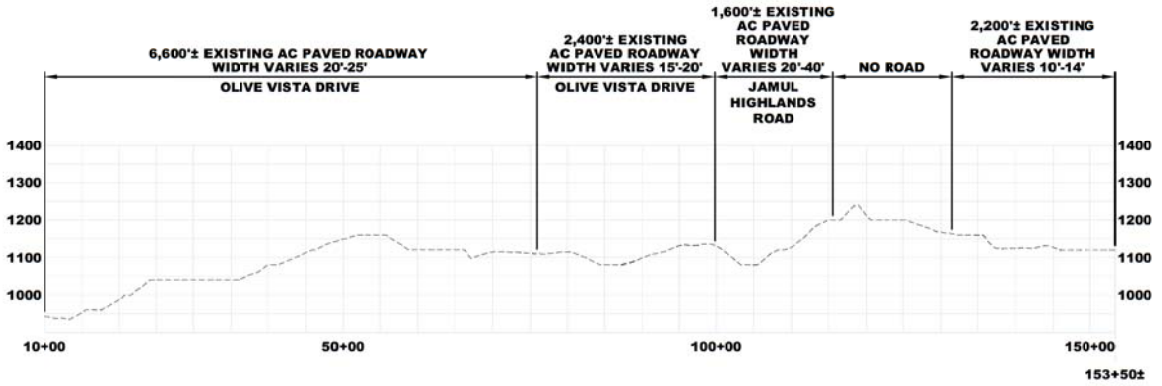
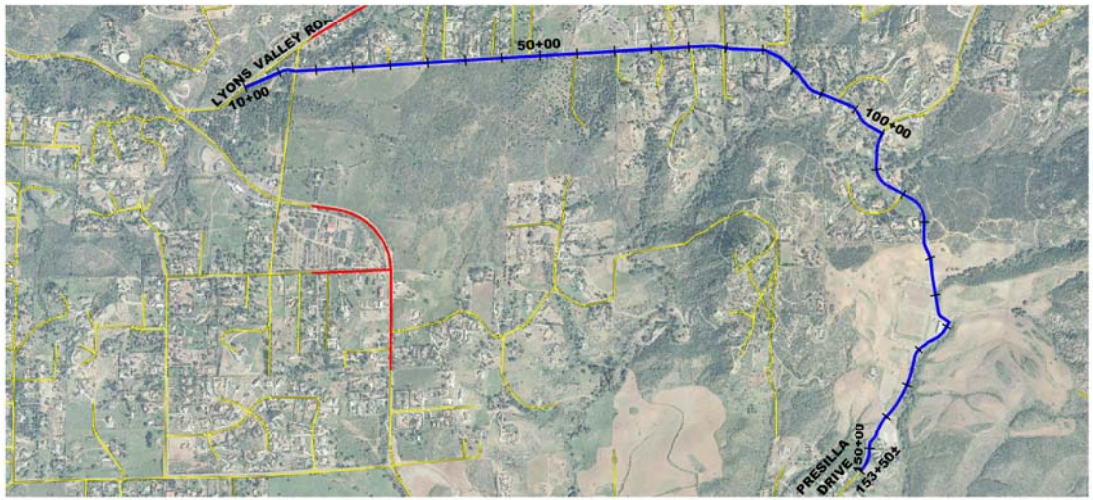
COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2
COMMUNITY EVACUATION ROUTE STUDY

LYONS VALLEY ROAD TO OLIVE VISTA DRIVE

ORIGINAL SCALE IN INCHES



PROFILE:
HORIZONTAL: 1"=500'
VERTICAL: 1"=100'



500 0 500 1000
SCALE: 1"=500'

EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

PLAN:
SCALE: 1"=500'

CORRIDOR
5

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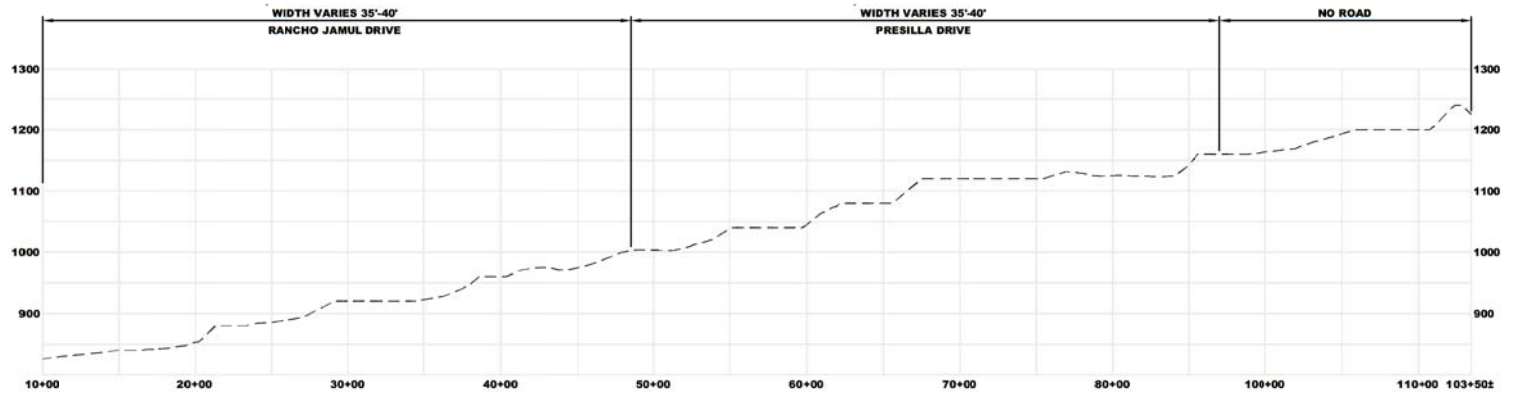
COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2 COMMUNITY EVACUATION ROUTE STUDY

LYONS VALLEY ROAD TO PRESILLA DRIVE

ORIGINAL SCALE IN INCHES



PROFILE:
HORIZONTAL: 1"=200'
VERTICAL: 1"=50'

EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

PLAN:
SCALE: 1"=200'

CORRIDOR
6

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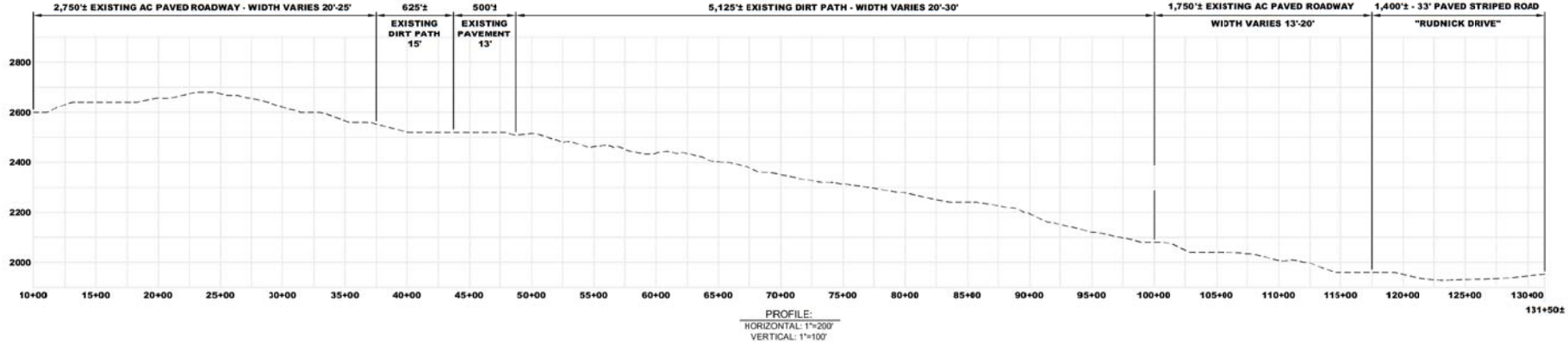
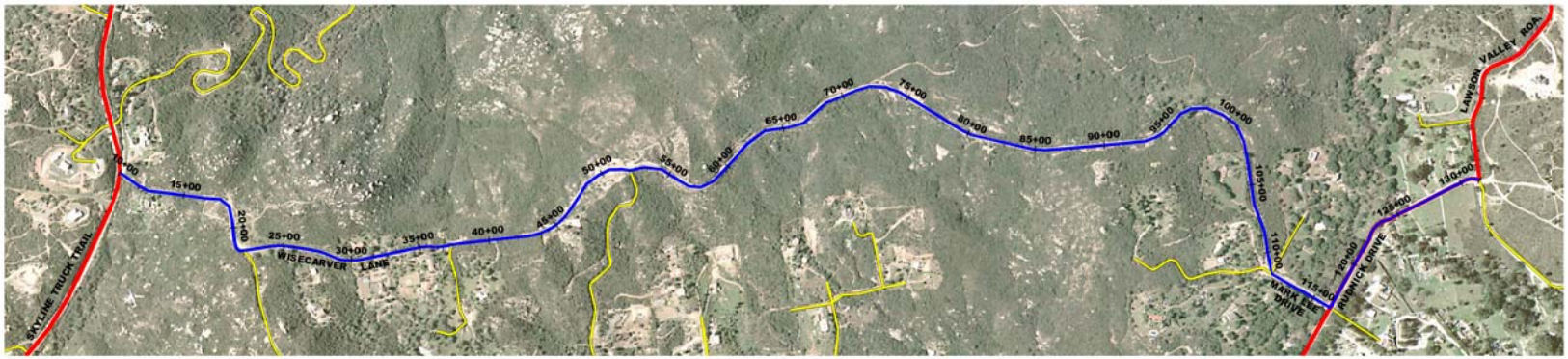
COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2
COMMUNITY EVACUATION ROUTE STUDY

CAMPO ROAD TO JAMUL HIGHLANDS ROAD

ORIGINAL SCALE IN INCHES



PROFILE:
HORIZONTAL: 1"=200'
VERTICAL: 1"=100'



200 0 200 400
SCALE: 1"=200'

PLAN:
SCALE: 1"=200'

EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

CORRIDOR
10

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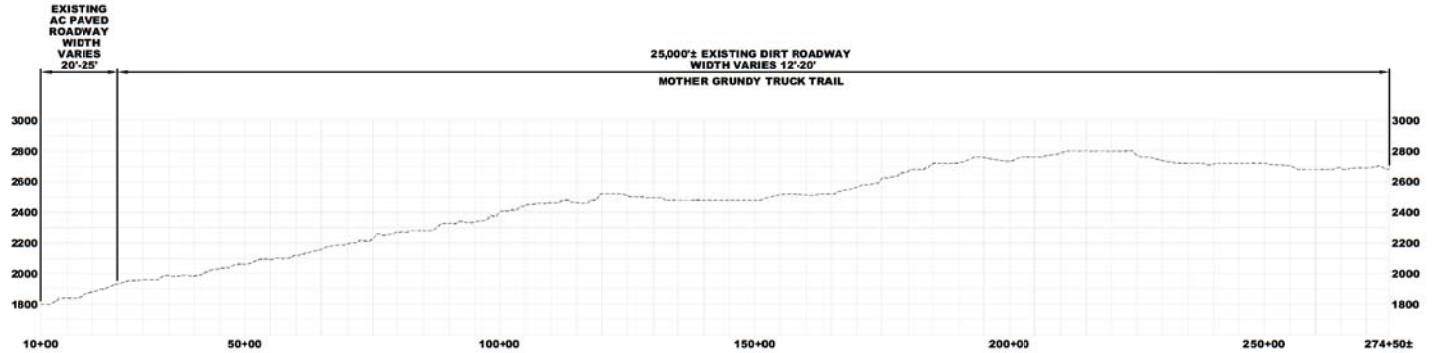
COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2 COMMUNITY EVACUATION ROUTE STUDY

LAWSON VALLEY ROAD TO SKYLINE TRUCK TRAIL

ORIGINAL SCALE IN INCHES



PROFILE:
HORIZONTAL: 1"=600'
VERTICAL: 1"=200'

PLAN:
SCALE: 1"=600'

600 0 600 1200
SCALE: 1"=600'

EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

CORRIDOR
11

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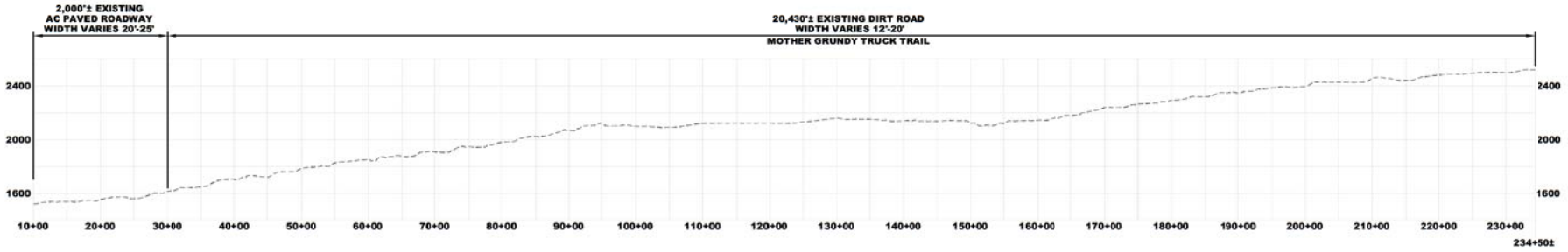
COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2 COMMUNITY EVACUATION ROUTE STUDY

MOTHER GRUNDY TRUCK TRAIL TO SR-94

ORIGINAL SCALE IN INCHES



PROFILE:
HORIZONTAL: 1"=400'
VERTICAL: 1"=200'

EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

PLAN:
SCALE: 1"=400'

CORRIDOR
12

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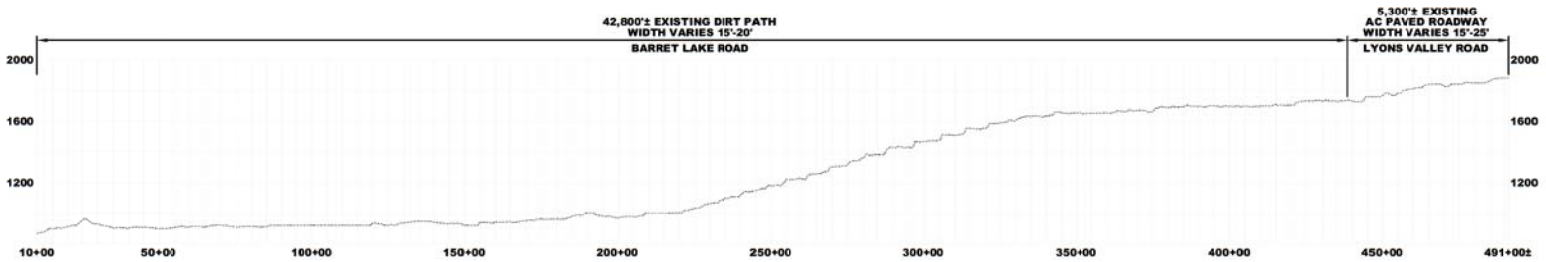
COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2
COMMUNITY EVACUATION ROUTE STUDY

MOTHER GRUNDY TRUCK TRAIL TO SR-94

ORIGINAL SCALE IN INCHES



PROFILE:
HORIZONTAL: 1"=1000'
VERTICAL: 1"=200'

1000 0 1000 2000
SCALE: 1"=1000'

EXISTING MINOR ROAD
EXISTING MAJOR ROAD
PROPOSED RURAL COLLECTOR

PLAN:
SCALE: 1"=1000'

CORRIDOR
16

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COUNTY OF SAN DIEGO - JAMUL / DULZURA TIER 2
COMMUNITY EVACUATION ROUTE STUDY

SR-94 TO LYONS VALLEY ROAD

ORIGINAL SCALE IN INCHES

Appendix C
Evacuation Corridor Construction Cost Estimates

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May 9, 2011

JAMUL-DULZURA COMMUNITY EVACUATION ROUTE STUDY STUDY
PRELIMINARY ENGINEER'S CONSTRUCTION ESTIMATE

CORRIDOR 1	CAMPO RD TO PROCTOR VALLEY ROAD			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$326,746	$326,746
Earthwork (average of 2' cut/fill)	21000	CY	$25	$525,000
Paving & Base (28' wide)	360000	SF	$5	$1,800,000
Striping & Signage	17800	LF	$0.50	$8,900
Environmental Mitigation (placeholder)	1	LS	$583,475	$583,475
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$350,085	$350,085
			SUBTOTAL	$3,594,206
			30% CONTINGENCY	$1,078,262
			ESTIMATED TOTAL	**$4,700,000**

CORRIDOR 2	JAMUL DR TO JAMUL DR			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$178,024	$178,024
Earthwork (average of 2' cut/fill)	12000	CY	$25	$300,000
Paving & Base (28' wide)	193000	SF	$5	$965,000
Striping & Signage	13200	LF	$0.50	$6,600
Environmental Mitigation (placeholder)	1	LS	$317,900	$317,900
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$190,740	$190,740
			SUBTOTAL	$1,958,264
			30% CONTINGENCY	$587,479
			ESTIMATED TOTAL	**$2,500,000**

CORRIDOR 3	LYONS VALLEY RD TO HIDDEN RANGE RD			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$61,166	$61,166
Earthwork (average of 2' cut/fill)	4000	CY	$25	$100,000
Paving & Base (28' wide)	67000	SF	$5	$335,000
Striping & Signage	3800	LF	$0.50	$1,900
Environmental Mitigation (placeholder)	1	LS	$109,225	$109,225
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$65,535	$65,535
			SUBTOTAL	$672,826
			30% CONTINGENCY	$201,848
			ESTIMATED TOTAL	**$900,000**

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JAMUL-DULZURA COMMUNITY EVACUATION ROUTE STUDY STUDY
PRELIMINARY ENGINEER'S CONSTRUCTION ESTIMATE

CORRIDOR 4	LYONS VALLEY RD TO OLIVE VISTA DR			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$37,778	$37,778
Earthwork (average of 2' cut/fill)	1700	CY	$25	$42,500
Paving & Base (28' wide)	21000	SF	$5	$105,000
Striping & Signage	1300	LF	$0.50	$650
Environmental Mitigation (placeholder)	1	LS	$37,038	$37,038
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$192,595	$192,595
			SUBTOTAL	$415,561
			30% CONTINGENCY	$124,668
			ESTIMATED TOTAL	**$500,000**

CORRIDOR 5	LYONS VALLEY RD TO PRESILLA DR			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$176,708	$176,708
Earthwork (average of 2' cut/fill)	14000	CY	$25	$350,000
Paving & Base (28' wide)	181000	SF	$5	$905,000
Striping & Signage	14400	LF	$0.50	$7,200
Environmental Mitigation (placeholder)	1	LS	$315,550	$315,550
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$189,330	$189,330
			SUBTOTAL	$1,943,788
			30% CONTINGENCY	$583,136
			ESTIMATED TOTAL	**$2,500,000**

CORRIDOR 6	CAMPO RD TO JAMUL HIGHLANDS RD			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$45,458	$45,458
Earthwork (average of 2' cut/fill)	3800	CY	$25	$95,000
Paving & Base (28' wide)	45000	SF	$5	$225,000
Striping & Signage	9400	LF	$0.50	$4,700
Environmental Mitigation (placeholder)	1	LS	$81,175	$81,175
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$48,705	$48,705
			SUBTOTAL	$500,038
			30% CONTINGENCY	$150,011
			ESTIMATED TOTAL	**$700,000**

JAMUL-DULZURA COMMUNITY EVACUATION ROUTE STUDY STUDY
PRELIMINARY ENGINEER'S CONSTRUCTION ESTIMATE

CORRIDOR 10	LAWSON VALLEY RD TO SKYLINE TRUCK TR			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$178,304	$178,304
Earthwork (average of 2' cut/fill)	7700	CY	$25	$192,500
Paving & Base (28' wide)	215000	SF	$5	$1,075,000
Striping & Signage	12200	LF	$0.50	$6,100
Environmental Mitigation (placeholder)	1	LS	$318,400	$318,400
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$191,040	$191,040
			SUBTOTAL	$1,961,344
			30% CONTINGENCY	$588,403
			ESTIMATED TOTAL	**$2,500,000**

CORRIDOR 11	MOTHER GRUNDY TRUCK TRAIL TO SR-94			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$607,355	$607,355
Earthwork (average of 2' cut/fill)	31000	CY	$25	$775,000
Paving & Base (28' wide)	710000	SF	$5	$3,550,000
Striping & Signage	26500	LF	$0.50	$13,250
Environmental Mitigation (placeholder)	1	LS	$1,084,563	$1,084,563
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$650,738	$650,738
			SUBTOTAL	$6,680,905
			30% CONTINGENCY	$2,004,272
			ESTIMATED TOTAL	**$8,700,000**

CORRIDOR 12	MOTHER GRUNDY TRUCK TR TO SR-94			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$512,575	$512,575
Earthwork (average of 2' cut/fill)	26000	CY	$25	$650,000
Paving & Base (28' wide)	600000	SF	$5	$3,000,000
Striping & Signage	22500	LF	$0.50	$11,250
Environmental Mitigation (placeholder)	1	LS	$915,313	$915,313
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$549,188	$549,188
			SUBTOTAL	$5,638,325
			30% CONTINGENCY	$1,691,498
			ESTIMATED TOTAL	**$7,300,000**

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JAMUL-DULZURA COMMUNITY EVACUATION ROUTE STUDY STUDY
PRELIMINARY ENGINEER'S CONSTRUCTION ESTIMATE

CORRIDOR 16	SR-94 TO LYONS VALLEY RD			
DESCRIPTION	**QUANTITY**	**UNIT**	**UNIT PRICE**	**TOTAL**
Clearing, Grubbing & Mobilization	1	LS	$1,074,360	$1,074,360
Earthwork (average of 2' cut/fill)	46000	CY	$25	$1,150,000
Paving & Base (28' wide)	1300000	SF	$5	$6,500,000
Striping & Signage	48000	LF	$0.50	$24,000
Environmental Mitigation (placeholder)	1	LS	$1,918,500	$1,918,500
Micellaneous (Utilities, Add'l Cut, Add'l Clearing, etc.)	1	LS	$1,151,100	$1,151,100
			SUBTOTAL	$11,817,960
			30% CONTINGENCY	$3,545,388
			ESTIMATED TOTAL	**$15,400,000**