APPENDIX L:
TRAFFIC IMPACT ASSESSMENT

MetroWalk

Final Report

Prepared for:
City of Santa Clarita
New Urban West Inc.

October 2020

LA-3166

FEHR & PEERS

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Introduction

This report presents the analysis and findings of the Transportation Impact Assessment (TIA) prepared for the proposed MetroWalk development located in the City of Santa Clarita, CA. The analysis contained in this report will form the basis of the transportation chapter for the project Sustainable Communities Environmental Assessment (SCEA).

As shown in **Figure 1**, the project is located on the southeast corner of Lost Canyon and Harriman Drive, immediately southwest (less than 500 feet) of the approved Vista Canyon Transit-Oriented Development and the new multimodal transit center, which includes substantial bus services, a park-and-ride-lot, and a new Metrolink commuter rail station. The project will include a total of 498 dwelling units including: 150 non-age restricted three-story townhomes, 179 non-age restricted apartments, 119 age-qualified apartments, and 50 deed restricted affordable senior apartments. A conceptual project site plan is shown on **Figure 2**.

CEQA Analysis

In response to Senate Bill 743 (SB 743), the Office of Planning and Research (OPR) has updated *California Environmental Quality Act (CEQA) Statutes and Guidelines* (Association of Environmental Professionals, 2019) to include new transportation-related evaluation metrics. For the purposes of CEQA, level of service can no longer be used to determine a project's environmental impact, instead the final proposed Guidelines include a new Section 15064.3 on Vehicle Miles of Travel (VMT) analysis and thresholds for land use developments. The City of Santa Clarita recently adopted *Transportation Analysis Updates in Santa Clarit*a (2020) that follows OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA* (2018), which was applied to this TIA.

According to current CEQA guidelines, a transportation impact from a project is considered a significant if the associated change to the transportation system with the project will:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit roadway, bicycle, and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.

Traffic Operations Analysis

The traffic operations analysis is not related to CEQA. The operational analysis is intended to assess the potential impacts the project may have on the surrounding roadway network. The addition of project traffic may adversely impact the operations of an intersection within the study area.

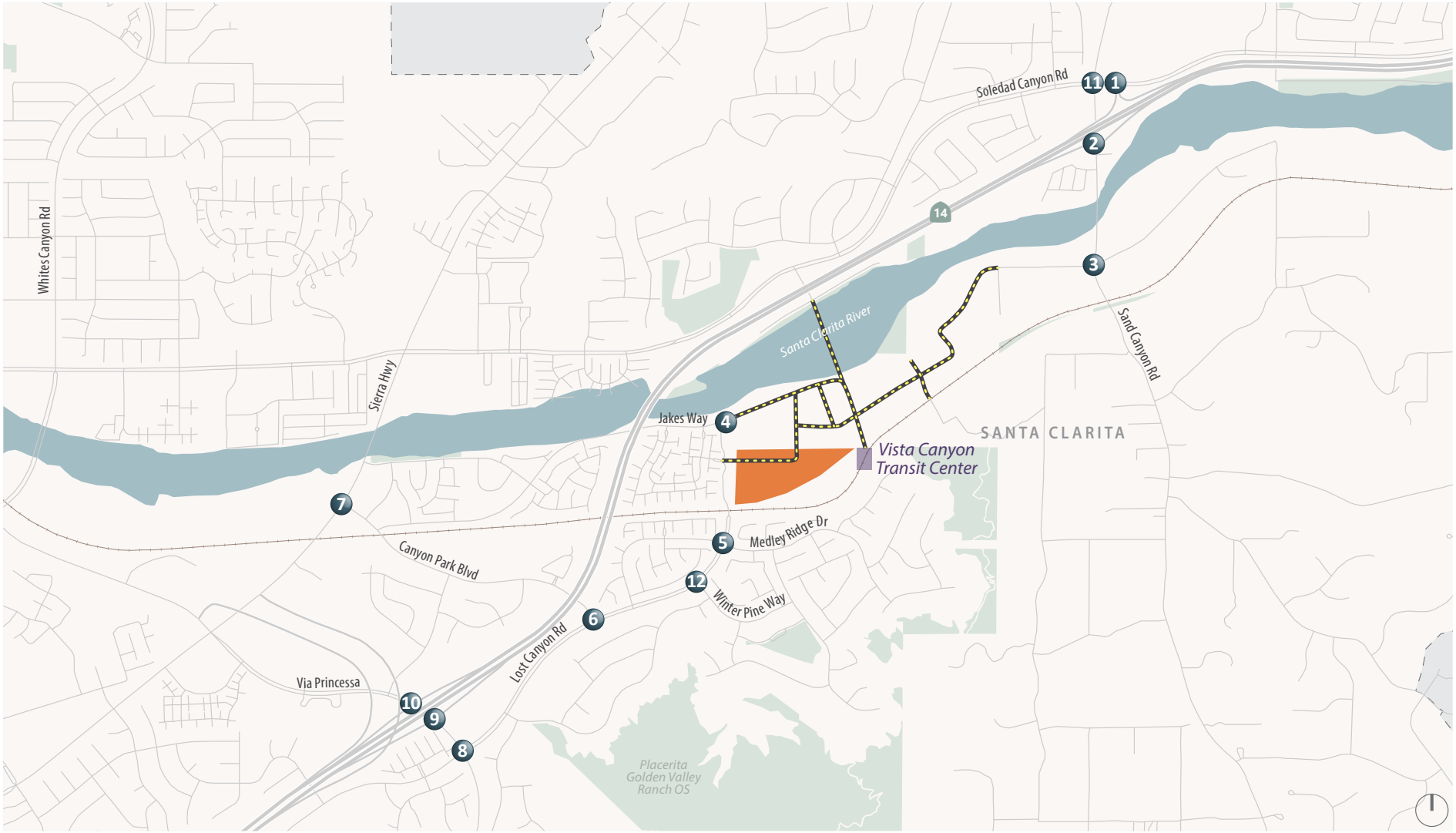


Figure 1

Project Site Vicinity and Study Intersection Locations

LA-3166_1_StudyArea

Site Plan Source: Withee Malcolm Architects, 3/16/20

Figure 2

Conceptual Project Site Plan

Existing Conditions

This chapter describes the existing transportation conditions in the study area, including the roadway network and the transit, pedestrian, and bicycle facilities in the vicinity of the project site.

Roadway System

Regional access to the study area is provided from SR-14. Local access to the site is provided from Lost Canyon Road, Sand Canyon Road, Soledad Canyon Road, and Via Princessa.

State Route 14 (SR-14) is a major north-south freeway that traverses Southern California. It originates south of Santa Clarita, branching from I-5 and continues north to eastern Kern County, where it terminates at State Route 395. The freeway has three general purpose lanes and one high occupancy (HOV) lane in each direction within the study area.

Lost Canyon Road is a north-south roadway that extends from Golden Valley Road and terminates at Oak Springs Canyon Road. It is classified as secondary highway between Jakes Way and Sand Canyon Road, as a major highway between Jakes Way and Via Princessa, and as a limited secondary highway between Sand Canyon Road and Oak Springs Canyon in the City's General Plan. Within the study area, the number of lanes along Lost Canyon Road varies between two and four lanes.

Soledad Canyon Road is an east-west roadway that originates at east of Bouquet Canyon Road and terminates in unincorporated Acton near the SR-14 freeway, where it provides a connection between I-5 and SR-14. It is classified as a major highway in the City's General Plan. Within the study area, the number of lanes along Soledad Canyon Road varies between four and six lanes.

Via Princessa is an east-west roadway that originates east of Sheldon Avenue and terminates north of Oak Crest Drive. It is classified as a major highway between Wiley Canyon Road and Lost Canyon Road, a secondary highway between Lost Canyon Road and Golden Valley Road. Within the study area, Via Princessa is a six-lane facility.

Sierra Highway is a north-south roadway that extends from the I-5 and terminates at SR-14 in unincorporated Acton. This roadway runs parallel to SR-14 and is classified as a major highway in the City's General Plan. Within the study area, the number of lanes along Lost Canyon Road varies between four and six lanes.

Canyon Park Boulevard is an east-west roadway that extends from Jakes Way to and terminates at Lost Canyon Road. It is classified as a secondary highway in the City's General Plan. Within the study area, Canyon Park Boulevard is a four-lane facility.

Jakes Way is an east-west roadway that originates east of Sierra Highway and terminates at Lost Canyon Road. It is classified as a limited secondary highway in the City's General Plan. Within the study area, Canyon Park Boulevard is a two-lane facility.

Transit Service

The following transit services are provided in the City of Santa Clarita:

Metrolink

Commuter train service in the City of Santa Clarita is provided by Metrolink, which operates six commuter rail lines throughout Southern California. There are three Metrolink stations located within the City, the Santa Clarita Metrolink station; New Hall Metrolink station; and the Via Princessa Metrolink station. This same rail line is occasionally used by freight trains when the Union Pacific Railroad line is closed or restricted for limited periods. The Antelope Valley Line that run through the City connects residents and provides access to the City of Lancaster to the north and connects to L.A Union Station in downtown Los Angeles.

Once the planned Vista Canyon Multi-modal Center is completed, a new Metrolink station will replace the existing Via Princessa Metrolink Station. The new Metrolink station will be located immediately northeast (less than 500 feet) of the project.

Bus Transit

City of Santa Clarita Transit provides local transit service throughout Santa Clarita area, including Canyon Country, Castaic, and Val Verde. Bus transit services are available in the city through local fixed-route services and commuter express routes. Bus routes that run through the city connect also provide a connection to the Los Angeles and San Fernando Valley areas. The routes serve major destinations in the region, including Six Flags Magic Mountain, Canyon Country Community Center, the New Hall Metrolink Station, the Santa Clarita Metrolink Station, Via Princessa Metrolink Station; the Westfield Valencia Town Center; and McBean Regional Transit Center. Within Santa Clarita, bus routes run on major roadways, including Soledad Canyon Road, New Hall Ranch Road, Railroad Avenue, Via Princessa, Bouquet Canyon Road, White Canyon Road, Mc Bean Parkway, Sierra Highway, SR-14, and SR-126. A map of routes that operate in this area may be seen in **Figure 3.**

The planned Vista Canyon Multi-modal Center will include bus services including a seven-bay Bus Transfer Station, and a park-and-ride lot. All routes serving the east side of the Santa Clarita Valley will be assessed for potential service to the new transit center (*City of Santa Clarita Transit Development Plan*, 2019).

Route 5/6 (Vasquez Canyon/Shadow Pines): These routes mainly serve the same area the Santa Clarita area via Soledad Canyon Road, Sierra Highway, and McBean Parkway. Route 6 continues onto Mammoth Lane in the Shadow Pines area, while Route 6 continues to Vasquez Canyon Road. Routes 5/6 provide access the New Hall, Santa Clarita, and Via Princessa Metrolink Stations; City Hall; and the College of Canyon Country Campus. These lines run from approximately 4:10 AM to 11:10 PM on weekdays with headways

varying between 14 and 60 minutes. During the weekends, the routes run from approximately 6:40 AM to 10:30 PM with headways varying between 30 and 60 minutes.

Route 12 (White Canyon): This route serves the Santa Clarita area via Bouquet Canyon Road, Sierra Highway, and Whites Canyon Road. Route 12 provides access to the McBean Regional Transit Center; the New Hall and Via Princessa Metrolink Stations; Canyon Country Library; and the Canyon Country Community Center. This line runs from approximately 4:15 AM to 10:40 PM on weekdays with headways varying between 14 and 60 minutes. During the weekends, the routes run from approximately 6:40 AM to 10:30 PM with headways varying between 20 and 30 minutes.

Route 101 (Santa Monica Pier/Canyon Country): During the Summer months, Santa Clarita Transit implements a commuter route that provides residents access between the Santa Clarita Area and the Santa Monica Pier. The route runs along Soledad Canyon Road, Via Princessa, and SR-14, with stops at the McBean Regional Transit Center; the New Hall and Via Princessa Metrolink Stations; and the Canyon Country Park. This line runs only on weekends departing at approximately 8:40 AM and returning to area around 4:30 PM.

Bicycle Facilities

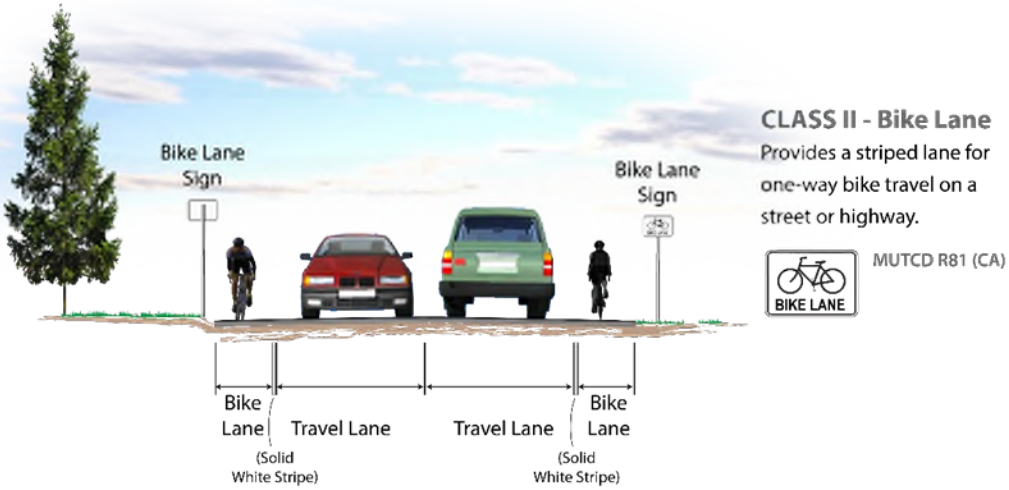
Bicycle facilities in the City of Santa Clarita are classified as follows:

Class I Bikeways (Bike Paths)

Class I bicycle facilities are bicycle trails or paths that are off-street and separated from automobiles. They are a minimum of eight feet in width for two-way travel and include bike lane signage and designated street crossings where needed. A Class I Bike Path may parallel a roadway (within the parkway) or may be a separate right-of-way that meanders through a neighborhood or along a flood control channel or utility right-of-way.

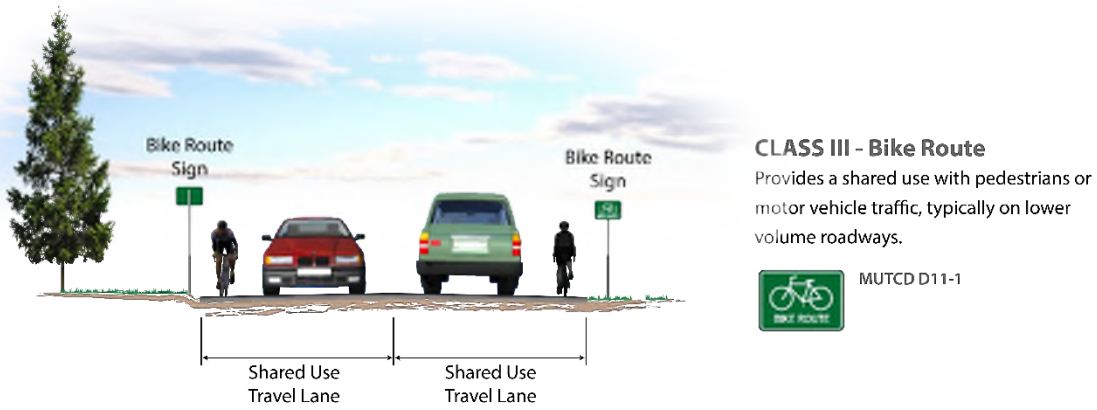
Class II Bikeways (Bike Lanes)

Class II bicycle facilities are striped lanes that provide bike travel and can be either located next to a curb or parking lane. If located next to a curb, a minimum width of five feet is recommended. However, a bike lane adjacent to a parking lane can be four feet in width. Bike lanes are exclusively for the use of bicycles and include bike lane signage, special lane lines, and pavement markings.



Class III Bikeways (Bike Routes)

Class III Bikeways are streets providing for shared use by motor vehicles and bicyclists. While bicyclists have no exclusive use or priority, signage both by the side of the street and stenciled on the roadway surface alerts motorists to bicyclists sharing the roadway space and denotes that the street is an official bike route.



Class I Bike Paths

There is an existing Class 1 Bike Paths that runs along the Santa Clarita River west of Deep Creek Drive within the study area. The following Class I Bike Paths are proposed within the study area:

- Santa Clarita River east of Deep Creek Drive
- Sierra Highway
- Sand Canyon Road
- Oak Spring Canyon

Class II Bike Lanes

There are currently two existing roadways (Soledad Canyon Road and Jason Drive) within the study area that have Class II Bike Lanes. The following Class II Bike Lanes are proposed within the study area:

- Whites Canyon
- Canyon Park Boulevard
- Lost Canyon Road
- Sierra Highway
- Via Princessa
- Jakes Way

Class III Bike Routes

There are no existing Class III Bike Routes within the study area. The City proposes development of a Class III Bike Route along Sand Canyon Road.

The current bicycle network, including planned facilities in the area, may be seen in **Figure 4.**

Pedestrian Facilities

The City of Santa Clarita provides pedestrian facilities as a means to reduce auto travel and promote healthy exercise. The City's commitment to improving pedestrian facilities is outlined in the City's *Non-Motorized Transportation Plan* (2014).

Santa Clarita's existing pedestrian network is comprised of sidewalks, paseos, and multi-use trails. Throughout the study area, sidewalks are generally provided on at least one side of the street along most of the major roadways. However, there are also several sidewalk gaps along these roadways:

- Soledad Canyon Road east of SR-14 Southbound Ramps on the south side of the roadway.
- Sand Canyon Road north of Soledad Canyon Road on the east side of the roadway and south of SR-14 Northbound Ramps on both sides of the roadway.
- Lost Canyon Road west of Sand Canyon Road on the north side of the roadway.
- Canyon Park Boulevard between Flynn Drive and Jason Drive on the north side of the roadway.
- Sierra Highway between Jakes Way and the Santa Clarita River on the west side of the roadway.
- Via Princessa between SR-14 Southbound Ramps and Jason Drive on the south side of the roadway.

The closest trail to the project site is the Santa Clara River trail, located approximately 0.5 miles from the project site.

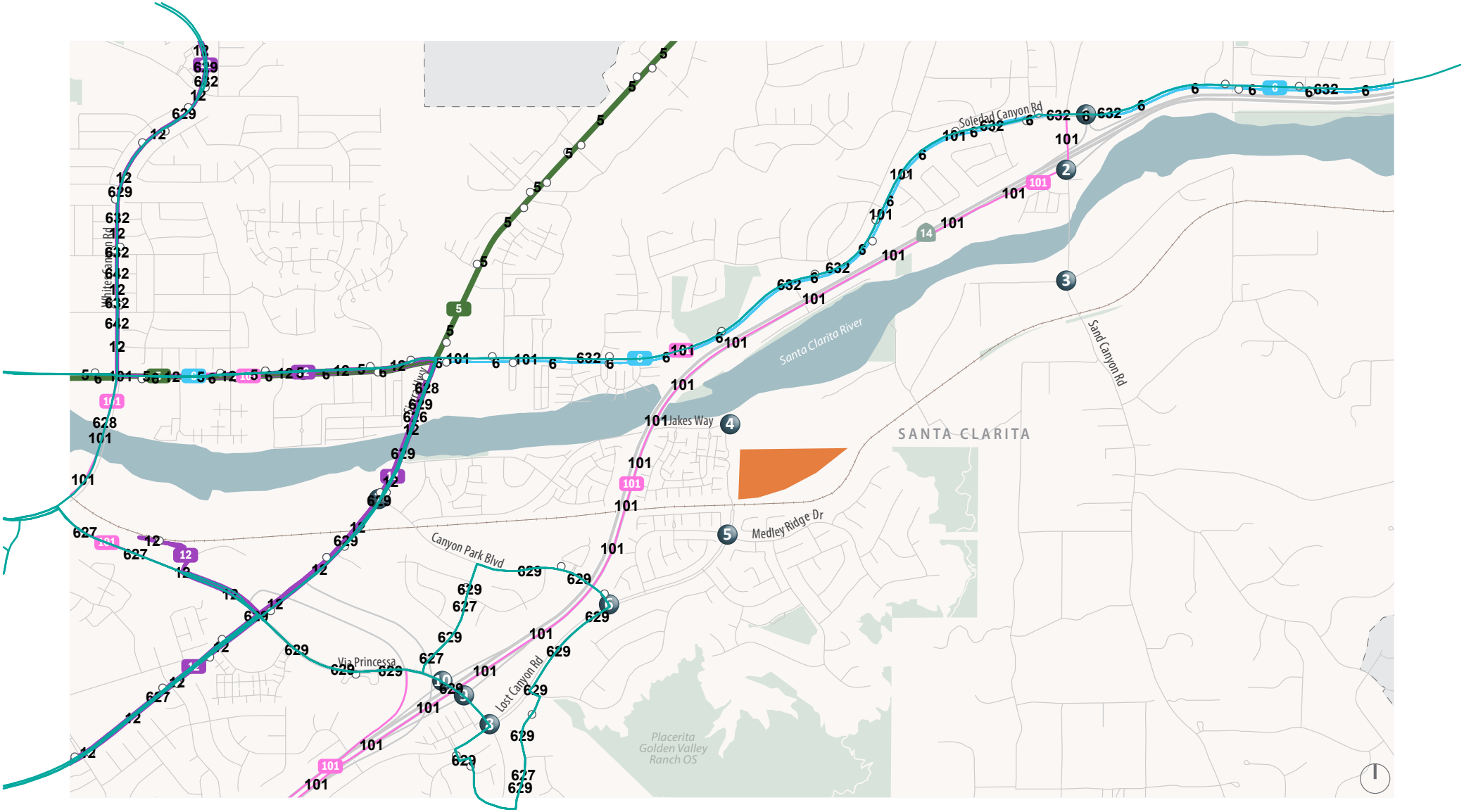


Figure 3

Local and Regional Transit Service

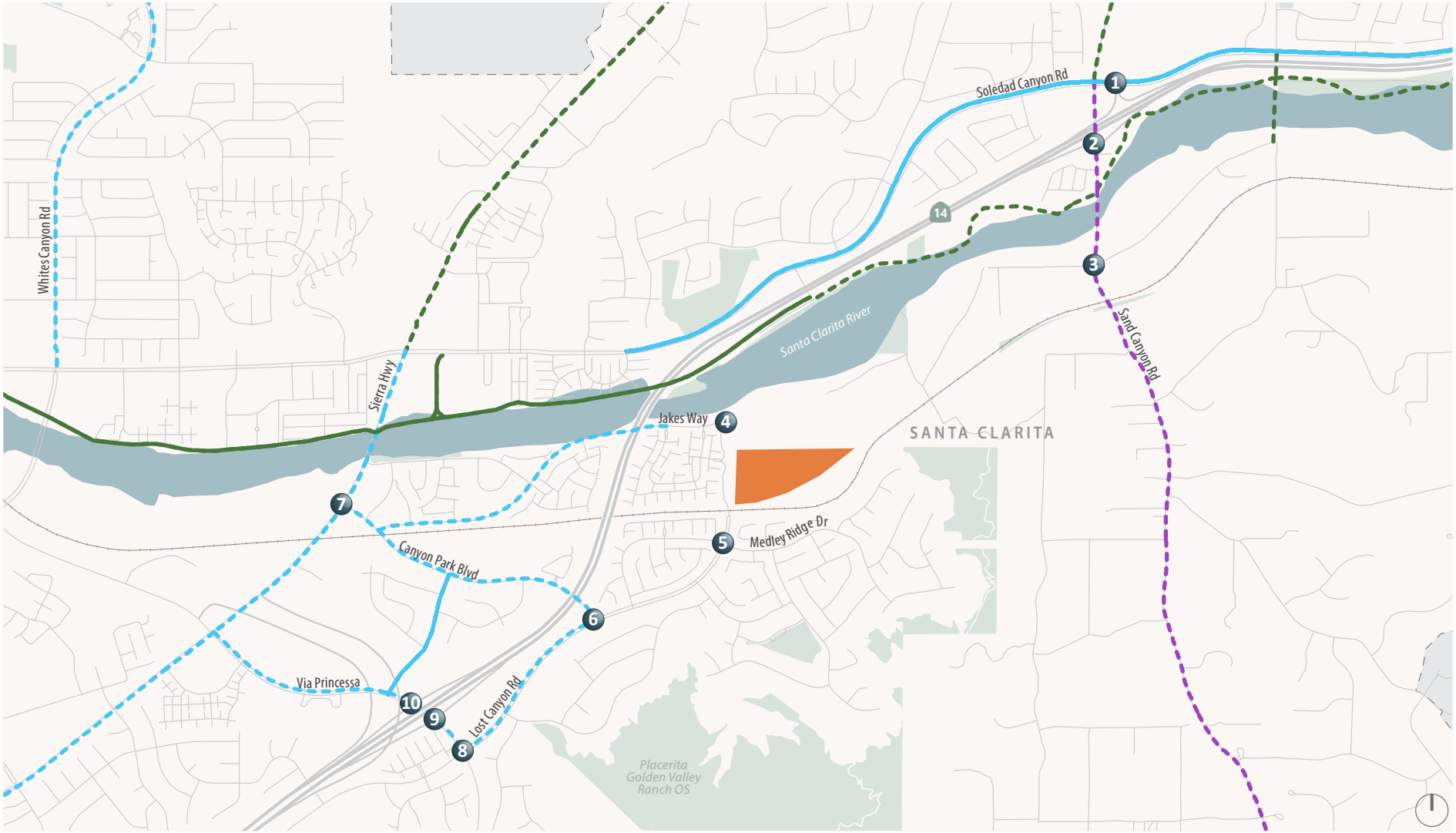


Figure 4

Bicycle Facilities

Project Characteristics

This section provides an overview of the proposed project components and addresses the proposed project trip generation, trip distribution, and trip assignment characteristics. These items allow for an evaluation of project impacts on the surrounding roadway network. The amount of project-related traffic volume estimated to be added to the transportation system after completion of the project was estimated using a three-step process:

1. **Trip Generation** – The *amount* of vehicle traffic entering/exiting the site was estimated.
1. **Trip Distribution** – The *direction* trips will use to approach and depart the area was projected.
2. **Trip Assignment** – Trips were then *assigned* to specific roadway segments and intersection turning movements based on likely paths of travel.

Project Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project will add to the surrounding roadway system. For this project, estimates of weekday morning and evening peak hour trip generation were developed to coincide with the time-periods when adjacent street traffic demands are greatest and when the project generates the most traffic.

Conservatively, trip generation was estimated using a slightly larger dwelling unit count of 503 dwelling units in lieu of the project's proposed 498 dwelling units: the prior project description included five more age-qualified apartments than the proposed project. The project previously proposed 503 dwelling units including: 150 non-age restricted three-story townhomes, 179 non-age restricted apartments, 124 age-qualified apartments, and 50 deed restricted affordable senior apartments. The current project proposes a total of 498 dwelling units including: 150 non-age restricted three-story townhomes, 179 non-age restricted apartments, 119 age-qualified apartments, and 50 deed restricted affordable senior apartments. Using a higher trip generation creates a more conservative analysis. The trip generation was estimated using the *Trip Generation Manual*, *10th Edition* (Institute of Transportation Engineers (ITE), 2017) as presented in **Table 1**. A trip generation comparison between the current and prior project descriptions is provided in **Appendix A**.

Using the *Trip Generation Manual* by itself can overestimate the trip generation of transit-oriented development, like the proposed project. The *Trip Generation Manual* contains data primarily collected at suburban, single-use, freestanding sites, which limits the applicability of the data to mixed-use developments and transit-oriented development, located in a denser, more-walkable urban setting with a mix of land uses and nearby local and regional transit service.

Table 1: Trip Generation

Land-Use	Size	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise)[1]	150 Dwelling Units	1,100	16	54	70	54	31	85
Multifamily Housing (Mid-Rise)[2]	179 Dwelling Units	980	16	45	61	47	30	77
Senior Adult Housing – Attached[3]	174 Dwelling Units	680	12	23	35	24	20	44
Subtotal:	**503 Dwelling Units**	**2,760**	**44**	**122**	**166**	**125**	**81**	**206**
Transit Mode Share[4]		(-220)	(-4)	(-10)	(-14)	(-10)	(-6)	(-16)
Total Net New Trips:		**2,540**	**40**	**112**	**152**	**115**	**75**	**190**

Notes:
1. Based on trip generation rates for land use 220, Multifamily Housing (Low-Rise).
2. Based on trip generation rates for land use 221, Multifamily Housing (Mid-Rise).
3. Based on trip generation rates for land use 252, Senior Adult Housing – Attached.
4. Transit mode shares estimated based on the proposed project's proximity to the multimodal transit center (less than 500 feet away). Transit mode shares are derived from the adjacent Vista Canyon Transit Oriented Development and MXD+. Daily: 8.00%; AM: 8.58%; PM:7.79%.

Source: *Trip Generation Manual, 10th Edition* (Institute of Transportation Engineers, 2017); Fehr & Peers, 2020.

Two significant new research studies provide the opportunity to improve the state of practice. One study sponsored by the U.S. Environmental Protection Agency (EPA)[1] and another by the Transportation Research Board[2] have developed means to improve trip generation estimation for mixed-use developments (MXD), transit-oriented development, and those located in urban areas. The two studies examined over 260 MXD sites throughout the U.S. and, using different approaches, developed new quantification methods. Fehr & Peers has reviewed the two methods, including the basis, capabilities, and appropriate uses of each, to produce a new method (MXD+) that combines the strengths of the two individual methods. MXD+ recognizes that traffic generation by mixed-use and other forms of sustainable development relates closely to the density, diversity, design, destination accessibility, transit proximity, and scale of development. MXD+ improves the accuracy of vehicle trip estimation and gives planners a tool to balance land use mix and to incorporate urban design, context compatibility, and transit orientation to create lower impact development.

The MXD+ methodology starts with ITE trip generation estimates but then adjusts those estimates to account for the mixed-use and environment characteristics. Use of the MXD+ methodology requires more input data than a traditional trip generation application. Data detailing the geographic layout of the site, land use in the surrounding area, including retail and employment opportunities, and socioeconomic data of both the site and the surrounding area were collected to inform the MXD+ methodology.

[1] *Traffic Generated by Mixed-Use Developments—A Six-Region Study Using Consistent Built Environmental Measures* (Ewing et al, ASCE UP0146, Sept 2011).

[2] National Cooperative Highway Research Program (NCHRP) Report 684 *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments* (Bochner et al, March 2011).

The MXD+ model has been approved for use by the EPA[3]. It has also been peer-reviewed in the American Society of Civil Engineers' (ASCE) Journal of Urban Planning and Development,[4] peer-reviewed in a 2012 Transportation Research Board (TRB) paper evaluating various smart growth trip generation methodologies,[5] recommended by San Diego Association of Governments (SANDAG) for use on mixed-use smart growth developments,[6] and has been used successfully in multiple certified Environmental Impact Reports in California.

The number of transit trips generated by the proposed project was estimated and subtracted from the initial trip generation estimate. Transit mode shares for the proposed project were derived from the adjacent Vista Canyon Transit Oriented developed (originally derived from MXD+) to estimate the reduction in net new automobile trips.

Project Trip Distribution & Assignment

Project trip distribution refers to the directions of approach and departure that vehicles will take to access and leave the site. Estimates of project trip distribution were developed using the buildout year (2040) Santa Clarita Valley Consolidated Traffic Model (SCVCTM). The buildout year of the SCVCTM includes the extension of Lost Canyon Road, Vista Canyon, and additional improvements consistent with proposed capital improvement projects listed in the *City of Santa Clarita General Plan* (SCGP, 2011) and the *Eastside Bridge and Major Thoroughfare Construction Fee District Update Report* (EBMT, 2002); all improvements would be funded and constructed pursuant to the Eastside Bridge and Major Thoroughfare Construction Fee District Update Report and the City's requirements. The resulting trip distribution percentages for project trips are shown on **Figure 5**.

Prior to the Cumulative Year, the Vista Canyon development will construct a new roadway over the Santa Clarita River that provides direct access to Soledad Canyon Road. Trips traveling west on Soledad Canyon Road to the 30% distribution bubble shown on Figure 5 will use this route. Additionally, some trips traveling east on Soledad Canyon Road will also use this route (see eastbound approach and departure trips at Intersection 11).

Project trip assignment refers to the specific route and roadway segments vehicles will take to access and leave the site. Using the trip distribution percentages on Figure 5, project trips were then assigned to the roadway network as presented on **Figure 6**.

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[3] Trip Generation Tool for Mixed-Use Developments (2012). www.epa.gov/dced/mxd_tripgeneration.html [May 29, 2020]

[4] "Traffic Generated by Mixed-Use Developments—Six-Region Study Using Consistent Built Environmental Measures." Journal of Urban Planning and Development, 137(3), 248–261.

[5] Shafizadeh, Kevan, Richard Lee et al. "Evaluation of the Operation and Accuracy of Available Smart Growth Trip Generation Methodologies for Use in California". Presented at 91st Annual Meeting of the Transportation Research Board, Washington, D.C., 2012.

[6] SANDAG Smart Growth Trip Generation and Parking Study. http://www.sandag.org/index.asp?projectid=378&fuseaction=projects.detail [May 29, 2020]

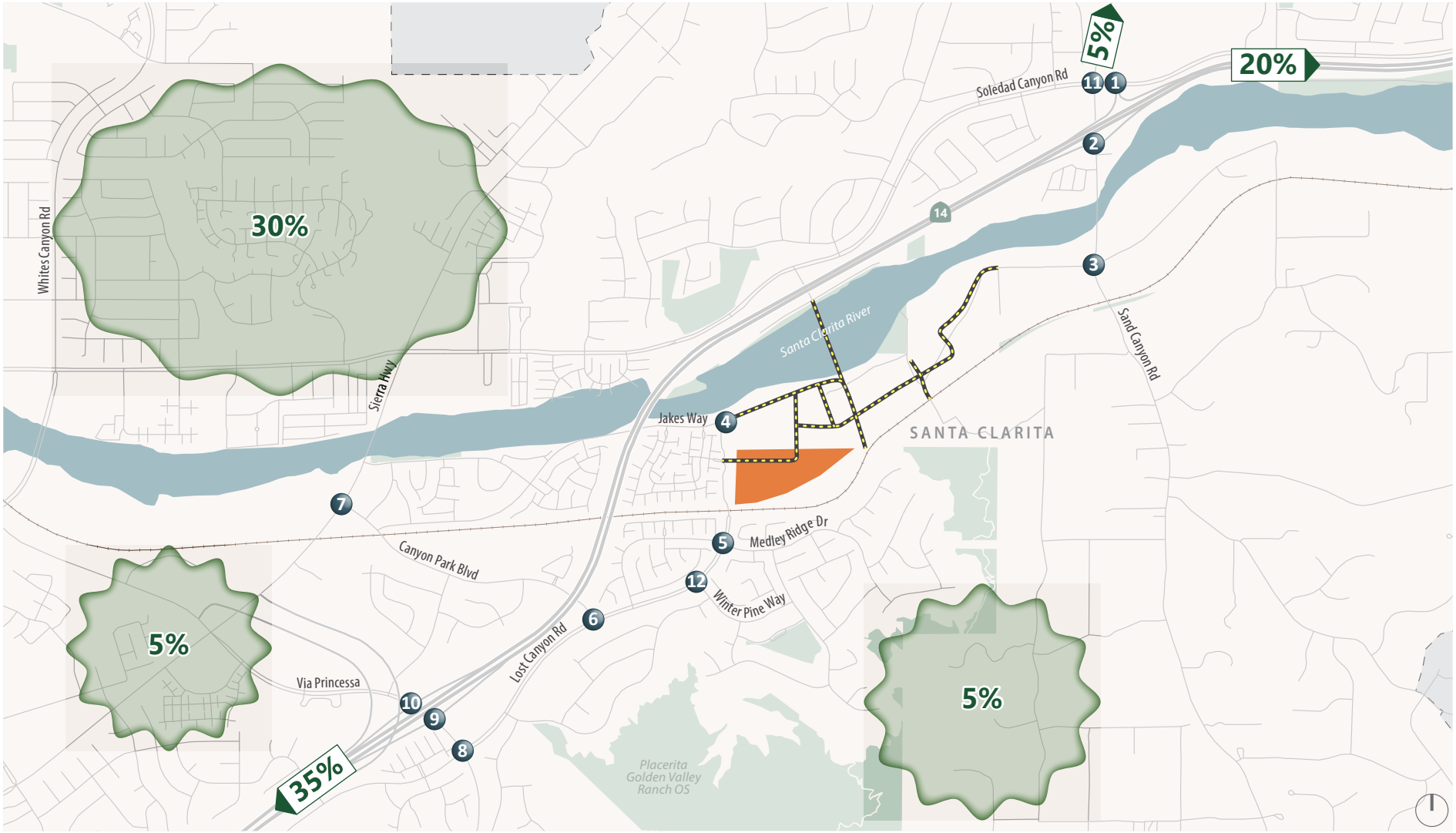
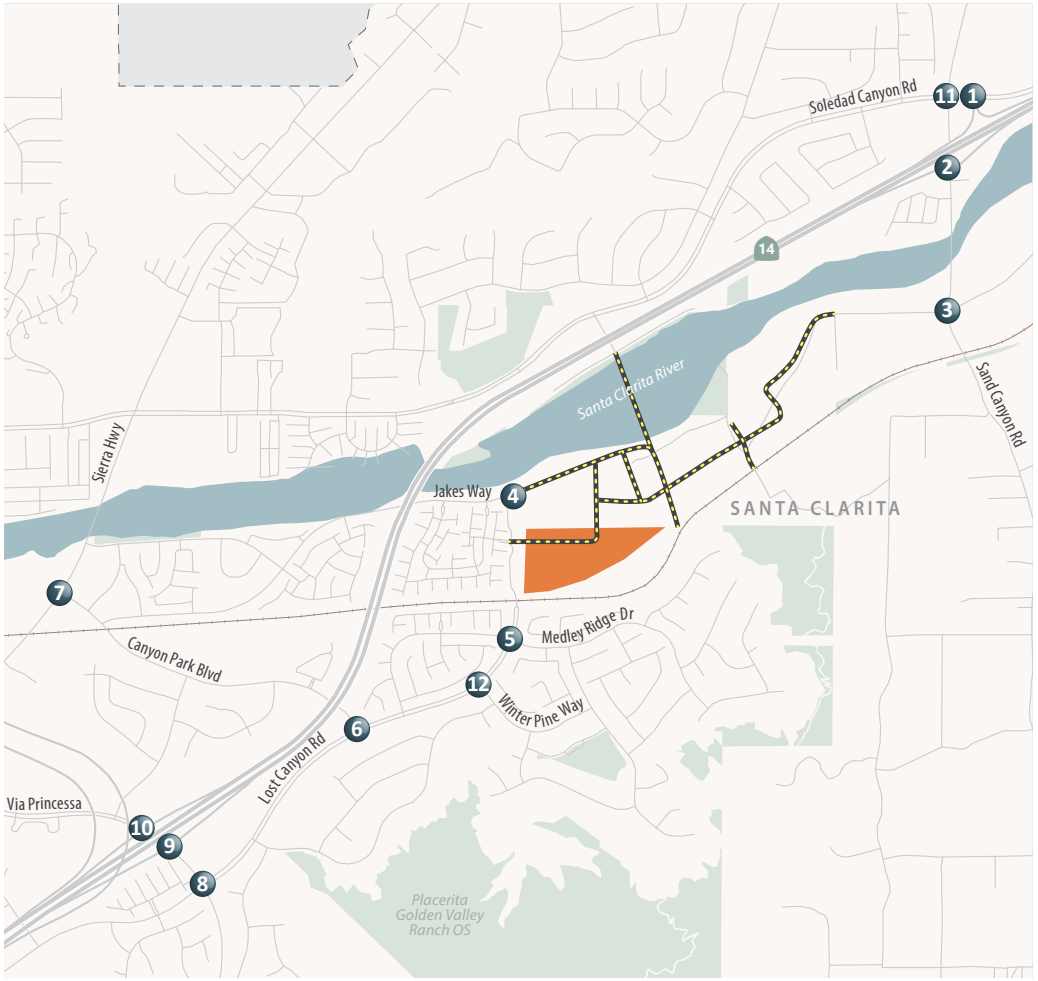


Figure 5

Project Trip Distribution



XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Stop Sign

Three-legged Roundabout

Four-legged Roundabout

Project Site

Study Intersection

Future Roadways

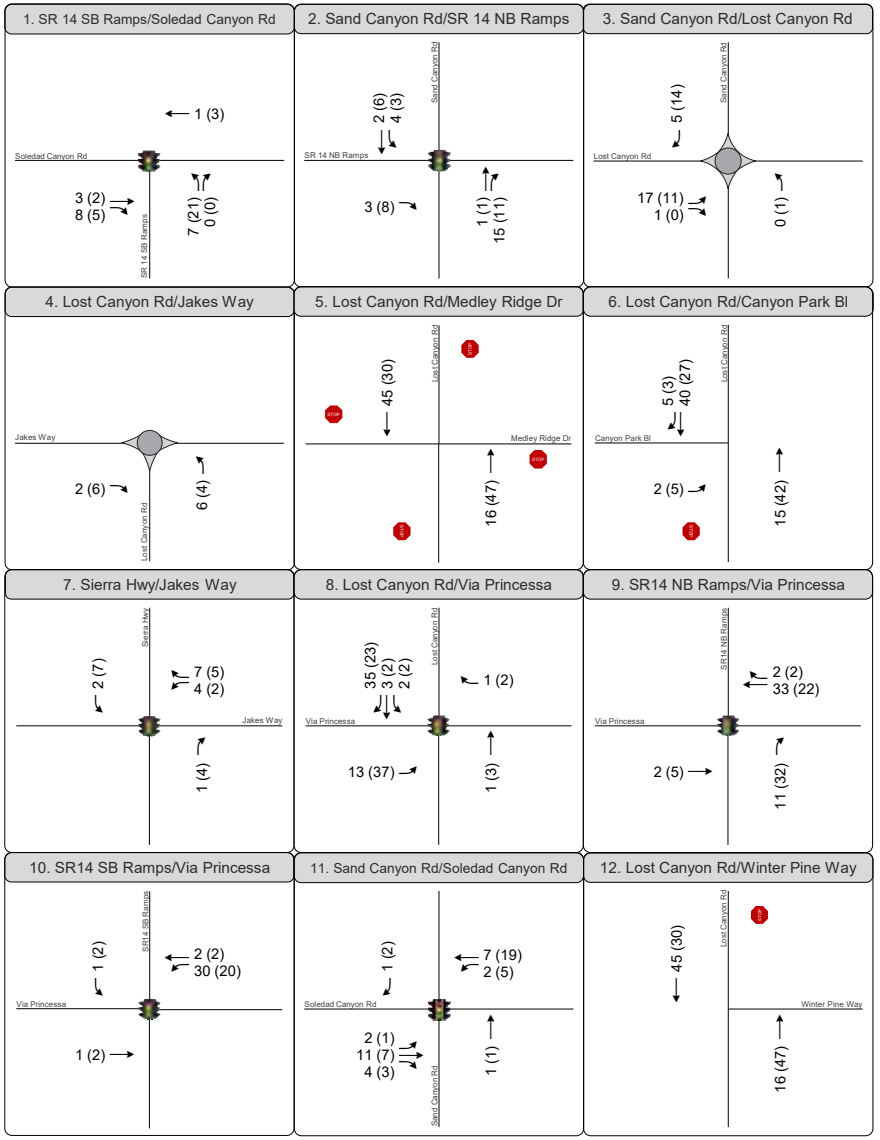


Figure 6

Project Trip Assignment (Cumulative Year)

CEQA Analysis

The project will have a significant impact on the environment if it conflicts with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit, specifically:

1. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit roadway, bicycle, and pedestrian facilities (with exception to automobile level of service).
2. Cause substantial additional vehicle miles traveled (VMT) per capita, per service population, or other appropriate efficiency measure.[7]
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
4. Result in inadequate emergency access.

The subsequent analysis reviews the project's impact on the environment as it relates to the checklist items above listed on the *2019 CEQA Statute & Guidelines*.

Regulatory Setting

This section includes programs, plans, ordinances, and policies addressing the circulation system, including transit roadway, bicycle, and pedestrian facilities.

Transportation Analysis Updates in Santa Clarita

The City adopted *Transportation Analysis Updates in Santa Clarita* in May 2020 that follows OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA* (2018). The updates outline the VMT analysis methodology and screening criteria by which land-development projects can apply when evaluating transportation impacts. An impact is considered significant if the project causes substantial additional VMT.

General Plan

The *City of Santa Clarita General Plan* (June 2011) is a comprehensive plan for the growth and development of the City. The General Plan includes policies related to land use, economic development, circulation, noise, conservation and open space, safety, and housing. According to the language in the General Plan:

> "The California Environmental Quality Act (CEQA) requires that an initial environmental study be prepared for new development projects, to include 'an examination of whether the project is

[7] For residential projects, a project will cause substantial additional VMT if it exceeds existing regional household VMT per capita minus 15 percent under OPR guidance.

compatible with existing zoning and plan.' The CEQA Guidelines further state that a 'project will normally have a significant effect on the environment if it will conflict with adopted environmental plans and goals of the community where it is located.' If the Planning Commission or the City Council determines that a proposed development project is inconsistent with the General Plan, the project may not be approved without an amendment to the General Plan. Through the CEQA process, the City will ensure conformity between development approvals and the General Plan."

An impact is considered significant if the project conflicts with an adopted policy within the Circulation Element of the General Plan.

Non-Motorized Transportation Plan

The *Santa Clarita Non-Motorized Transportation Plan* (August 2014) guides the future development of bicycle and pedestrian facilities, paseos, and trails within the City. This Plan focuses on the city's bicycle and pedestrian network, planning and policies related to bicycling and walking, nonmotorized connections to transit, safe routes to schools, and complete streets.

A non-motorized impact is considered significant if the project disrupts or interferes with existing and planned pedestrian/bicycle facilities or conflicts with adopted pedestrian/bicycle system plans, guidelines, policies, or standards.

Transit Development Plan

The *City of Santa Clarita Transit Development Plan* (2019) addresses the transportation needs of the growing Santa Clarita Valley community, both now and across the next 10 years. To develop an effective plan, the City engaged in a variety of community activities including surveys and public meetings. Resident input from the four incorporated and three unincorporated areas of the Santa Clarita Valley was also solicited to ensure the Plan is representative of the greater community's needs.

A transit impact is considered significant if it will result in development that is inaccessible to transit riders or will generate transit demand that cannot be met by existing or planned transit in the area.

Site Plan Assessment

Site access and internal circulation for vehicles, pedestrians, bicycles, and emergency vehicles was evaluated based on the site plan presented on Figure 2. Conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit roadway, bicycle, and pedestrian facilities (with exception to automobile level of service) will be noted as significant impacts under CEQA.

Vehicular Access and Circulation

Vehicular access to the project site will be provided by two unsignalized driveways along Harriman Drive. The eastern driveway located at the intersection of Harriman Drive & Cooper Street can also be accessed via Cooper Street. Vehicles can circulate within the project site between the two driveways.

On-site vehicle circulation is provided by a network of internal roadways, many of which provide on-street parking. Two of the internal intersections are roundabouts; the final design for these intersections should be reviewed by the City to ensure accommodation of garbage, delivery and moving trucks, and firetrucks. Substantially increasing hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) will be noted as significant impacts under CEQA.

Transit Access

The project site will be located directly adjacent to the new Vista Canyon Multimodal Transit Center. The Metrolink station, slated for completion in 2023, will be constructed immediately east (less than 500 feet) of the Project with a connecting walking trail to the transit hub.

The new Metrolink station will also act as a bus-transfer station. Recommendations in the City of Santa Clarita's *Transit Development Plan* includes operational improvements to:

- Provide limited-stop bus service on Soledad Canyon Road connecting the McBean Regional Transit Center to the Vista Canyon Transit Center (Page 521).
- Link the College of the Canyon's campus with the future Vista Canyon Transit Center (Page 529).

Bus and rail transit will both be located immediately east of the project site once completed. Additionally, the proposed project would not impede a planned or operating transit facility, therefore the project impact to transit is ***less-than-significant***.

Pedestrian and Bicycle Access and Circulation

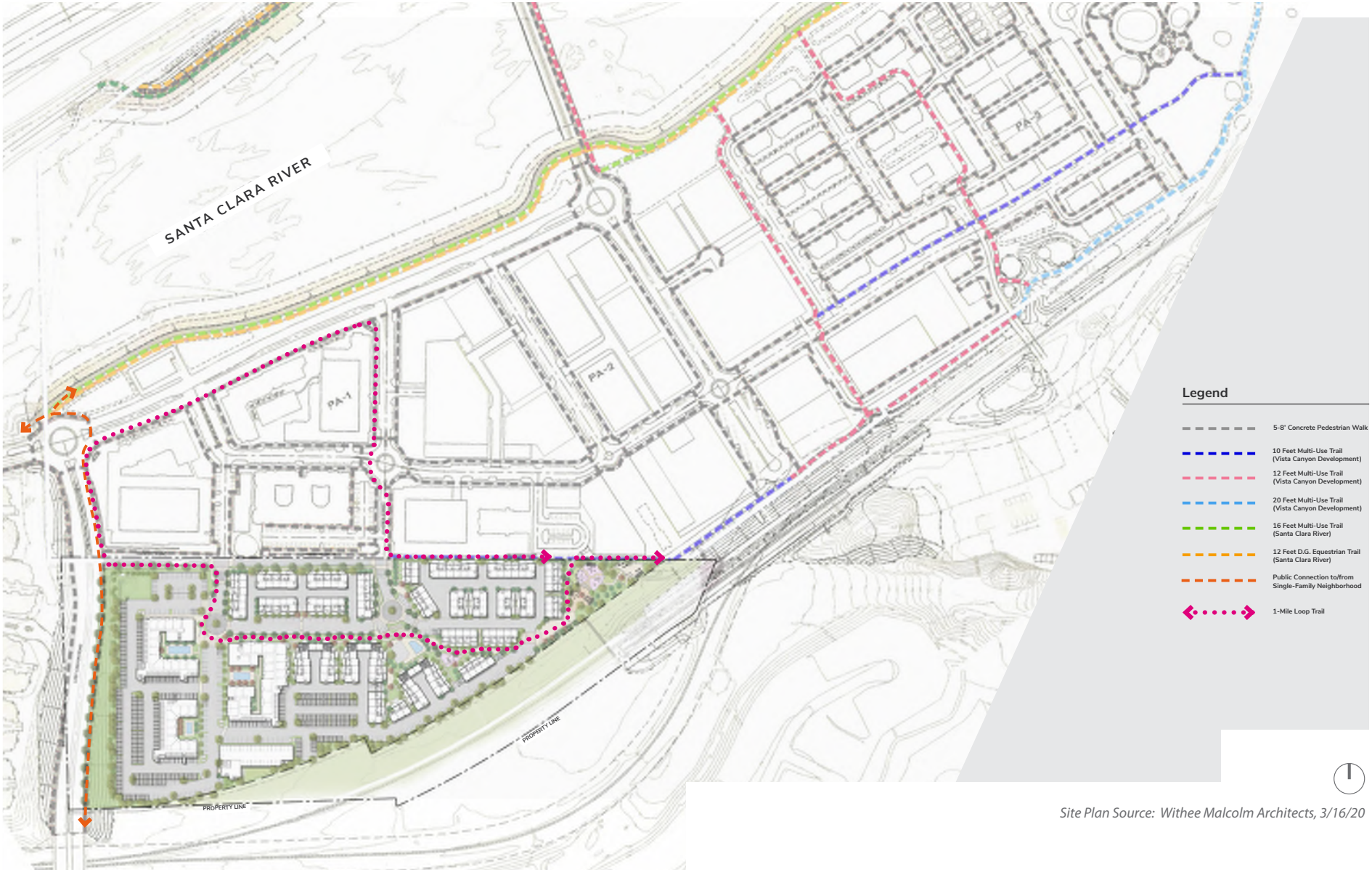
Pedestrian and bicycle access to the project site will be provided via sidewalks at the two unsignalized driveways and on the eastern corner of the property to the adjacent (Vista Canyon) trail system.

To facilitate pedestrian access from the project site at the driveways, sidewalks are proposed on all public roads adjacent to the project site including Lost Canyon Road and Harriman Drive. Marked pedestrian crossings will be constructed at the driveway intersections. The proposed project would connect to a series of mixed-use trails including the Santa Clara River trail at the intersection of Lost Canyon Road and Jakes Way, as shown on **Figure 7.**

On-site pedestrian and bicycle circulation will be provided by a series of walkways and trails that join the two driveway entrances to the Vista Canyon trail system, as shown in **Figure 8**. There are marked pedestrian crossings on a few of the internal roadways. The proposed project would not impede a planned pedestrian or bicycle facility, therefore the project impact to non-motorized transportation is ***less-than-significant***.

Emergency Vehicle Access

Factors such as the number of access points, roadway width, and proximity to fire stations determine whether a project provides enough emergency access. Emergency vehicle access is provided by the project driveways and the internal roadways.



Site Plan Source: Withee Malcolm Architects, 3/16/20

Figure 7

Regional Trail Context

Site Plan Source: Withee Malcolm Architects, 3/16/20

Figure 8

Trail System Diagram

The Los Angeles County fire station most likely to serve the site is located at 18239 Soledad Canyon Road, about 1.4 miles northwest of the project sites. Emergency vehicles will travel eastbound on Soledad Canyon Road, southbound on Vista Canyon Road, westbound on Lost Canyon Road, and Southbound on Cooper Street to access the project site.

Emergency Vehicle Access to the project sites is proposed from two driveways along Harriman Drive. If one driveway is blocked, emergency personnel could access the site from another entry point. This is consistent with Policy C 2.5.2 of the General Plan.

Vehicle Miles Travel

For the purposes of CEQA, level of service can no longer be used to determine a project's environmental impact; CEQA Guidelines Section 15064.3 requires Vehicle Miles of Travel (VMT) analysis for land use developments. The City adopted *Transportation Analysis Updates in Santa Clarita* that follows OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA*.

Screening Criteria

The Technical Advisory includes screening thresholds to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. Based on the Technical Advisory screening thresholds, VMT impacts for this Transit Priority Project[8] will be less than significant for this project if any one of the identified screening criteria outlined below are met:

1. Small Projects: The project generates fewer than 110 vehicle trips per day.
2. Low-VMT Areas: The project meets map-based screening criteria by being located in an area that exhibits below threshold VMT, or 15-percent or more below the regional average.
3. Major Transit Stop: The project is located in a Transit Priority Area or within a one-half mile of a Major Transit Stop[9] or high-quality transit corridor[10] and satisfies the following:
    - Has a Floor Area Ratio (FAR) of greater than 0.75;
    - Does not include more parking for use by residents, customers, or employees than other typical nearby uses, or more than required by the City;
    - Is consistent with the applicable Sustainable Communities Strategy (as determined by the lead agency); and

[8] The Project qualifies as a Transit Priority Project pursuant to CEQA Guidelines Section 21155(b) in that the Project contains at least 50 percent residential use, with a minimum net density of at least 20 dwelling units per acre, and is within one-half mile of a major transit stop or high-quality transit corridor included in a regional transportation plan.

[9] CEQA Guidelines Section 21064.3 defines a "major transit stop" as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during morning and afternoon peak commute times.

[10] CEQA Guidelines Section 21155(b) defines a "high quality transit corridor: means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

- Does not replace affordable residential units with a smaller number of moderate- or high-income residential units.

4. Affordable Residential Development: The project must be 100 percent affordable residential development in an infill location.

The proposed project falls within a Transit Screening Area (see *Transportation Analysis Updates in Santa Clarita)* and satisfies the Near Transit Stations criterion (#3) as described below.

Criterion #3: Major Transit Stop

On April 26, 2011, the City of Santa Clarita passed Resolution 11-23, which approved the 185-acre Vista Canyon Project adjacent to the proposed MetroWalk project. The Vista Canyon development included the construction of a new multimodal transit center slated for completion in 2023. The multimodal transit center would include substantial bus services, a park-and-ride-lot, and a new Metrolink commuter rail station along the existing Antelope Canyon Line. The multimodal transit center is listed as one of the conditions of approval of the Vista Canyon development. The Vista Canyon development, including the future multimodal transit center, is currently under construction.

The project site will be adjacent to a Major Transit Stop. The multimodal transit center will be constructed immediately east (less than 500 feet) of the Project with a connecting walking trail to the transit hub. As described below, the project meets the three conditions necessary to satisfy Criterion #3.

Condition 1: Floor Area Ratio

The project will have a FAR of 0.76, which is greater than the threshold of 0.75.

Condition 2: Parking Supply

Parking supply for new developments in the City of Santa Clarita is regulated by the City's Municipal Code (Last updated January 14, 2020) and the Metro Walk Specific Plan (April 2020). Section 17.42.010 of the City Municipal Code lists the parking code by residential use types.

The project will include a total of 498 dwelling units including: 150 non-age restricted three-story townhomes (all two- and three-bedroom units), 179 non-age restricted apartments (26 studio, 116 one-bedroom, and 37 two-bedroom units), and 169 age-restricted apartments. As shown in **Table 2**, the project should provide a total of 966 parking spaces under the Municipal Code.

The project proposes to provide 902 parking space, resulting in 64 parking spaces less than code. The project will not provide more parking than required by Municipal Code.

Parking regulations within the Specific Plan are intended to provide the requisite number of parking spaces for all uses, while reinforcing the pedestrian-oriented character and accessibility to transit, amenities and daily services intended to minimize vehicle trips and parking demand. The Specific Plan establishes a parking ratio of 1.5 spaces per unit for all Market Rate, All-Ages Apartments, consistent with Vista Canyon Specific

Plan's (nearby use) residential use parking requirements of 1.5 spaces per unit. Guest parking for Market-Rate, All-Ages Apartments and parking for all other uses are consistent with the Santa Clarita Municipal Code. As shown in **Table 3**, the project should provide a total of 902 parking spaces under the Metro Walk Specific Plan.

Table 2: Municipal Code Parking Supply Comparison

Use Type	Units	Requirement	Parking Spaces
Studios	26	1 enclosed parking space per unit	26
One Bedroom	116	2 enclosed parking spaces per unit	232
Two Bedroom	187	2 enclosed parking spaces per unit	374
Senior/Age Restricted	169	1 parking space per each two units	85
Guest Parking	498	1 parking space per each two units (for complexes with more than 3 units)	249
Municipal Code Parking Supply:			**966**
Proposed Parking Supply:			**902**
Difference:			**-64**

Source: City of Santa Clarita Municipal Code; Fehr & Peers, 2020.

Table 3: Specific Plan Parking Supply Comparison

Use Type	Units	Requirement	Parking Spaces
Market Rate, All-Ages Apartments	179	1.5 parking spaces per unit	268.5
Townhomes (Two+ Bedroom)	150	2 enclosed parking spaces per unit	300
Senior/Age Restricted	169	1 parking space per each two units	84.5
Guest Parking	498	1 parking space per each two units (for complexes with more than 3 units)	249
Municipal Code Parking Supply:			**902**
Proposed Parking Supply:			**902**
Difference:			**0**

Source: Metro Walk Specific Plan, 2020; Fehr & Peers, 2020.

The project proposes to provide 902 parking space which is the same amount as required by the Metro Walk Specific Plan. The project will not provide more parking for use by residents than other typical nearby uses, nor will it provide more parking than required by the Specific Plan.

Condition 3: Sustainable Communities Strategy

The Southern California Association of Governments (SCAG) 2020-2045 *Regional Transportation Plan/Sustainable Community Strategy* (RTP/SCS) plans to expand the regions commuter rail system. *The Project List Technical Report,* documents projects in development such as the Vista Canyon Ranch Transit Center, will relocate the existing Via Princessa Metrolink station to the Vista Canyon area, and include a bus-transfer station and an adjacent parking structure with up to 750 parking spaces. The Project will be constructed immediately east (less than 500 feet) of the new Vista Canyon transit center.

Regional passenger rail recommendations and strategies are outlined in the *Passenger Rail Technical Report* of the RTP/SCS and include support of increased transit-oriented development and first/last mile strategies (page 2, May 2020). Transit-oriented developments improve the region's jobs/housing balance, encourage rail mode choice, and reduce the incentive for single occupant vehicle travel. These benefits have a positive effect on VMT and reduce greenhouse gas emissions. The Project is adjacent to the proposed Vista Canton transit center and features connecting walkable/bikeable trails from the residential community to the station. The Project is consistent with the SCS because it is a high-density transit-oriented-development and improves/supports connectivity in Santa Clarita.

Condition 4: Affordable Housing

The project will not replace affordable residential units with a smaller number of moderate- or high-income residential units.

Conclusion

The project meets the requirement of Criterion #3: Near Transit Stations, therefore the project will not cause impacts related to VMT will be ***less-than-significant*** and no additional mitigation measures will be required.

Construction Analysis

Construction of the project would last for approximately five years. Construction would take place over three phases: (1) Grading; (2) Street and utility improvements; (3) Building construction.

During each of these phases new off-site trips would be generated by construction workers, large trucks hauling soil and debris from the site, trucks delivering construction equipment to/from the site (such as bulldozers, excavators and other large items of machinery), and large trucks delivering concrete and other construction materials. Construction equipment would be staged on-site or immediately adjacent. Following the City of Santa Clarita Working Hour Ordinance, construction would occur between 7:00 AM to 7:00 PM on weekdays and between 8:00 AM to 6:00 PM on Saturdays. No construction is permitted on Sundays.

The estimated number of trips per day for each period is provided in **Table 4.** During the Building Construction phase, a total of 472 daily passenger-car-equivalent (PCE) trips are anticipated across all

construction trip types. Construction workers are expected to represent most of the construction-related traffic. Because construction works often travel outside of typical commute hours, these trips are expected to have a negligible effect on intersection operating conditions in the study area.

Table 4: Estimated Construction Trips

Construction Phase	Days of Phase	Construction Trips per Day Estimates (PCE)			
		Worker	Vendor[1]	Hauling[1]	Total
Grading	120	72	0	60	132
Improvements	135	352	8	0	360
Building Construction	1085	364	108	0	472

Notes:
1. Passenger car equivalency (PCE) factor applied: 1 Truck = 2 Passenger Cars

Source: New Urban West; Fehr & Peers, 2020.

Construction-related traffic will cause adverse but not significant impacts because, while sometimes inconvenient, construction-related traffic effects are temporary. The number of construction trips generated daily (472) would also be lower than the trip generation of the project when complete – from Table 1, the proposed project would generate approximately 2,540 daily trips.

As a project design feature, the project should develop a construction management plan for approval by the City of Santa Clarita that contains street closure information, detour plans, haul routes, and staging plans. This plan would include such elements as the designation of haul routes for construction-related trucks, the location of access to the construction site, any driveway turning movement restrictions, temporary traffic control devices or flagmen, travel time restrictions (if any) for construction-related traffic to avoid peak travel periods on selected roadways, consolidating construction truck deliveries, provisions to ensure weight loads are managed, and designated staging and parking areas for equipment and workers.

If oversized vehicles or loads are to be transported over State highways, a permit would be required from Caltrans. As currently proposed the truck haul route to Chiquita Canyon Landfill is provided: Lost Canyon Road to Via Princessa to Southbound SR-14 to Northbound I-5 to Westbound SR-126.

Implementation of the construction management plan would ensure that the project construction impacts are ***less-than-significant***.

Traffic Operations Analysis

The traffic operations analysis is not related to CEQA. The operational analysis is intended to assess the potential impacts the project may have on the surrounding roadway network. The addition of project traffic may adversely impact the operations of an intersection within the study area.

The study area for this assessment includes the area immediately adjacent to the project site, along with roadways that provide primary access to the regional transportation network. Project impacts to study area roadway facilities were determined by measuring the effect project traffic will have on intersection operations during the weekday morning (6:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods to coincide with the time-periods when adjacent street traffic demands are greatest and when the project generates the most traffic.

The following twelve intersections were selected for evaluation in consultation with City of Santa Clarita staff:

1. Soledad Canyon Road & State Route 14 (SR-14) Southbound (SB) Ramps[11]
2. Sand Canyon Road & SR-14 Northbound (NB) Ramps[11]
3. Sand Canyon Road & Lost Canyon Road[12]
4. Lost Canyon Road & Jakes Way[12]
5. Lost Canyon Road & Medley Ridge Drive[12]
6. Lost Canyon Road & Canyon Parks Boulevard[12]
7. Sierra Highway & Jakes Way[12]
8. Via Princessa & Lost Canyon Road[12]
9. Via Princessa & SR-14 NB Ramps[11]
10. Via Princessa & SR-14 SB Ramps[11]
11. Soledad Canyon Road & San Canyon Road[12]
12. Lost Canyon Road & Winter Pine Way[12]

Analysis Scenario

Study intersections were evaluated for the following scenarios:

Scenario 1: *Existing Conditions* – Existing traffic volumes collected in January 2020. Existing roadway geometries confirmed through field reconnaissance.

[11] Under the jurisdiction of the California Department of Transportation.
[12] Under the jurisdiction of the City of Santa Clarita.

Scenario 2: *Cumulative Year (2040) without Project Conditions* – Projected traffic volumes and future roadway improvements based on the City's Travel Demand Model under General Plan Buildout Conditions, without development of the project.

Scenario 3: *Cumulative Year (2040) with Project Conditions* – Projected cumulative traffic volumes and future roadway improvements from Scenario 2 plus traffic generated by the proposed project.

Analysis Methodology

The operations of roadway facilities are described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). The City of Santa Clarita generally strives to maintain LOS E operations on arterial roads and LOS C operations within residential neighborhoods as outlined in the Circulation Element of the *City of Santa Clarita General Plan* (June 2011).

Table 5: Intersection Level of Service Criteria

Level of Service	Description	Signalized	Unsignalized
		Delay (seconds/vehicle)	
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10.0	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0	> 10.0 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0	> 15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0	> 25.0 to 35.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0	> 35.0 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0	> 50.0

Source: *Highway Capacity Manual*, 6th Edition. (Transportation Research Board, 2016)

Signalized Intersections

Operations of signalized intersections were evaluated using the method from the Transportation Research Board's *Highway Capacity Manual, 6th Edition* (HCM), which uses various intersection characteristics (such

as traffic volumes, lane geometry, and signal phasing) to estimate the average control delay experienced by motorists traveling through a signalized intersection. Control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. **Table 5** summarizes the relationship between average delay per vehicle and LOS for signalized intersections. This method evaluates each intersection in isolation and the effects of vehicle queue spillback are not considered in the analysis results.

Unsignalized Intersections

Operations at unsignalized intersections were evaluated using the methods from the HCM. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each movement that must yield the right-of-way. At two-way or side street-controlled intersections, the control delay (and LOS) is calculated for each controlled movement, the left-turn movement from the major street, and the entire intersection. For controlled approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. The delays for the entire intersection and for the movement or approach with the highest delay are reported. **Table 5** summarizes the relationship between delay and LOS for unsignalized intersections.

LOS Threshold

As previously discussed, LOS can no longer be used to determine a project's environmental impact for CEQA purposes, instead the final proposed Guidelines include a new Section 15064.3 on Vehicle Miles of Travel (VMT) analysis and thresholds for land use developments. The traffic operations analysis is not related to CEQA. The operational analysis is intended to assess the potential impact the project may have on the surrounding roadway network per the City's General Plan policies. The addition of project traffic may adversely impact the operations of an intersection within the study area.

The determination of acceptable intersection operations is based on applicable policies, regulations, goals, and guidelines defined by the City of Santa Clarita in the *City of Santa Clarita General Plan* (2011) and subsequent updates, and the California Department of Transportation (Caltrans) in the *Guide for the Preparation of Traffic Studies* (2002). The California Department of Transportation (Caltrans) published a *Draft VMT-Focused Transportation Impact Study Guide* (February 2020), in anticipation of replacing the *Guide for the Preparation of Traffic Studies* (Caltrans, 2002), which currently uses LOS thresholds, however the Transportation Impact Study Guide has not yet been finalized nor adopted.

City of Santa Clarita

Per guidance provided by city staff, an intersection is considered to be significantly impacted if the Project would:

- Worsen an intersection from LOS D or better to LOS E or F
- Cause the following increase in delay at an intersection that operated (with the Project) at LOS D or worse:
    - LOS D with the Project: more than 4-second increase in delay is significant

- LOS E or F with the Project: more than 2-second increase in delay is significant

California Department of Transportation

A study intersection maintained by Caltrans will operate unacceptably if the intersection operates at LOS E or F.

Existing Conditions

Weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period intersection turning movement counts were collected at study intersections one through ten in January 2020, including a separate count of vehicles, trucks, pedestrians, and bicyclists. Intersection turning movement counts at study intersections eleven and twelve were provided by the City of Santa Clarita; twelve hour (6:00 AM to 6:00 PM) turning movement counts at intersection eleven were collected in April 2018 and twenty-four hour turning movement counts at intersection twelve were collected in September 2019. For each study intersection, the sixty-minute period with the highest traffic volumes during three count periods were identified as the morning (AM) and evening (PM) peak hours of traffic. The peak hour volumes are presented on **Figure 9**, along with the existing lane configuration and traffic control. Existing bicycle and pedestrian volumes are shown on **Figure 10**. Traffic count worksheets are provided in **Appendix B**.

Intersection Operations

Existing intersection operations were evaluated using the HCM methodology with results summarized in **Table 6**. Observed peak hour factors were used at all intersections, and truck, pedestrian and bicycle activity were factored into the analysis.

Study intersections operate at acceptable service levels in accordance with benchmarks set by the City of Santa Clarita during both the weekday morning and evening peak hours, which was confirmed during field observations. Intersection LOS calculation worksheets are provided in **Appendix C**.

Signal Warrants

Signal warrant analysis are a study of traffic conditions, pedestrian characteristics, and physical characteristics of a location to determine whether installation of a traffic control signal is justified at a location. Signal warrants analysis were conducted using the methodology outlined in the California Manual on Uniform Traffic Control Devices (2014).

Peak hour turning movement volumes were used to conduct peak hour (Warrant 3A and 3B) signal warrants at the four stop-controlled intersections along Lost Canyon Road – study intersections 3, 5, 6, and 12. Two of the four study intersections satisfy at least one of the peak hour signal warrants.

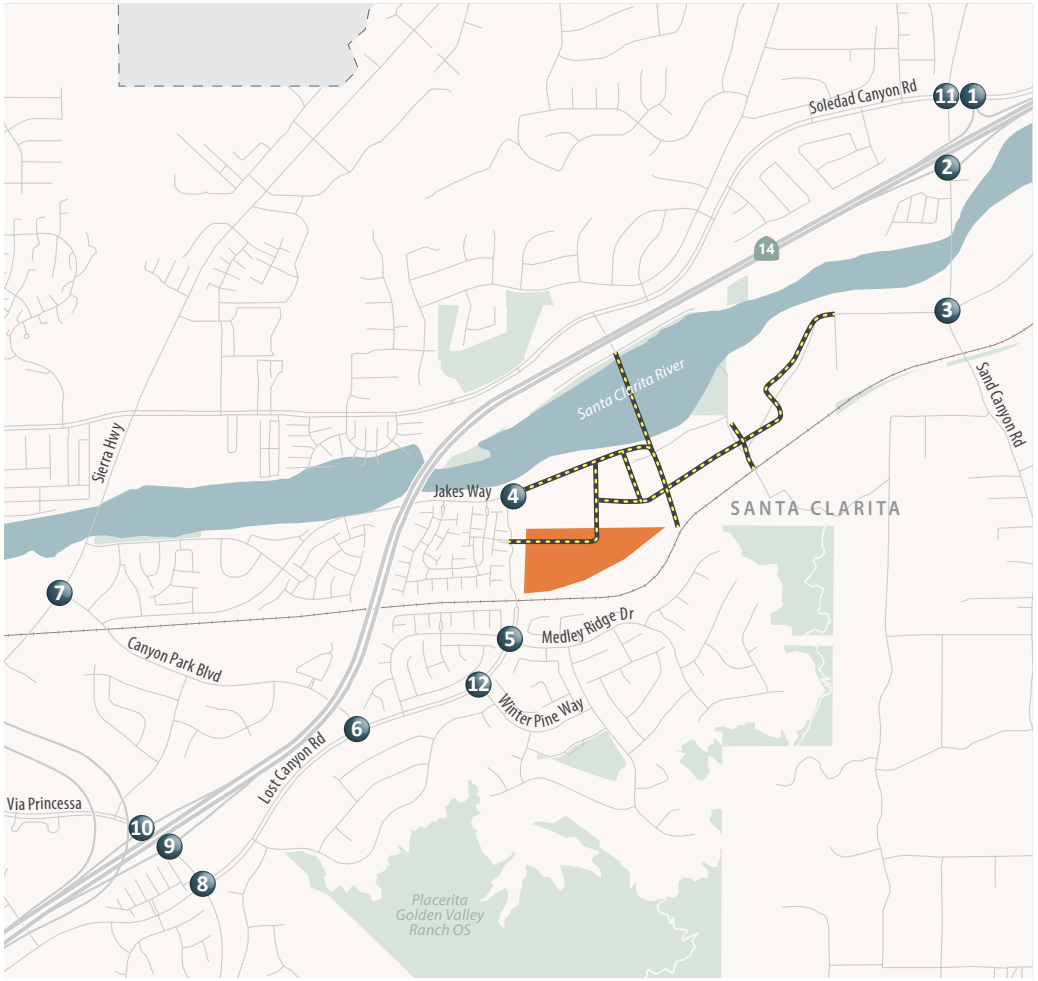
- The intersection of Sand Canyon Road & Lost Canyon Road (Intersection 3) satisfies Warrant 3B during the AM peak hour.

- The intersection of Lost Canyon Road & Canyon Parks Boulevard (Intersection 6) satisfies Warrant 3B during the AM peak hour.

Eight-hour (Warrant 1) and Four-hour (Warrant 2) signal warrants were evaluated at study intersections 5 and 6 using data provided by the City.

- The intersection of Lost Canyon Road & Canyon Parks Boulevard (Intersection 6) satisfies both Warrant 1 and Warrant 2.

Signal Warrant worksheets are provided in **Appendix D**.



XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Stop Sign

Three-legged Roundabout

Project Site

Study Intersection

Future Roadways

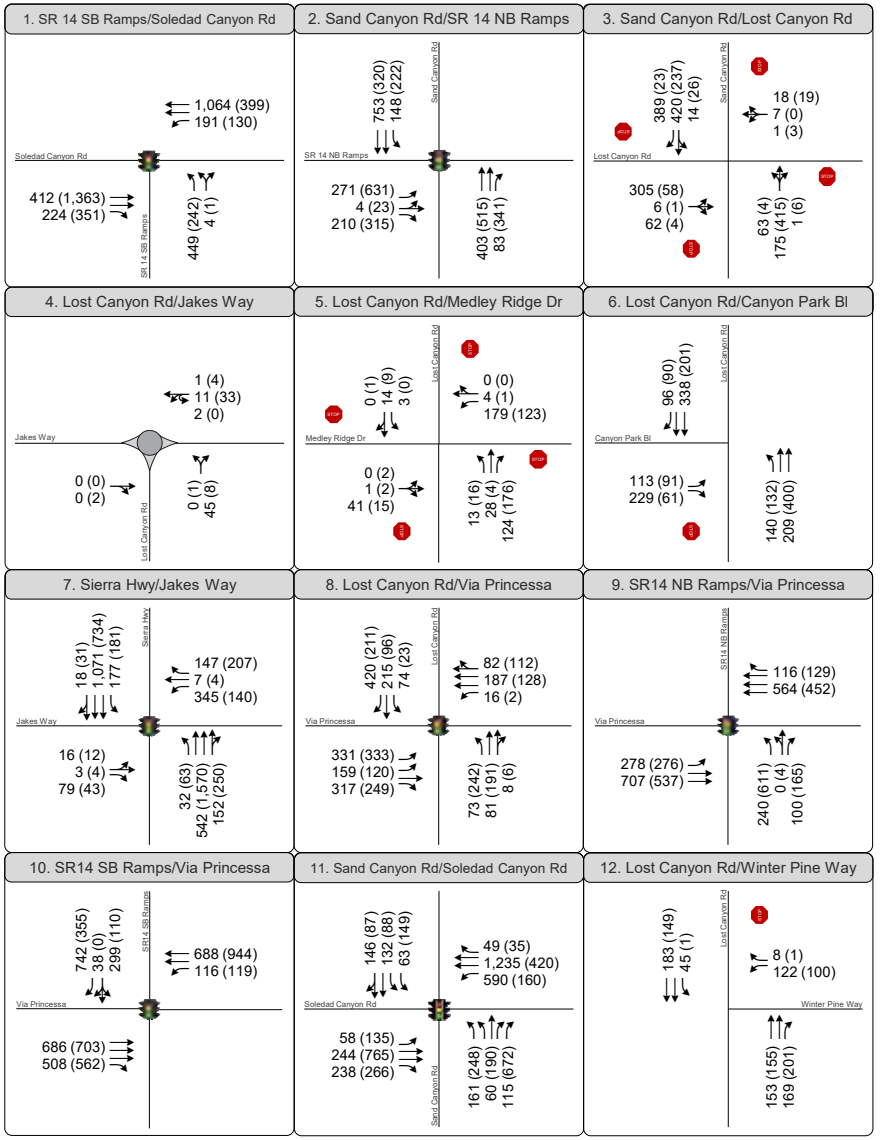
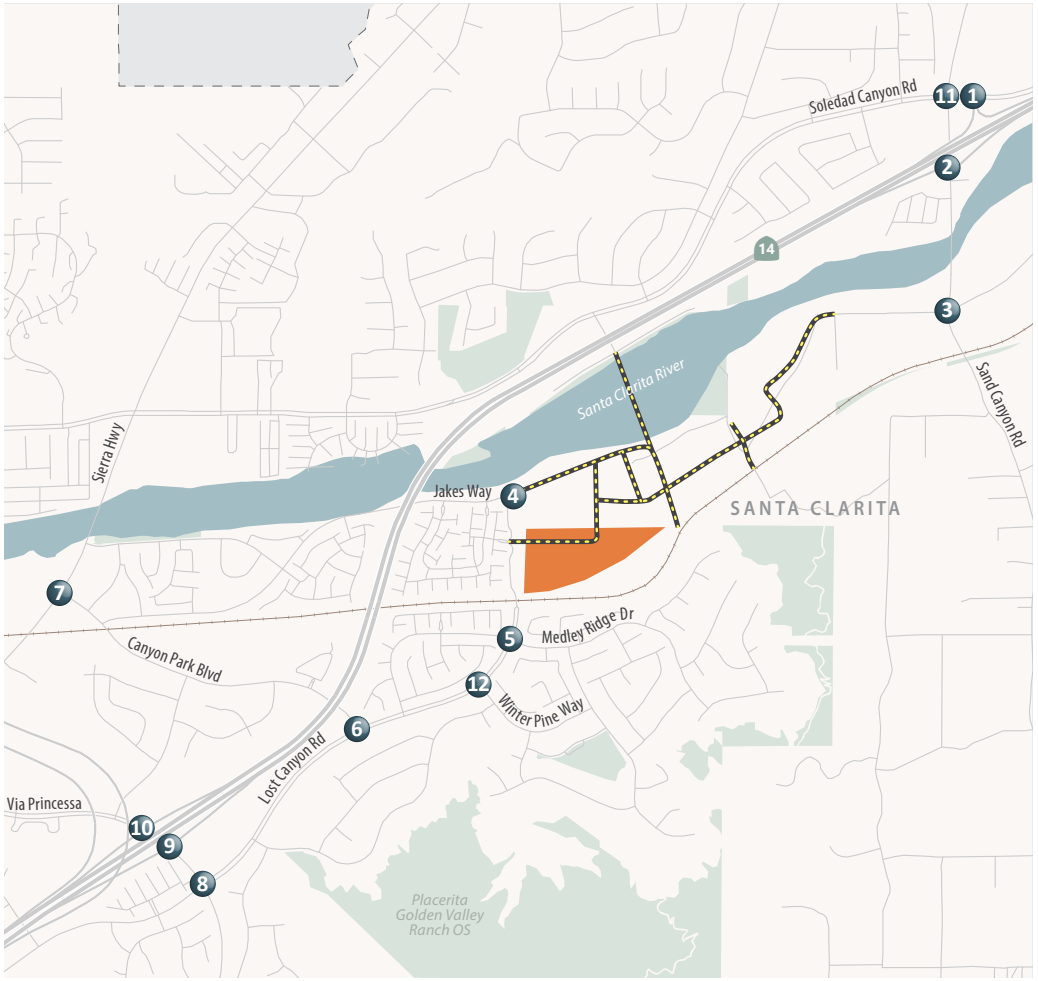
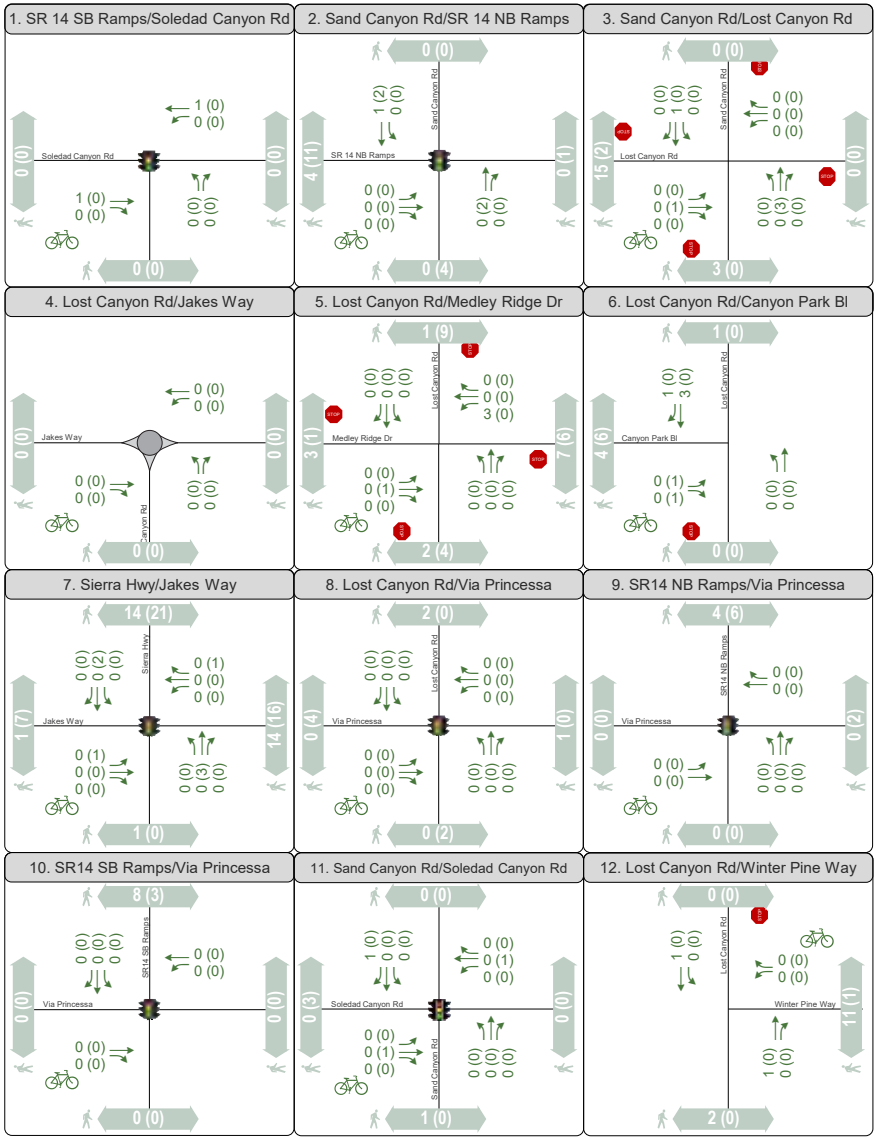


Figure 9

Existing Conditions Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls





0 (0) AM (PM) Peak Hour Pedestrian Volumes

0 (0) AM (PM) Peak Hour Bicycle Volumes

Signalized Intersection

Stop Sign

Three-legged Roundabout

Project Site

Study Intersection

Future Roadways

Figure 10

Existing Conditions Peak Hour Bicycle and Pedestrian Volumes

Table 6: Existing Intersection Level of Service

	Intersection	Control	Peak Hour	Existing Conditions	
				Delay	LOS
1	Soledad Canyon Road & SR-14 Southbound Ramps[3]	Signal	AM PM	30 18	C B
2	Sand Canyon Road & SR-14 Northbound Ramps	Signal	AM PM	12 20	B C
3	Sand Canyon Road & Lost Canyon Road	AWSC	AM PM	28 13	D B
4	Lost Canyon Road & Jakes Way	Roundabout	AM PM	3 3	A A
5	Lost Canyon Road & Medley Ridge Drive	AWSC	AM PM	9 9	A A
6	Lost Canyon Road & Canyon Park Boulevard	SSSC	AM PM	6 (28) 4 (21)	A (D) A (C)
7	Sierra Highway & Jakes Way	Signal	AM PM	35 24	D C
8	Via Princessa & Lost Canyon Road	Signal	AM PM	24 23	C C
9	Via Princessa & SR-14 Northbound Ramps	Signal	AM PM	13 21	B C
10	Via Princessa & SR-14 Southbound Ramps	Signal	AM PM	33 12	C B
11	Soledad Canyon Road & Sand Canyon Road[3]	Signal	AM PM	59 44	E D
12	Lost Canyon Road & Winter Pine Way	SSSC	AM PM	3 (14) 2 (11)	A (B) A (B)

Notes:
1. AWSC = All-way Stop Control; SSSC = Side-street Stop Control
2. Average control delay expressed in seconds per vehicle. For side-street stop-controlled intersections, delay for the worst movement is expressed in parenthesis, with average intersection delay and LOS presented outside the parenthesis.
3. Intersection 1 and 11 function as clustered intersections. Operations of clustered intersections cannot be evaluated using HCM 6th Edition methodology, therefore results for these intersections are reported with HCM 2000 results.

Source: Fehr & Peers, 2020.

Cumulative Conditions

This section presents the intersection operation results under cumulative conditions, with and without the project. Cumulative without Project Conditions are defined as existing volumes plus traffic generated by planned regional growth as projected by the SCVCTM by 2040.

Traffic Volumes Development

The latest version of the base year and build year SCVCTM was provided by City of Santa Clarita staff. The buildout year (2040) SCVCTM roadway network was updated as necessary to reflect proposed capital improvement projects listed in the *City of Santa Clarita General Plan* (SCGP, 2011) and the *Eastside Bridge and Major Thoroughfare Construction Fee District Update Report* (EBMT, 2002). The proposed capital improvement listed in the aforementioned documents will be funded by the Fee Program, many of which have already been constructed. The study assumes that the remaining improvements would be funded and constructed by the cumulative year (2040) per City instructions.

The land use in the project transportation analysis zone (TAZ 421) was also updated to reflect the approved Vista Canyon development per the Conditions of Approval and the adjacent Colony Townhomes development:

- 245 single family homes,
- 1,607 townhomes - 855 townhomes in Vista Canyon and 752 townhomes in Colony Townhomes,
- 646,000 square feet of office,
- 164,000 square feet of retail,
- 140,000 square feet of hotel (i.e. 200 hotel rooms), and
- 10-acre park.

Cumulative without Project intersection turning movement forecasts were developed from the buildout year SCVCTM using the following procedure:

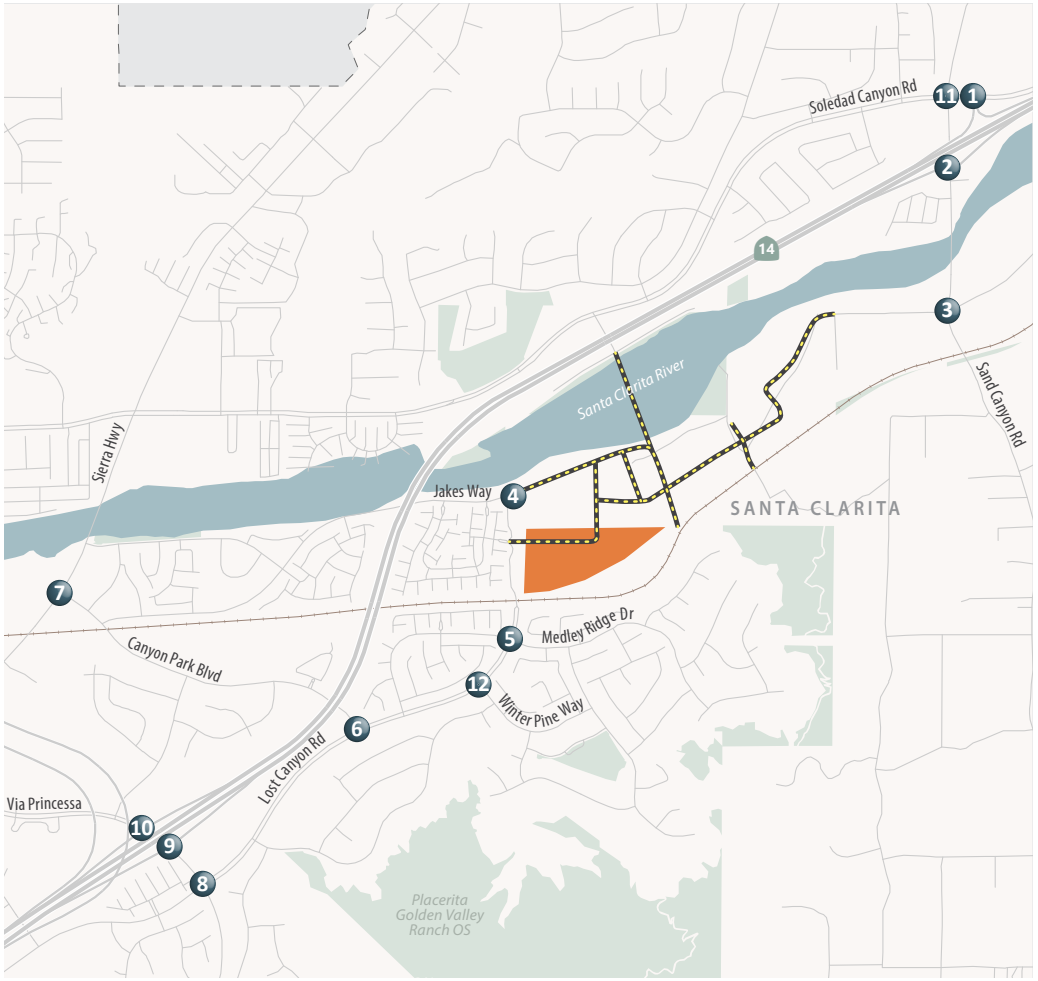
1. The SCVCTM buildout year model was updated with the above adjustments to reflect recent information on planned developments in the region.
2. The travel demand model does not reflect cut-through traffic that may divert onto local streets from the freeway; in particularly during the AM peak hour when there is congestion on Southbound SR-14 due to the bottleneck at Placerita Canyon Road, which extends into the study area. To estimate the proportion of diverted traffic from the freeway, existing traffic counts were compared to base year model forecasts at the Soledad Canyon Southbound SR-14 On-Ramp. Based on the comparison, it is estimated that approximately 70 percent of trips originating locally and destined for Southbound SR-14 uses local streets (i.e. westbound Soledad Canyon Road to southbound Sierra Highway) to avoid the freeway bottleneck at Placerita Canyon Road. Applying the same proportion of cut-through traffic to the Cumulative without Project intersection turning movement

forecasts it is estimated that an additional 540 vehicles will use local streets to avoid the congestion on the freeway in the future during the AM peak hour.

3. Under cumulative conditions, the Vista Canyon development will construct a new roadway connecting Soledad Canyon Road to Lost Canyon Road, which may serve as a local cut-through route for future traffic (i.e. westbound Soledad Canyon Road to southbound Lost Canyon Road to eastbound Golden Valley Road). Diverted local traffic to these routes is constrained by the westbound left-turning movement capacity at the Soledad Canyon Road & Sierra Highway and Soledad Canyon Road & Lost Canyon Road intersections. Models of the two intersections were developed in Synchro using traffic counts and signal timings provided by city staff to estimate the split of local diverted traffic onto the two routes. The assumed geometry at the future Soledad Canyon Road & Lost Canyon Road is consistent with the Vista Canyon Conditions of Approval:
    a. Soledad Canyon Road will be restriped to three lanes in each direction and widened to accommodate an additional eastbound right-turn pocket.
    b. The Lost Canyon Road approach will have two left-turn pockets/lanes and one right-turn pocket/lane with at least 125' of queue storage.
    c. The westbound Soledad Canyon Road turn pocket will be extended to at least 200' to accommodate queues.

    When vehicles experience high delays and/or observe long vehicle queues at the Soledad Canyon Road & Lost Canyon Road intersection drivers will divert to the Soledad Canyon Road & Sierra Highway intersection. Based on the westbound turning movement capacity at the Soledad Canyon Road & Lost Canyon Road intersection, it was estimated that approximately 63% of the additional diverted traffic in the future (340 of 540 vehicles) will use the new Lost Canyon Road extension as a local cut-through route.
4. Cumulative without Project intersection turning movement forecasts were balanced to consider the presence or absence of driveways and intersections between study intersections.

Cumulative without Project intersection turning movement forecasts are presented in **Figure 11**. Project trips from Figure 6 were then added to develop Cumulative with Project intersection turning movement forecasts, as presented on **Figure 12**.



XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Stop Sign

Three-legged Roundabout

Four-legged Roundabout

Project Site

Study Intersection

Future Roadways

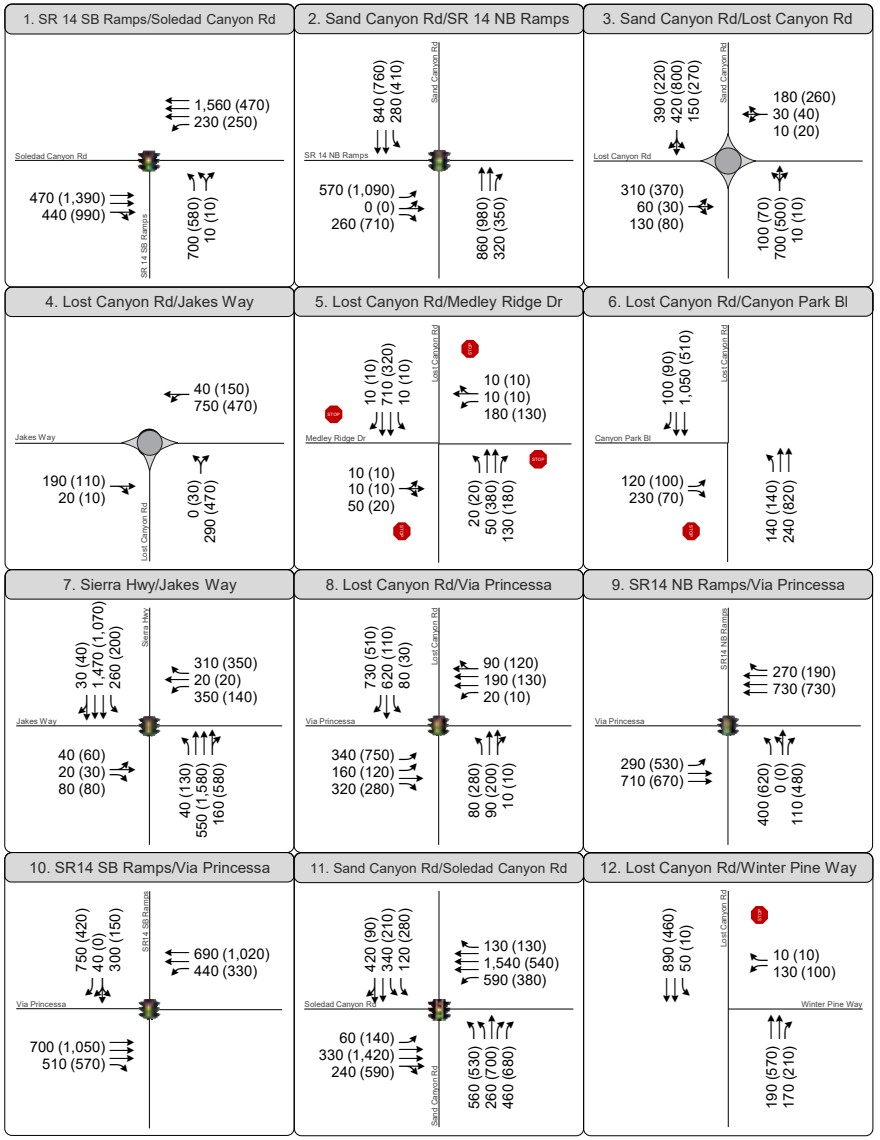
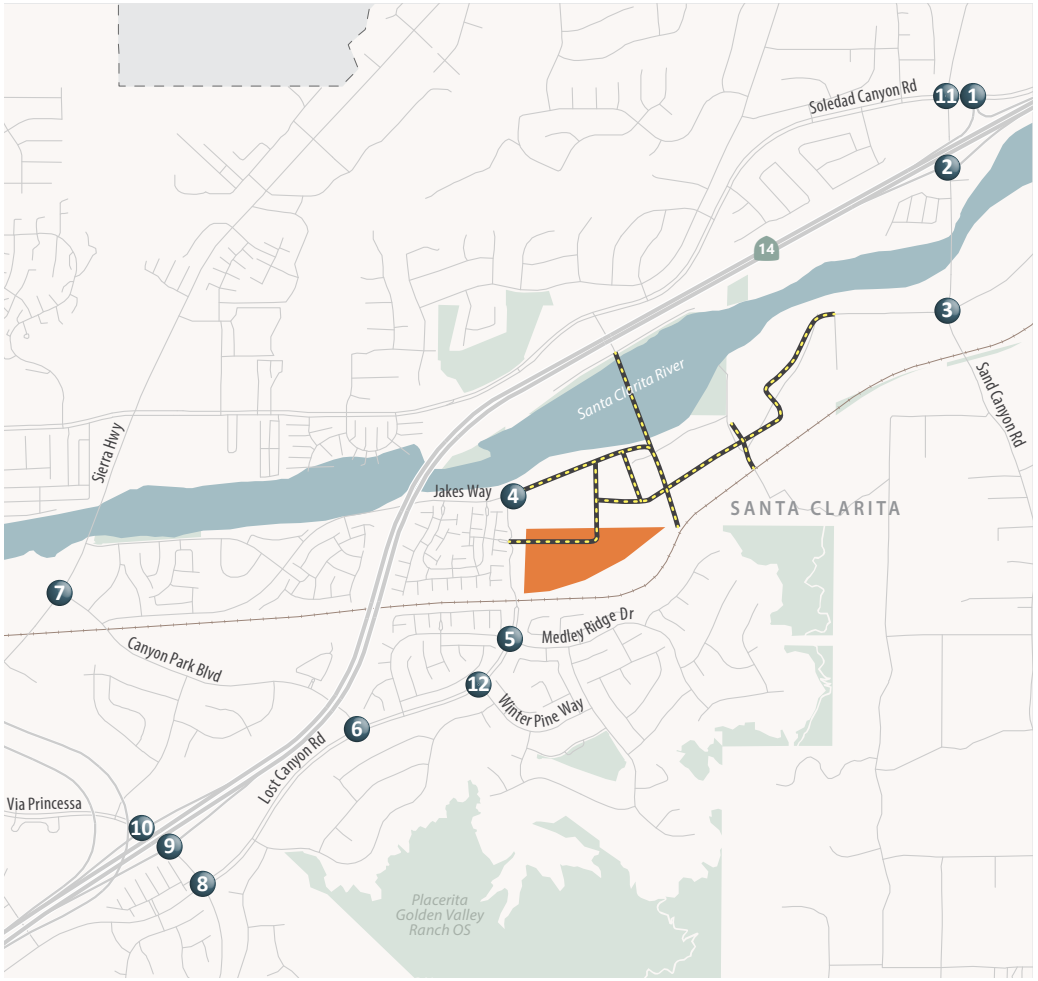


Figure 11

Cumulative without Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls



XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Stop Sign

Three-legged Roundabout

Four-legged Roundabout

Project Site

Study Intersection

Future Roadways

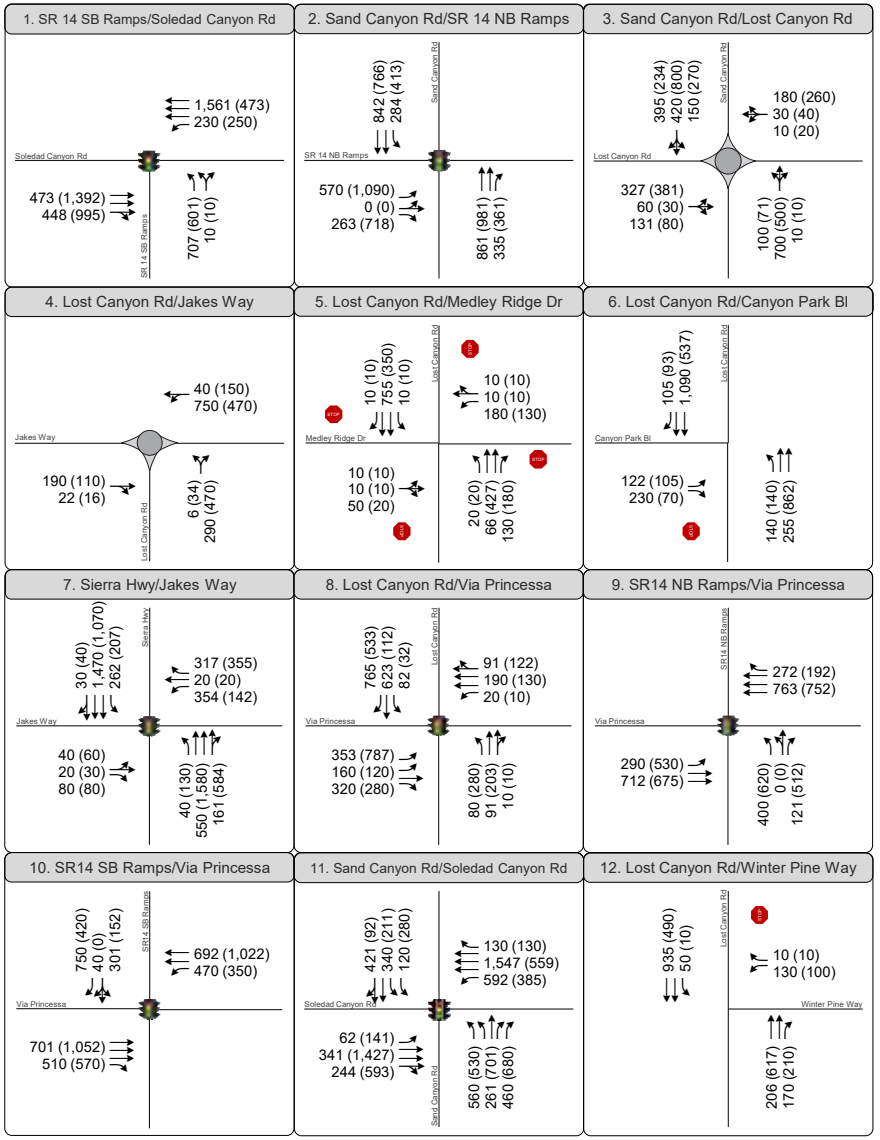


Figure 12

Cumulative with Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

Intersection Operations

Cumulative intersection operations were evaluated using the HCM methodology. Peak hour factors, pedestrian and bicycle activity, and heavy vehicle percentages were left unchanged from existing conditions with exception to the Lost Canyon Road & Jakes Way intersection. The peak hour factor at the Lost Canyon Road & Jakes Way intersection was increased to 0.92 to reflect future traffic demands since the intersection currently provides access to the Vista Canyon development construction site. Future roadway improvements were amended to the Synchro network if the project is funded – this includes roadways that will be constructed as a part of Vista Canyon and mitigations required under the Conditions of Approval (COA) for the adjacent Vista Canyon development. The following improvements were assumed in the cumulative scenarios:

- Restripe Soledad Canyon to include a third through lane in each direction from just east of the SR-14 ramp intersection to west of the Sand Canyon Road intersection (Intersections 1 and 11). [COA – Mitigation Measure 4.3-4]
- Modification of the intersection of Lost Canyon Road & Sand Canyon Road (Intersection 3) to be a one-lane roundabout per exhibits 4.3-18 and 4.3-18a. [COA Mitigation Measure 4.3-5]
- Widening of Lost Canyon Road from Medley Ridge Drive from one-lane to two-lanes in each direction. This improvement will add one through lane to the northbound and southbound approach at the intersection of Lost Canyon Road & Medley Ridge Drive (Intersection 5). [Constructed as a part of Vista Canyon]
- Installment of a westbound right-turn overlap arrow at the intersection of Via Princessa & Lost Canyon Road (Intersection 8). [COA Mitigation Measure 4.3-3]

Under instructions from the City, traffic signal timings were also left unchanged from existing conditions for purposes of analysis. Cumulative without Project and Cumulative with Project results are summarized in **Table 7**.

Under Cumulative without Project conditions the following study intersections will operate worse than acceptable service in accordance with the significance criteria set by the City of Santa Clarita:

- Intersection 3: Sand Canyon Road & Lost Canyon Road will operation at LOS F during the AM and PM peak hours.
- Intersection 6: Lost Canyon Road & Canyon Parks Boulevard will operation at LOS F during the AM and PM peak hours; signal warrant(s) are met under existing conditions.
- Intersection 11: Soledad Canyon Road & Sand Canyon Road will operate at LOS F during the AM and PM peak hours.

All other study intersections will operate at acceptable service levels. Intersection LOS calculation worksheets are provided in **Appendix C**.

Signal Warrants

Peak hour turning movement volumes were used to conduct peak hour (Warrant 3A and 3B) signal warrants at the study intersections 5 and 12. Both study intersections satisfy at least one of the peak hour signal warrants.

- The intersection of Lost Canyon Road & Medley Ridge Drive (Intersection 5) will satisfy Warrant 3B during the AM and PM peak hours.
- The intersection of Lost Canyon Road & Winter Pine Way (Intersection 12) will satisfy Warrant 3B during the AM and PM peak hours.

Signal Warrant worksheets are provided in **Appendix D**.

Table 7: Cumulative Intersection Level of Service

	Intersection	Control	Peak Hour	Cumulative without Project Conditions		Cumulative with Project Conditions	
				Delay	LOS	Delay	LOS
1	Soledad Canyon Road & SR-14 Southbound Ramps[4]	Signal	AM PM	52 35	D D	53 36	D D
2	Sand Canyon Road & SR-14 Northbound Ramps	Signal	AM PM	19 51	B D	19 52	B D
3	Sand Canyon Road & Lost Canyon Road	Roundabout	AM PM	67 94	F F	**71** **100**	**F** **F**
4	Lost Canyon Road & Jakes Way	Roundabout	AM PM	16 8	C A	17 8	C A
5	Lost Canyon Road & Medley Ridge Drive	AWSC	AM PM	13 9	B A	15 9	B A
6	Lost Canyon Road & Canyon Park Boulevard	SSSC	AM PM	39 (>100) 7 (97)	E (F) A (F)	**46 (>100)** **9 (>100)**	**F (F)** **A (F)**
7	Sierra Highway & Jakes Way	Signal	AM PM	45 29	D C	46 30	D C
8	Via Princessa & Lost Canyon Road	Signal	AM PM	30 25	C C	30 26	C C
9	Via Princessa & SR-14 Northbound Ramps	Signal	AM PM	15 37	B D	15 37	B D
10	Via Princessa & SR-14 Southbound Ramps	Signal	AM PM	41 19	D B	44 19	D B
11	Soledad Canyon Road & Sand Canyon Road[4]	Signal	AM PM	152 251	F F	152 251	F F
12	Lost Canyon Road & Winter Pine Way	SSSC	AM PM	4 (38) 2 (28)	A (E) A (D)	**4 (44)** **3 (36)**	**A (E)** **A (E)**

Notes:
1. AWSC = All-way Stop Control; SSSC = Side-street Stop Control
2. Average control delay expressed in seconds per vehicle. For side-street stop-controlled intersections, delay for the worst movement is expressed in parenthesis, with average intersection delay and LOS presented outside the parenthesis.
3. Synchro 10 is not able to analyze multilane unsignalized intersections. Intersection 5 was evaluated using the microsimulation software SimTraffic 10.
4. Intersection 1 and 11 function as clustered intersections. Operations of clustered intersections cannot be evaluated using HCM 6th Edition methodology, therefore results for these intersections are reported with HCM 2000 results.

Bold indicates unacceptable intersection operations due to project-related traffic.
Source: Fehr & Peers, 2020.

Operational Recommendations

The following recommendations are proposed to address deficient intersection operations expected to occur under Cumulative without Project and Cumulative with Project conditions.

Sand Canyon Road & Lost Canyon Road (Intersection 3)

The intersection of Sand Canyon Road & Lost Canyon Road (Intersection 3) will operate at LOS F (average vehicle delays of 67 and 94 seconds) during the AM and PM peak hours under the Cumulative without Project scenario. The addition of project traffic will increase cumulative traffic volumes by 1% and 1%, and further degrade the average vehicle delay at the intersection by 6% during the AM peak hour and 6% during the PM peak hour.

> Recommendation 1: The proposed future design at this intersection is a one-lane roundabout. It is infeasible to redesign the roundabout to accommodate a second circulating lane due to right-of-way physical constraints - the narrow bridge across Lost Canyon Road approximately 120 feet west of the intersection and the railroad structure on Sand Canyon Road approximately 450 feet south of the intersection. Right-turn slip lanes for the eastbound and westbound approaches could be considered to reduce vehicle delay at the intersection.

Lost Canyon Road & Canyon Parks Boulevard (Intersection 6)

The intersection of Lost Canyon Road & Canyon Parks Boulevard (Intersection 6) will operate at LOS F (eastbound left-turn vehicle delays of 557 and 92 seconds) during the AM and PM peak hours under the Cumulative without Project scenario. The intersection currently meets the peak hour signal warrant. The addition of project traffic will increase cumulative traffic volumes by 3% and 5%, and further degrade the eastbound left-turn vehicle delay at the intersection by 22% during the AM peak hour and 38% during the PM peak hour.

> Recommendation 2: Signalize the intersection of Lost Canyon Road & Canyon Parks Boulevard with a protected northbound left-turn phase on Lost Canyon Road. Construction of the improvement will result in a delay value of 11 and 7 seconds (LOS B and A) during the AM and PM peak hours.

Soledad Canyon Road & Sand Canyon Road (Intersection 11)

The intersection of Soledad Canyon Road & Sand Canyon Road (Intersection 11) will operate at LOS F (average vehicle delays of 152 and 251 seconds) during the AM and PM peak hours under the Cumulative without Project scenario. The addition of project traffic will increase cumulative traffic volumes by 1% in the AM and PM peak hours and will not degrade the average vehicle delay at the intersection (i.e. a 0 second increase) during the AM and PM peak hours. Project-related traffic would not worsen Cumulative Year intersection operations. As such, the Project would not be responsible for implementing the proposed recommendation.

Recommendation 3[13]: Widen the intersection of Soledad Canyon Road & Sand Canyon Road to include a 100' eastbound right-turn pocket. Convert the southbound shared through/right-turn pocket into a right-turn pocket and one of the southbound left-turn pockets into a shared left/through-turn pocket. Convert one of the northbound left-turn lanes into a shared left/through lane. Construction of the improvement will result in a delay value of 106 and 123 seconds (LOS F and F) during the AM and PM peak hours.

Recommendations for the intersection of Lost Canyon Road & Winter Pine Way (Intersection) 12 are provided in the subsequent list of safety recommendations.

Safety Recommendations

City of Santa Clarita staff requested additional non-project related recommendations to enhance overall safety within the study area. The following recommendations are to address safety-related concerns expressed by the City, and are independent of the project, as the conditions are not caused by, or worsened by, the project.

Lost Canyon Road & Medley Ridge Drive (Intersection 5)

Multi-lane all-way stop intersections contain a high number of conflict points. The intersection of Lost Canyon Road & Medley Ridge Drive will satisfy peak hour signal warrants under Cumulative without Project conditions.

Recommendation 4: Signalize the intersection of Lost Canyon Road & Medley Ridge Drive with protected left-turn phasing on the northbound and southbound approaches.

Lost Canyon Road & Winter Pine Way (Intersection 12)

Collision data was provided for the intersection of Lost Canyon Road & Winter Pine Way by City staff for a six-year period from 2014 to 2019. A total of five collisions were reported over the six-year period, all from drivers making a westbound left-turn out of Winter Pine Way. Four of the five collisions are broadside collisions with vehicles traveling northbound. As through traffic is projected to increase after the completion of Vista Canyon and the proposed project, safety enhancements are recommended to address the frequency of broadside collisions at the intersection. The intersection of Lost Canyon Road & Winter Pine Way will satisfy peak hour signal warrants under Cumulative without Project conditions.

Recommendation 5: Construct a worm (i.e. partial median), restricting left turns out of Winter Pine, but permitting left turns into Winter Pine. The traffic signal at Medley Ridge Drive would allow U-turns for motorists desiring to exit Winter Pine and travel south on Lost Canyon Road. If motorists do not want to make a U-turn at Medley Ridge Drive motorists can travel on Winter Pine Way to Cherry Willow Drive to Medley Ridge Drive to make a left turn onto Lost Canyon Road.

[13] Improvements were discussed with City Staff via email. Staff concluded that there was no feasible improvement that would accomplish the City's desired level of service goals.

Construction of the improvement will result in a delay value of 10 and 12 seconds (LOS B and B) during the AM and PM peak hours at the intersection of Lost Canyon Road & Winter Pine Way, and in a delay value of 30 and 10 seconds (LOS D and A) during the AM and PM peak hours at the intersection of Lost Canyon Road & Medley Ridge Drive.

Appendix A:
Trip Generation Comparison

Appendix B:
Traffic Counts

Appendix C:
Intersection LOS Worksheets

Appendix D:
Signal Warrant Worksheets