Valley Center Road Corridor Concept Plan

DRAFT CORRIDOR CONCEPT PLAN ANALYSIS REPORT

June 2022

Prepared for:

Prepared by:

Michael Baker INTERNATIONAL

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1.0 Introduction

SCOPE AND PURPOSE OF THE CORRIDOR CONCEPT PLAN

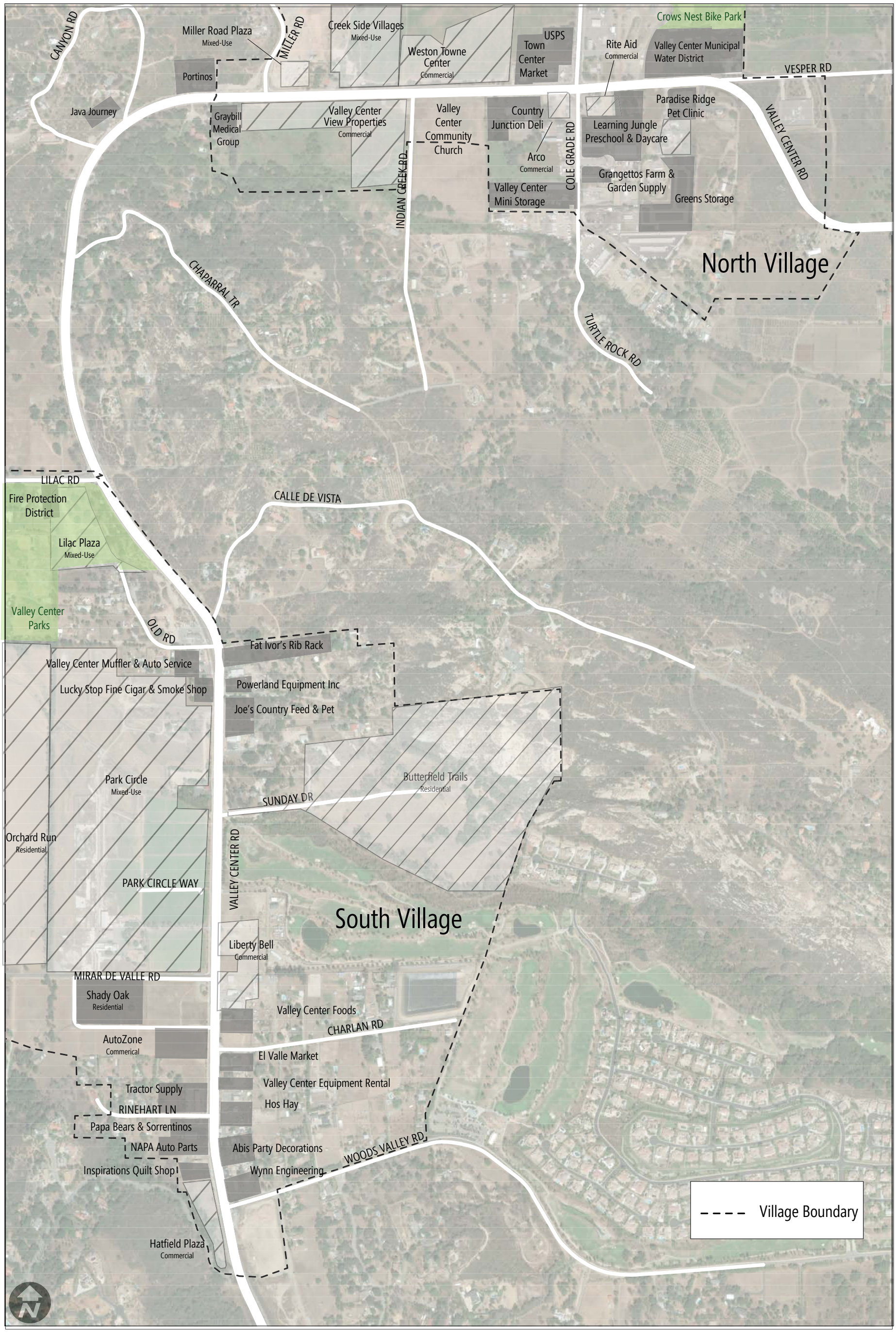
The geographic scope of the Valley Center Road Corridor Concept Plan is shown in **Figure 1** and covers the segment of Valley Center Road that spans from the Woods Valley Road intersection in the south, to the Cole Grade Road intersection in the north. This segment of the road traverses the South and North Villages of Valley Center, in addition the road curve area between the Villages. **Photo 1** provides a view the existing corridor along the curve, just north of the Lilac Road intersection. In accordance with the *County of San Diego General Plan* and the *Valley Center Community Plan*, the Villages of Valley Center are planned for a range of residential development types, commercial uses, civic uses, mixed use development, and are focus areas for infrastructure planning, to support Village development.

Photo 1: Valley Center Road currently has four travel lanes, a mix of raised and striped medians, the Heritage Trail, Class II bike lanes, and intermittent sidewalks.

The purpose of the Corridor Concept Plan is to create a sense of place within Valley Center and support a safer, more accessible corridor through the implementation of traffic calming measures and other multi-modal opportunities for all users, including pedestrians, cyclists, equestrians, and vehicles. The development of the Corridor Concept Plan was funded through a California Department of Transportation (Caltrans) Sustainable Communities Grant. The County pursued the grant and initiated the project to meet the community's goals of reducing speeds along the corridor, decreasing collisions, improving safety for pedestrians and bicyclists, providing safer access from side streets, and creating more of a Village atmosphere along the corridor, with reduced speeds promoting more of a pedestrian atmosphere, sense of place, and encouraging residents and visitors to visit Village establishments. Section 6 of this report discusses community input received during the public participation process.

ORGANIZATION OF THIS DRAFT CORRIDOR CONCEPT PLAN ANALYSIS REPORT

This Draft Corridor Concept Plan Analysis Report is intended to supplement the plan sheets (provided as **Figures 6, 7, and 8**, and linked on the project website) to provide details on the project background, public outreach process, analysis, operational details, and rationales for the plan components. Following this introduction section, Section 2 summarizes the first phase of the project, the analysis of existing conditions along the corridor. Sections 3 and 4 reference existing plans, policies, regulations, standards, and best practices that were consulted in the preparation of the Draft Corridor Concept Plan. Section 5 provides an overview of the process to develop three alternatives or themes, to help the project team understand community preferences on types of corridor improvements under consideration. Section 6 discusses the community engagement process through the first existing conditions phase and the second exploring themes phase. Section 7 provides the details of the Draft Corridor Concept Plan, including rationales for the types of improvements included in the plan. Sections 8 through 11 provide analysis of the Draft Corridor Concept Plan in relation to existing conditions, for the various modes of transportation along the corridor. Section 12 provides an overview of the Rough Order of Magnitude (ROM) cost estimate for the plan, including breaking down the estimates by components and providing information on assumptions used. Section 13 provides phasing options and potential funding sources for implementing the project. Finally, Section 14 discusses next steps for the project.



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Study Area with North & South Village Boundaries

Figure 1

2.0 Existing Conditions

The first phase of the project included analysis of existing conditions along the corridor. As summarized in this section, the existing conditions analysis included traffic counts, intersection counts, level of service (LOS) analysis by segment and intersection, analysis of collision data, analysis of existing bicycle facilities, analysis of existing pedestrian facilities, and analysis of existing transit facilities. This analysis was presented to the public at the first public workshop for the project and was supplemented by community input on existing issues along the corridor and existing positive aspects of the corridor design.

Valley Center Road is a four lane road with intermittent raised medians between Cole Grade Road and Woods Valley Road. In April 2019, an *Existing Conditions Technical Memorandum* (**Appendix A**) was completed that assessed the physical roadway conditions, segment and intersection traffic operations, as well as documented the conditions of pedestrian, bicycle, and bus facilities within the study area**.**

The results of the 2019 traffic counts and corresponding roadway segment analysis showed all study segments along the corridor operate at levels of service (LOS) D or better. The intersection counts and corresponding intersection analysis showed all the study locations operate at LOS D or better in the AM peak hour; however, it showed two of the seven study locations operate at LOS E or F during the PM peak hour, which is below the County standard LOS D or better. These include the intersections that were unsignalized at the time the analysis was conducted.

The results of the speed survey showed that all the 85th percentile speeds along the corridor exceed the posted speed limit of 45 miles per hour. The 85th percentile speeds collected represent the speed at which 85 percent of all vehicles are observed to travel at or below, measured over a specific period of time for a specific location. The 85th percentile speeds are used by agencies to set speed limits based on free-flowing traffic conditions.

Collison data for a five-year period (July 2013 – June 2018) included a total of 176 collisions reported along Valley Center Road with one fatality reported at Miller Road. The majority of collisions were attributed to unsafe speeds, right-of-way violations, and improper turning. Since the time the data was collected and analyzed, the AutoZone project was constructed and occupied in the South Village. In addition, the majority of the Park Circle development was also constructed and partially occupied. When the Park Circle development is fully occupied, the project will add approximately 6,188 additional daily trips to the corridor. As traffic volumes along the corridor increase, the risk for collisions increases, which is a consideration in this analysis.

Existing bicycle facilities along Valley Center Road were evaluated using a level of traffic stress (LTS) analysis and show that the bike lanes provided were suitable for "strong and fearless bicyclists" (LTS 4). This LTS 4 condition is heavily influenced by the lack of buffer along the bicycle lane and speed of traffic along Valley Center Road.

Pedestrian conditions were evaluated using the pedestrian gap analysis (PGA) methodology, which shows that out of 28 segments, the walking environment for 9 segments were "very good", 9 segments were "good", 7 segments were "average", and 3 segments were "poor". Most pedestrians on the north and west sides of Valley Center Road utilize the Heritage Trail shown in **Photo 2**, which will remain mostly unchanged through the concept development.

Photo 2: Heritage Trail with split rail fencing (looking westbound on Valley Center Road.). The Heritage Trail will remain mostly unchanged with the Draft Corridor Concept Plan.

Bus service is provided by North County Transit District (NCTD) Route 388. An evaluation of the transit facilities within the corridor shows that there are currently 11 bus stops on Valley Center Road within the study area. Amenities at each bus stop vary along the corridor; however, the majority of the bus stops are Americans with Disabilities Act (ADA) compliant and have both a bench and sign.

3.0 Plans, Codes & Policies Influencing Concept Development

Sections 3 and 4 of this report reference existing plans, policies, regulations, standards, and best practices that were consulted in the preparation of the Draft Corridor Concept Plan. These sections include explanations of how these existing documents and guidelines relate to components of the Draft Corridor Concept Plan. Upon adoption, the Corridor Concept Plan will serve as a supplement to the County of San Diego *Public Road Standards*, as applied within the corridor.

VALLEY CENTER COMMUNITY PLAN (VCCP)

Within San Diego County, diverse communities have distinct and unique settings, history, culture, and character. As part of the County's *General Plan*, the *Valley Center Community Plan* (most recently amended in 2015) includes goals, policies, and other guidance are discussed for land use within the Valley Center Community Plan Area (CPA), in addition to serving as a reference for important community issues. Components of the Draft Corridor Concept Plan were developed in consideration of mobility policies of the VCCP, which call for minimizing uncontrolled access and uncontrolled intersections, and safe separation of pedestrian, equestrian and bicycle traffic from vehicle traffic.

SAN DIEGO COUNTY ACTIVE TRANSPORTATION PLAN (ATP)

"Active transportation" is a term used to describe any non-motorized form of travel, including biking, walking, horseback riding, etc. **Figure 2** provides an example of a roadway that includes active transportation characteristics such as sidewalks and bike lanes with flexible delineators. The County of San Diego's *Active Transportation Plan* (October 2018) or *ATP* is a plan that balances environmental, economic, and community interests and identifies goals, objectives and actions related to:

- Improving safety to reduce auto collisions with cyclists and pedestrians;
- Increasing accessibility and connectivity with an active transportation network; and
- Improving public health by encouraging walking and biking.

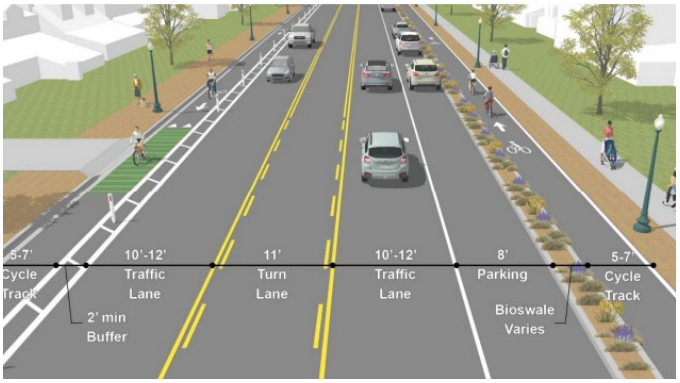


Figure 2: Illustration from County of San Diego *ATP*, Class IV Bikeway with Bollards Concept (Referred to as Flexible Delineator Posts in the Draft Corridor Concept Plan)

The *ATP* includes recommendations to upgrade the existing Class II bike lanes to Class IV separated bikeways the length of the corridor. This recommendation was incorporated into the *General Plan Mobility Element Network* for this Valley Center Road corridor as part of the adoption of the *ATP*, and the Class IV bikeways are included in the Draft Corridor Concept Plan. The Draft Corridor Concept Plan also addresses the *ATP* objective of completing existing gaps in sidewalks.

COUNTY LIGHT POLLUTION CODE

The County of San Diego *Code of Regulatory Ordinances* (Title 5, Chapter 2) defines any area within a 15-mile radius of Palomar Observatory as "Zone A". The Draft Corridor Concept Plan study area is within an approximate 12 to 14-mile radius of Palomar Observatory and is subject to the requirements for Zone A. According to Section 51.204, any street lighting above 4,050 lumens is prohibited, and all low-pressure sodium lamps must be fully shielded. Any unshielded luminaires must be less than 2,000 lumens. Street lighting along the corridor must comply with these and other requirements for Zone A. The County Light Pollution Code was referenced in consideration of the proposed corridor improvements and in relation to lighting location requirements in the County of San Diego *Public Road Standards* (discussed further below); however, no changes to existing lighting requirements are proposed with the Draft Corridor Concept Plan.

4.0 Engineering Design Standards & Best Practices

In addition to the regulation and guidance documents discussed in the previous section, the conceptual designs presented with this report consider the guidance provided in the following documents.

VALLEY CENTER DESIGN GUIDELINES

While design review is administered by the County's Planning & Development Services Department, development projects subject to design review are also evaluated by the Valley Center Design Review Board. Properties subject to design review for development applications include all properties within the village boundaries and additional properties with commercial or industrial zoning located outside the villages. This design review process is intended to preserve the rural character and environment of Valley Center while accommodating future growth. Specific design objectives and requirements are outlined in the *Valley Center Design Guidelines* (most recently amended in 1990) and were considered when establishing key elements for the Draft Corridor Concept Plan as future development may be responsible for frontage improvements and subject to the standards established in these guidelines. The Draft Corridor Concept Plan considers the guidance in the Design Guidelines on the landscaped median along Valley Center Road, the relationship of buildings to the road corridor and a pedestrian focus planned for the North Village.

COUNTY OF SAN DIEGO PUBLIC ROAD STANDARDS

The County of San Diego *Public Road Standards* (March 2012) serve as guidelines for the design and construction of public road improvement projects within the unincorporated County. These standards dictate the width of roads, sidewalks, and bike lanes for all County initiated projects and private development projects. The Draft Corridor Concept Plan considers guidance in the Public Road Standards on median closings for public and private side streets. Upon adoption, the Corridor Concept Plan will serve as a supplement to the County of San Diego *Public Road Standards*, as applied within the corridor.

VALLEY CENTER COMMUNITY RIGHT OF WAY DEVELOPMENT STANDARDS (VCCRDS)

The *Valley Center Community Right of Way Development Standards* (adopted 2011) *or VCCRDS* is a guide to the streetscape design within the public right-of-way. The purpose is to ensure the community develops in a complimentary and consistent manner that reflects Valley Center's distinctive natural features. These standards only apply to areas outside of the travel way including curb and gutters, sidewalks and pathways, medians, shoulders, etc. The VCCRDS call for a decomposed granite pathway on the north and west sides of the corridor, with sidewalks acceptable for the south and east sides of the corridor. The Draft Corridor Concept Plan calls for maintaining the Heritage Trail (pathway) on the north and west sides of the corridor (with necessary modifications at proposed roundabouts and curb extensions, as discussed in this report) and completion of the sidewalk on the south and east sides.

TRAFFIC CONTROL AT INTERSECTIONS

Various intersection control options were considered within the study area, including traffic signals, roundabouts, controlled pedestrian crossings, and stop signs. The combinations of traffic control features determine how traffic will flow along the corridor. Limited existing traffic control has contributed to 85th percentile speeds above the posted speed limit for the length of the corridor. It has also resulted in challenges for drivers crossing traffic to make left turns from the corridor and for drivers on side streets to turn onto the corridor.

Traffic signals are an effective traffic control device that clearly defines the right-of-way for vehicles at an intersection. To determine if a signal is appropriate at an isolated location, an analysis of traffic signal warrants can be conducted. These warrants provide a procedure to determine whether installation of a traffic signal is justified at a particular location. A warrant may or may not be satisfied based on conditions outlined in the *California Manual on Uniform Traffic Control Devices* or

MUTCD-CA, which considers such factors as vehicular volumes, pedestrian volumes, safety, or signal coordination gaps to determine the viability of a traffic signal. Although a warrant provides justification for installation of a traffic signal along the corridor, other factors may also be considered. Factors such as spacing between signals, access requirements, pedestrian activity, and other conditions may determine if a signal is needed that may not meet a *MUTCD-CA* warrant.

Roundabouts are also traffic control devices that define the right-of-way for drivers. All drivers yield when entering a roundabout and should enter when there is a gap in traffic flow. Roundabouts are not subject to specific warrants; each proposed roundabout is justified on its own merits as the most appropriate intersection treatment. General design guidelines outlined in the *National Cooperative Highway Research Program Report 672 Roundabouts: An Informational Guide, Second Edition (NCRHP Report 672-2)* were used in the conceptual design development.

Roundabouts and traffic signals were considered for key locations along the corridor based on:

- Controlled intersection spacing
- Pedestrian and bicycle connections to bus stops
- Planned development and conditions of approval for traffic signals along the corridor
- Collision history
- Potential speed reduction features

5.0 Development of Themes

The second phase of the project involved the development of three alternatives or themes for the corridor. These themes provided the community with options to consider for the various segments and intersections of the corridor. Each theme involved a unique approach to planning for the corridor, with components and corresponding locations tied to a particular focus for the theme. As discussed in the review of community engagement to date in section 6, stakeholders had the opportunity to note which theme they preferred for the various segments of the corridor. Various components of each theme informed the development of the Draft Corridor Concept Plan. **Figures 3 through 5** illustrate the three themes considered and presented to the community at Workshop 2 (August 2020). Elements of each theme are summarized in **Table 1**, followed by a summary of each one of the three themes.

Table 1: Proposed Theme Concept Elements

Elements		Theme 1	Theme 2	Theme 3
Roundabout	Single Lane			✓
	Two-Lane	✓	✓	
	Single Lane w/ Taper		✓	✓
Curb-Extension		✓	✓	
Controlled Pedestrian Crossing (Signal or HAWK)		✓	✓	
Raised Median		✓	✓	✓
Sidewalk		✓	✓	✓
Class IV Separated Bikeway with Flexible Delineator Posts		✓	✓	✓
Class II Bike Lane with Buffer				✓
Gateway Feature				✓

Pedestrian and Bicycle Focus (Theme 1): Maximizes pedestrian and bicycle access along the corridor by providing continuous walking and bicycling facilities, providing frequent crossing locations, and integrating features that reduce traffic speeds.

Traffic Calming Focus (Theme 2): Focuses on reducing traffic speeds by modifying the physical conditions along the corridor. Roundabouts are included in both the North and South Villages, which help to reduce traffic speeds, along with an integrated system of narrower lanes and curb extensions.

Village Focus (Theme 3): Focuses on improvements that create a unique character in each of the two villages. In the North Village, Valley Center Road is narrowed to two lanes (one in each direction) and includes roundabouts at Miller Road and Cole Grade Road. These features aim to slow traffic along the corridor to create a walkable corridor with buffered bicycle lanes and on-street parking. In the South Village, narrower lanes and traffic signals aim to improve access and connectivity within the commercial core.

Analysis and public input from the review of the themes led to the development of a single Draft Corridor Concept Plan. A complete discussion of the themes is provided in **Appendix C** *(Conceptual Themes Technical Memorandum)*.

The Draft Corridor Concept Plan also incorporates elements from a toolbox of options (**Appendix B**). Elements that were included in the toolbox are as follows:

Single Lane Roundabout: An intersection controlled by road signs where all traffic moves counterclockwise around a central island. Single-lane roundabouts provide vehicles with one entry/exit lane and one travel lane through the roundabout.

Two-Lane Roundabout: An intersection controlled by signs where all traffic moves counterclockwise around a central island. Two-lane roundabouts provide vehicles with two entry/exit lanes and two travel lanes through the roundabout.

Single Lane Roundabout with Taper: A four-lane roadway that reduces to one travel lane on each approach to the single-lane roundabout and then widens back to two lanes after exiting the roundabout. This configuration allows the necessary roadway capacity along the corridor while also providing the safety and operational benefits of a single-lane roundabout.

Curb Extension (Bulb-outs): A traffic calming measure that widens the sidewalk for a short distance and extends the curb space at the corners of an intersection in order to reduce the crossing distance for pedestrians. Curb extensions may be constructed at intersection corners or mid-block crosswalks.

Controlled Pedestrian Crossing: Used to warn drivers and control vehicle traffic at a marked crosswalk. Controlled pedestrian crossings are typically located mid-block or at an intersection where a traffic signal is not warranted for vehicular traffic.

Raised Median: Curbed sections that typically occupy the center of the roadway. Raised medians within a roadway such as Valley Center Road can be either landscaped or paved.

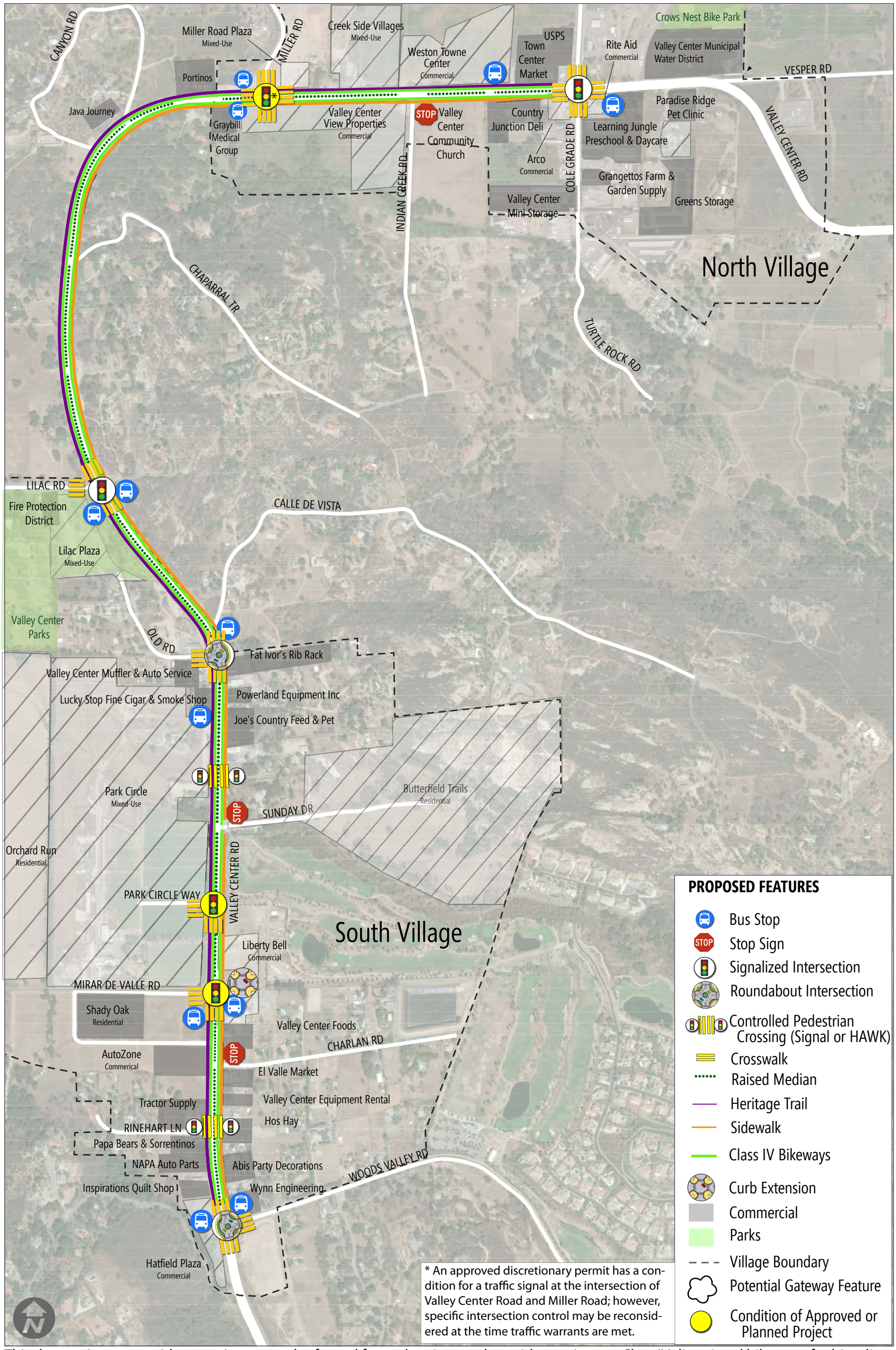
Marked Crosswalk: A place designated for pedestrians to cross a road. Crosswalks are typically marked on the roadway with parallel or dashed pavement markings to provide visibility to drivers. Typical crosswalks are striped with white paint. However, in school zones yellow paint should be used to mark the crossings.

Sidewalk or Pathway: A path with a hard surface by the side of a road. Sidewalks are often constructed of concrete or cement, though occasionally asphalt. Sidewalks must meet the minimum ADA requirements. Pathways, like the Heritage Trail, are typically wider (8 feet) than a sidewalk (4 to 5 feet) and typically consist of decomposed granite base rather than concrete.

Class IV Separated Bikeway with Flexible Delineator Posts: Protected bike lanes, also known as cycle tracks, provide space that is exclusively for bicyclists and separated from vehicular travel lanes, parking, and sidewalks. Parked cars, curbs, bollards, or planter boxes may provide physical separation between bicyclists and vehicles.

Class II Bike Lane with Buffer: Pavement striping and signage and effectively dedicate a portion of the roadway right-of-way for exclusive bicycle travel. Bike lanes are one-way facilities typically located on the far-right side of the road adjacent to the curb. Class II bike lanes with a buffer are conventional Class II bike lanes paired with a designated buffer space (18 inches to 3 feet) separating the bicycle lane from the adjacent vehicular travel lane and/or parking lane.

Gateway Feature: A free-standing monument, archway, statue, sculpture, or sign which identifies the name of a community, city, or town.



This theme aims to provide a continuous path of travel for pedestrians and provide continuous Class IV directional bikeways for bicyclists. In South Village, controlled pedestrian and bicycle crossings are provided maximum of 0.25 miles apart. Controlled crossings are provided at signalized intersections, controlled pedestrian crossings (signal or HAWK) and roundabouts. A curb extension is provided to help reduce pedestrian crossing distance and slow speeds at Mirar De Valle. A raised median is included the length of the corridor with gaps provided at intersections and key driveways. Lanes are narrowed to 11' to help manage speeds and access. Roundabouts are placed at the north and south ends of the South Village to serve as a gateway feature and to reduce speeds.

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Theme 1: Pedestrian and Bike Focus Concept Plan

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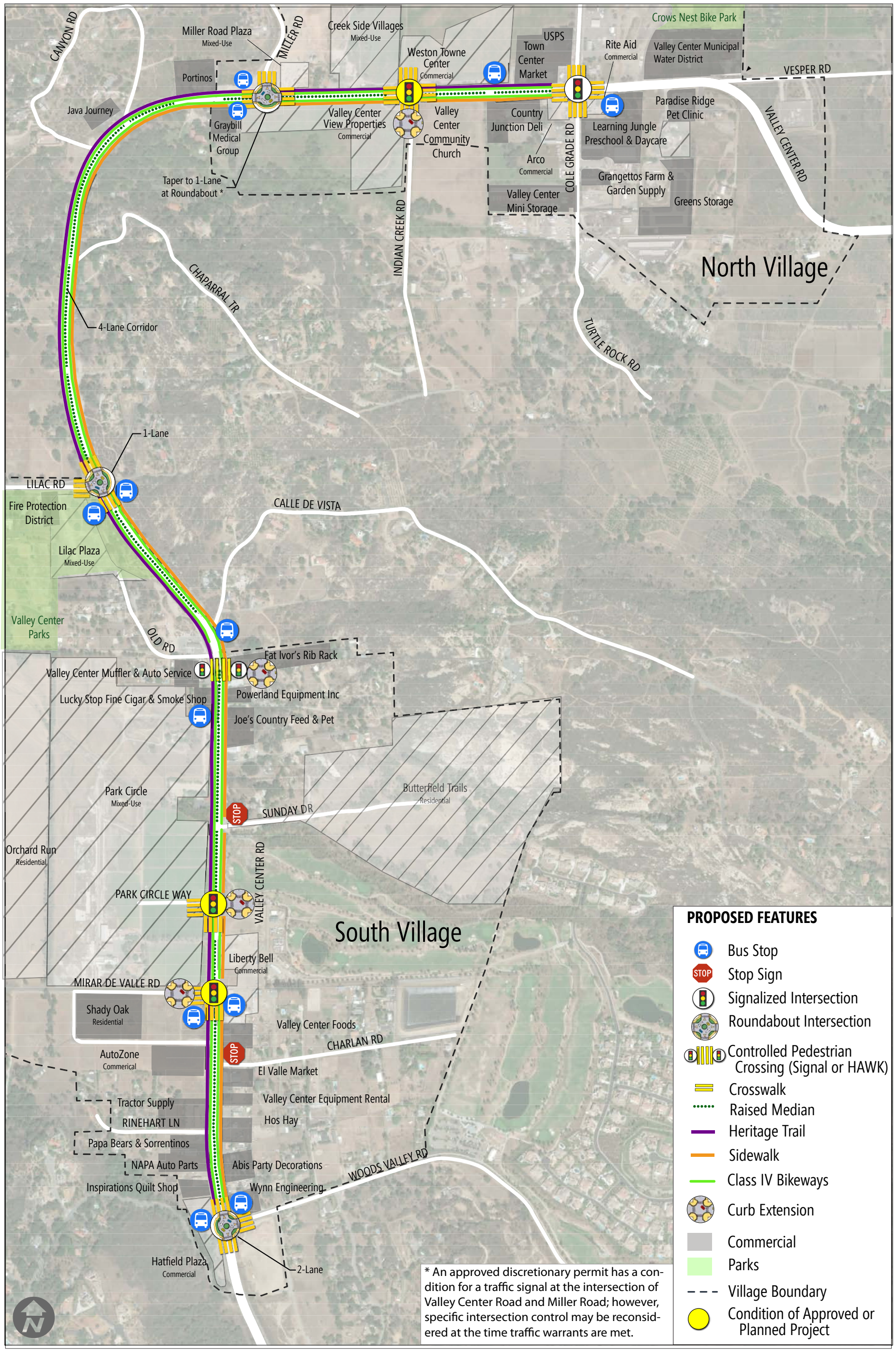
Figure 3



This theme places the roundabouts at the entrances to the North and South Villages, which serve as both traffic calming and gateway features. The roundabouts at Miller Road and at Lilac Road are single lane roundabouts. At these locations the corridor narrows to one lane at the roundabout. Curb extensions are recommended at key intersections to help maintain slower speeds. Integration of narrower lanes will also help with speed reductions. A raised median is included the length of the corridor with gaps provided at intersections and key driveways. Sidewalks on eastern and southern sides and Class IV directional bikeways are suggested the length of the corridor. New controlled pedestrian crossings are suggested in the South Village.

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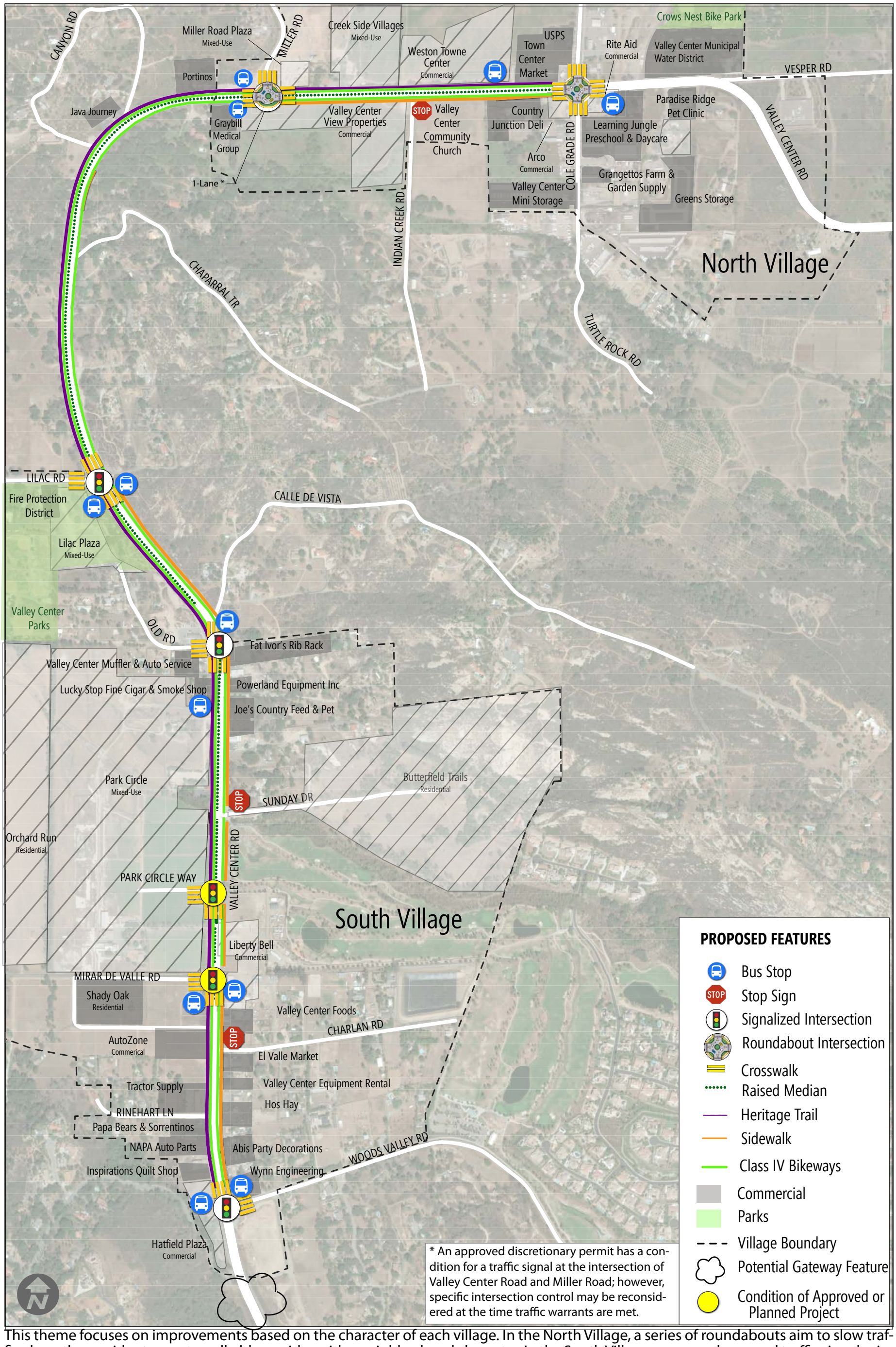
Theme 2: Traffic Calming Focus Concept Plan

Figure 4



This theme focuses on improvements based on the character of each village. In the North Village, a series of roundabouts aim to slow traffic along the corridor to create walkable corridor with a neighborhood character. In the South Village, narrower lanes and traffic signals aim to reduce speeds and improve connectivity for pedestrians creating a commercial core. The raised median is extended through the curve, restricting left turn access at Canyon Road and Chapparral Terrace and across Indian Creek in the North Village. No new medians are proposed in the South Village. New sidewalk is proposed on the east/south sides in both the North and South Villages, but not between Lilac Road and Miller Road. A gateway treatment is recommended in the South Village in the form of a monument or sign. Between Miller Road and Cole Grade Road, the corridor is narrowed to one lane in each direction with roundabouts that serve as traffic control and gateways.

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Theme 3: Village Focused Concept Map

Figure 5

6.0 Community Engagement

To develop the Corridor Concept Plan, the project team engaged with a variety of community stakeholders throughout the process. This section summarizes the community workshops associated with the existing conditions phase and the themes development phase. In addition to these workshops, an existing conditions site tour was held with key stakeholders prior to the first community workshop, and staff has engaged with community groups, stakeholder organizations, tribal governments, public agencies, and individual stakeholders through meetings and calls throughout the process. Following the second community workshop, a public review comment period was initiated to gather additional input, and a similar public review comment period will be commenced after a community workshop to present the Draft Corridor Concept Plan in summer 2022. In addition, it is anticipated that the Draft Corridor Concept Plan will be presented at meetings of the Valley Center Community Planning Group's (CPG) Mobility Subcommittee, Community Plan Update Subcommittee, and the full CPG. Summarized below are key takeaways from the community workshops.

WORKSHOP 1: EXISTING CONDITIONS, MARCH 2019

The first community workshop was conducted in person on March 12, 2019, at the Valley Center Middle School Multipurpose Room. The workshop included presentations and interactive stakeholder exercises focused on existing conditions data, existing issues along the corridor, and a pros and cons of treatment options for the corridor.

Key Takeaways

Based on the input received during the workshop, key takeaways were summarized in the *Community Kickoff Workshop Summary* (**Appendix D**) and documented below. Attendee feedback included the following:

- Many expressed safety concerns related to the high speeds along the corridor.
- Some attendees brought up concerns about difficult turning movements along the corridor, in particular:
  - U-turns from Valley Center Road westbound, into the Old Town Center parking lot just west of Cole Grade Road
  - Right turns onto Lilac Road from southbound Valley Center Road and the need for a turn lane
  - Ingress/egress turns to and from the small commercial center at Canyon Road and Valley Center Road, near the curve in Valley Center Road as well as at other businesses along the corridor
  - Left turns onto Valley Center Road northbound from Old Road, with high speeds and low visibility
- Some attendees were concerned about the potential for signalized intersections being too close together, which could excessively disrupt the flow of traffic and travel times.
- Some attendees noted the difficulties in riding a bike along Valley Center Road, due to the high speeds and not enough separation from cars.
- Some attendees felt that Valley Center Road and the additional road network in the Villages would not be able to handle additional future traffic volumes coming from planned development along the corridor.
- Some attendees highlighted the aesthetic improvements associated with landscaped medians.
- Some attendees pointed out the improved pedestrian atmosphere associated with the Heritage Trail along portions of Valley Center Road and the need to fill in the gaps along the corridor where there is currently no trail or sidewalk.
- Some attendees expressed support for a community gateway feature near Woods Valley Road.

WORKSHOP 2: THEMES DISCUSSION, AUGUST 2020

The three themes were presented to the community during a virtual workshop on August 25, 2020. The presentation materials are provided in **Appendix E** and a summary of the input received following the workshop is provided in **Appendix F**. The workshop focused on a toolbox of potential features considered for the corridor, and presentation of the three themes, with participant feedback and input.

Key Takeaways

Based on the input provided from the on-line feedback forms, key takeaways were summarized in the *Workshop Summary Report* (Appendix F) and are summarized below.

Those who would like to see roundabouts on Valley Center Road prefer the roundabout's ability to:

- Reduce serious accidents
- Improve traffic flow
- Reduce stopping which leads to increased greenhouse gas emissions
- Make biking and walking safer
- Create a more uniform driving experience
- Help to develop the village atmosphere

Other respondents shared concerns about the practicality of roundabouts on Valley Center Road including:

- Traffic being slowed too much, particularly for larger trucks and trailers
- Emergency vehicles effectively navigating a roundabout
- The efficiency of fire evacuations

Respondents commented regarding the proposed bicycle and pedestrian improvements and would like to see improvements including:

- Sidewalk extensions on the east and south sides of the road through the villages
- Better pedestrian facilities to improve the village feel of the corridor
- Bicycle lanes prioritized no matter the theme chosen

Respondents also left comments concerned about the proposed bicycle and pedestrian improvements including:

- Concern with creating separated bike lanes with flexible delineator posts, as they believe these lanes may trap bicyclists to the far right of the road, making it difficult for bicyclists to turn left, and potentially making bicycling more dangerous as debris could collect in the lane
- Stated that Valley Center Road should be better improved for drivers rather than bicyclists and pedestrians
- Suggested that many residents drive to purchase ranch supplies, and live on large plots of land, making biking and walking impractical for daily errands

For issue areas that did not have clear community consensus on the best treatment approach, the project team also considered the available data, analysis, and best practices to address the issues that led to project initiation (see Section 1), when developing the Draft Corridor Concept Plan.

7.0 Draft Corridor Concept Plan

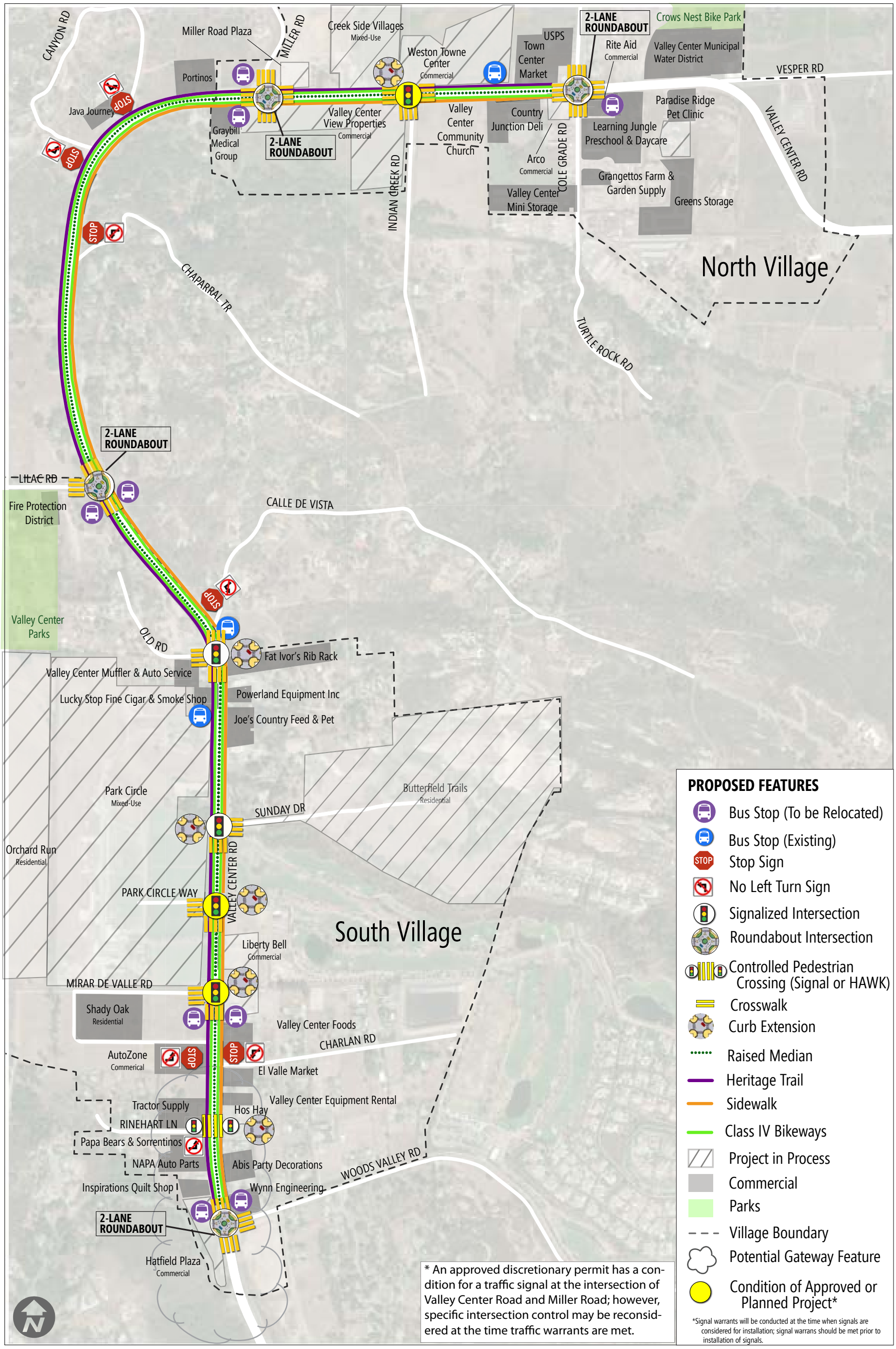
This section provides the components of the Draft Corridor Concept Plan, rationales for the components, graphics and example photos to illustrate the proposals, and plan sheets are provided as **Figures 6, 7, and 8**. This section also addresses emergency response and evacuations.

ELEMENTS OF THE DRAFT CORRIDOR CONCEPT PLAN

The Draft Corridor Concept Plan includes the following key elements, which are illustrated in **Figure 6** and discussed further on the following pages:

1. 2-lane roundabouts (Cole Grade Road, Miller Road, Lilac Road and Woods Valley Road) with a multi-use path outside of the vehicle travel lanes
2. New traffic signals (Indian Creek Road, Old Road, Sunday Drive, Park Circle Way, and Mirar De Valle Road)
    - Traffic signals at Indian Creek Road, Park Circle Way, and Mirar De Valle Road are also conditions of private development projects and Park Circle is now built
3. New controlled pedestrian crossing with curb extensions (Rinehart Lane)
4. Class IV separated bikeway with flexible delineator posts along the entire corridor
5. Replace all existing crosswalks with Continental Crosswalks
6. Curb extensions (Indian Creek Road, Old Road, Sunday Drive, Park Circle Way, Mirar de Valle Road, Rinehart Lane)
7. Close gaps in the raised median along the corridor at side street stop-controlled intersections (Canyon Road North and South, Chaparral Terrace, Calle de Vista, Moosa Creek Way, Charlan Road, and Rinehart Lane)
8. No left turn and stop control on side streets with median (Canyon Road North and South, Chaparral Terrace, Calle de Vista, Moosa Creek Way, Charlan Road, Rinehart Lane)
9. Relocate and improve bus stops to align with intersection controls and Class IV separated bikeway
10. Potential gateway feature south of South Village
11. New sidewalk sections on the east and south sides of the corridor where there are currently gaps
12. Maintain the Heritage Trail on the west and north sides of the corridor
13. Reduction in segment lane widths (outside roundabouts) from 12′ to 11′

Conceptual design of the Draft Corridor Concept Plan is provided in **Figure 6** and **Figure 7** and cross-sections are provided in **Figure 8**. Detailed descriptions of key elements of the Draft Corridor Concept Plan are provided following the conceptual design.



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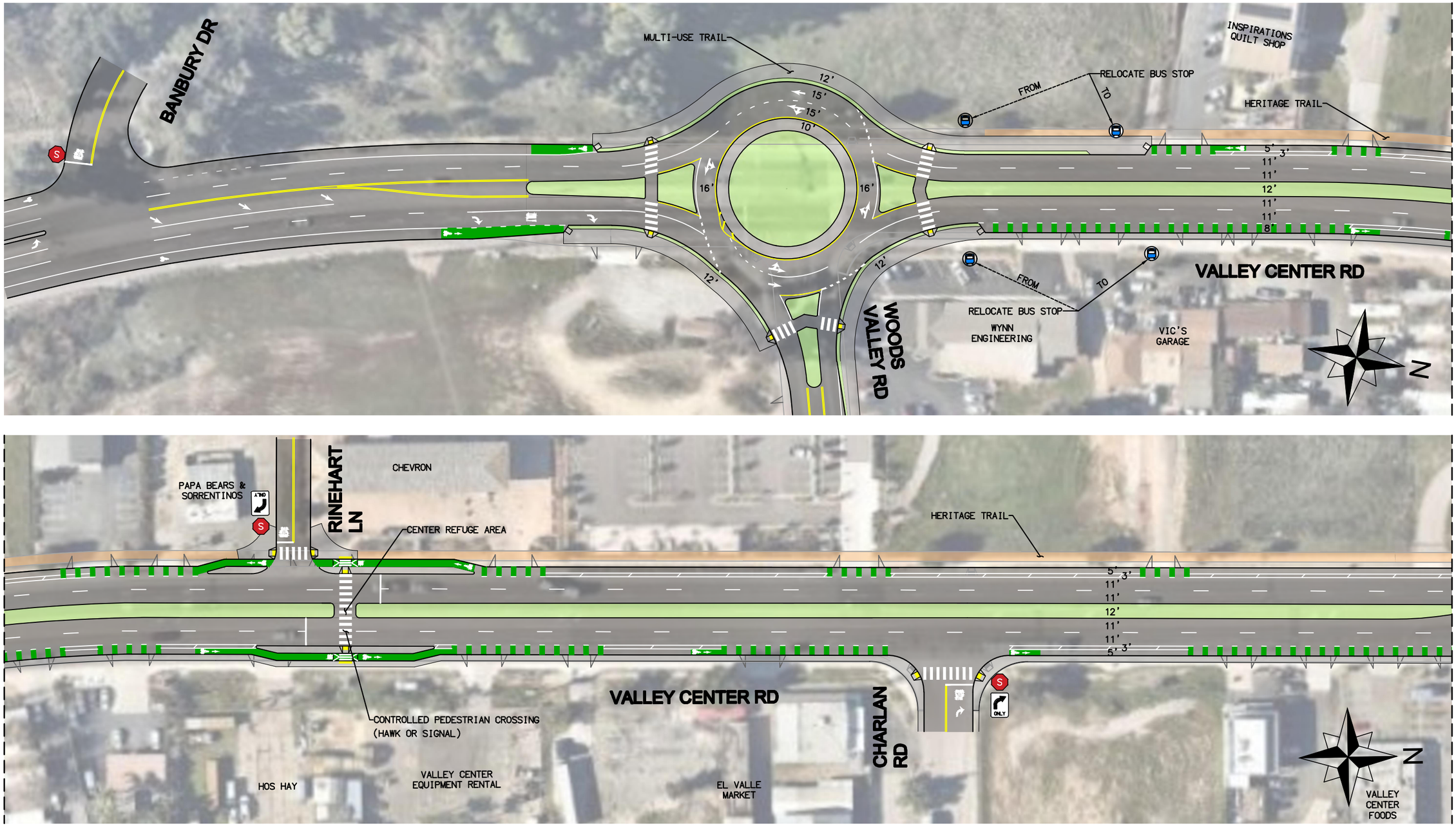
Draft Corridor Concept Plan

Figure 6



LEGEND

- SIDEWALK
- LANDSCAPING
- HERITAGE TRAIL
- BIKE LANE TRANSITION AREA
- BIKE LANE CONFLICT AREA
- CURB
- BIKE LANE LINE
- ROAD STRIPE
- BUFFER WITH DELINEATORS
- CROSSWALK
- TRAFFIC SIGNAL
- STOP SIGN
- RIGHT TURN ONLY SIGN
- BUS STOP
- CURB RAMP
- RAISED BIKE CROSSING
- EXISTING DRIVEWAY
- BIKE RAMP TRANSITION

80 40 0

SCALE: 1"=80'

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Draft Corridor Concept Plan

SHEET 1 OF 6

Figure 7

H:\PDATA\170071_VALLEY CENTER CORRIDOR\TRAFFIC\EXHIBITS\CADD\DLV\NOROW\170071-OVERALL-FINAL-NOROW.DWG MARTINEZ, JECELYN 4/25/2022 5:35 PM

MATCHLINE SHEET 1

MATCHLINE BELOW LEFT

MATCHLINE ABOVE RIGHT

MATCHLINE SHEET 3

RELOCATE BUS STOP

FROM

TO

MIRAR DE VALLE

PARK CIRCLE

HERITAGE TRAIL

5' 3' 11' 11' 12' 11' 11' 5' 3'

VALLEY CENTER RD

FROM

TO

RELOCATE BUS STOP

HERITAGE TRAIL

MOOSA CREEK WAY

ONLY

S

5' 3' 11' 11' 12' 11' 11' 5' 3'

VALLEY CENTER RD

SUNDAY DR

JOE'S COUNTY FEED & PET

N

LEGEND

- SIDEWALK
- LANDSCAPING
- HERITAGE TRAIL
- BIKE LANE TRANSITION AREA
- BIKE LANE CONFLICT AREA
- CURB
- BIKE LANE LINE
- ROAD STRIPE
- BUFFER WITH DELINEATORS
- CROSSWALK
- TRAFFIC SIGNAL
- STOP SIGN
- RIGHT TURN ONLY SIGN
- BUS STOP
- CURB RAMP
- RAISED BIKE CROSSING
- EXISTING DRIVEWAY
- BIKE RAMP TRANSITION

N

80 40 0

SCALE: 1"=80'

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Draft Corridor Concept Plan

SHEET 2 OF 6

Figure 7

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MATCHLINE SHEET 2

MATCHLINE BELOW LEFT

LUCKY STOP FINE CIGAR & SMOKE

VALLEY CENTER MUFFLER & AUTO SERVICE

OLD RD

HERITAGE TRAIL

5' 3' 11' 11' 12' 11' 11' 5' 3'

VALLEY CENTER RD

FAT IVORS RIB RACK

N

MATCHLINE ABOVE RIGHT

HERITAGE TRAIL

RELOCATE BUS STOP

TO

FROM

MULTI-USE TRAIL

5' 3' 11' 11' 12' 11' 11' 5' 3'

VALLEY CENTER RD

12' 15' 15' 10' 16' 16' 12' 12' 12'

LILAC RD

FROM

TO

RELOCATE BUS STOP

N

MATCHLINE SHEET 4

LEGEND

- SIDEWALK
- LANDSCAPING
- HERITAGE TRAIL
- BIKE LANE TRANSITION AREA
- BIKE LANE CONFLICT AREA
- CURB
- BIKE LANE LINE
- ROAD STRIPE
- BUFFER WITH DELINEATORS
- CROSSWALK
- TRAFFIC SIGNAL
- STOP SIGN
- RIGHT TURN ONLY SIGN
- BUS STOP
- CURB RAMP
- RAISED BIKE CROSSING
- EXISTING DRIVEWAY
- BIKE RAMP TRANSITION

80 40 0

SCALE: 1"=80'

Draft Corridor Concept Plan

SHEET 3 OF 6

Figure 7

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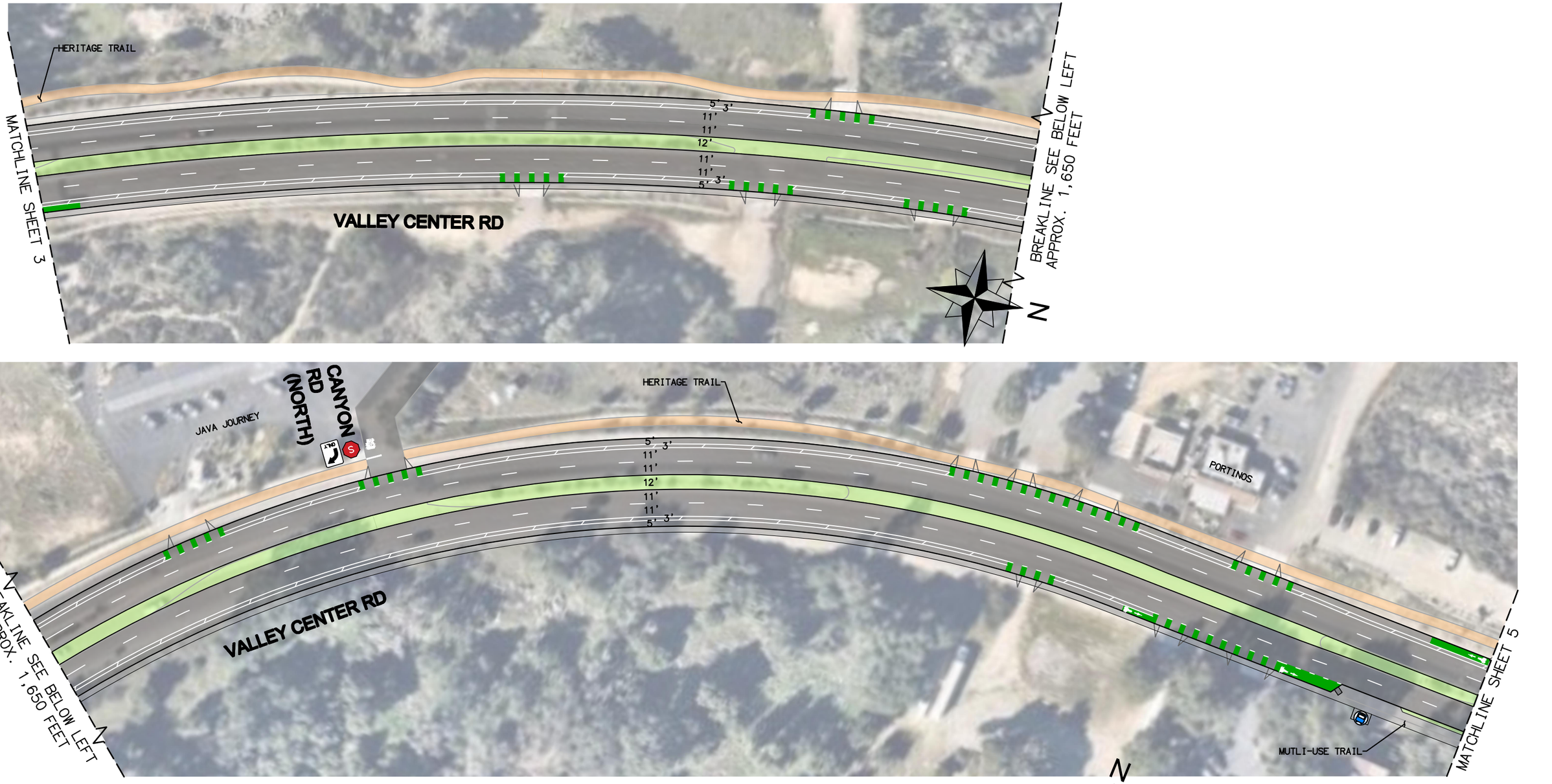

LEGEND

- SIDEWALK
- LANDSCAPING
- HERITAGE TRAIL
- BIKE LANE TRANSITION AREA
- BIKE LANE CONFLICT AREA
- CURB
- BIKE LANE LINE
- ROAD STRIPE
- BUFFER WITH DELINEATORS
- CROSSWALK
- TRAFFIC SIGNAL
- STOP SIGN
- RIGHT TURN ONLY SIGN
- BUS STOP
- CURB RAMP
- RAISED BIKE CROSSING
- EXISTING DRIVEWAY
- BIKE RAMP TRANSITION

80 40 0

SCALE: 1"=80'

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Draft Corridor Concept Plan

SHEET 4 OF 6

Figure 7

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MATCHLINE SHEET 4

MILLER RD

VALLEY CENTER RD

HERITAGE TRAIL

MULTI-USE TRAIL

MATCHLINE BELOW LEFT

MATCHLINE ABOVE RIGHT

FUTURE INDIAN CREEK ROAD EXTENSION

INDIAN CREEK RD

CALIFORNIA BANK

MATCHLINE SHEET 6

LEGEND

- SIDEWALK
- LANDSCAPING
- HERITAGE TRAIL
- BIKE LANE TRANSITION AREA
- BIKE LANE CONFLICT AREA
- CURB
- BIKE LANE LINE
- ROAD STRIPE
- BUFFER WITH DELINEATORS
- CROSSWALK
- TRAFFIC SIGNAL
- STOP SIGN
- RIGHT TURN ONLY SIGN
- BUS STOP
- CURB RAMP
- RAISED BIKE CROSSING
- EXISTING DRIVEWAY
- BIKE RAMP TRANSITION

N

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SCALE: 1"=80'

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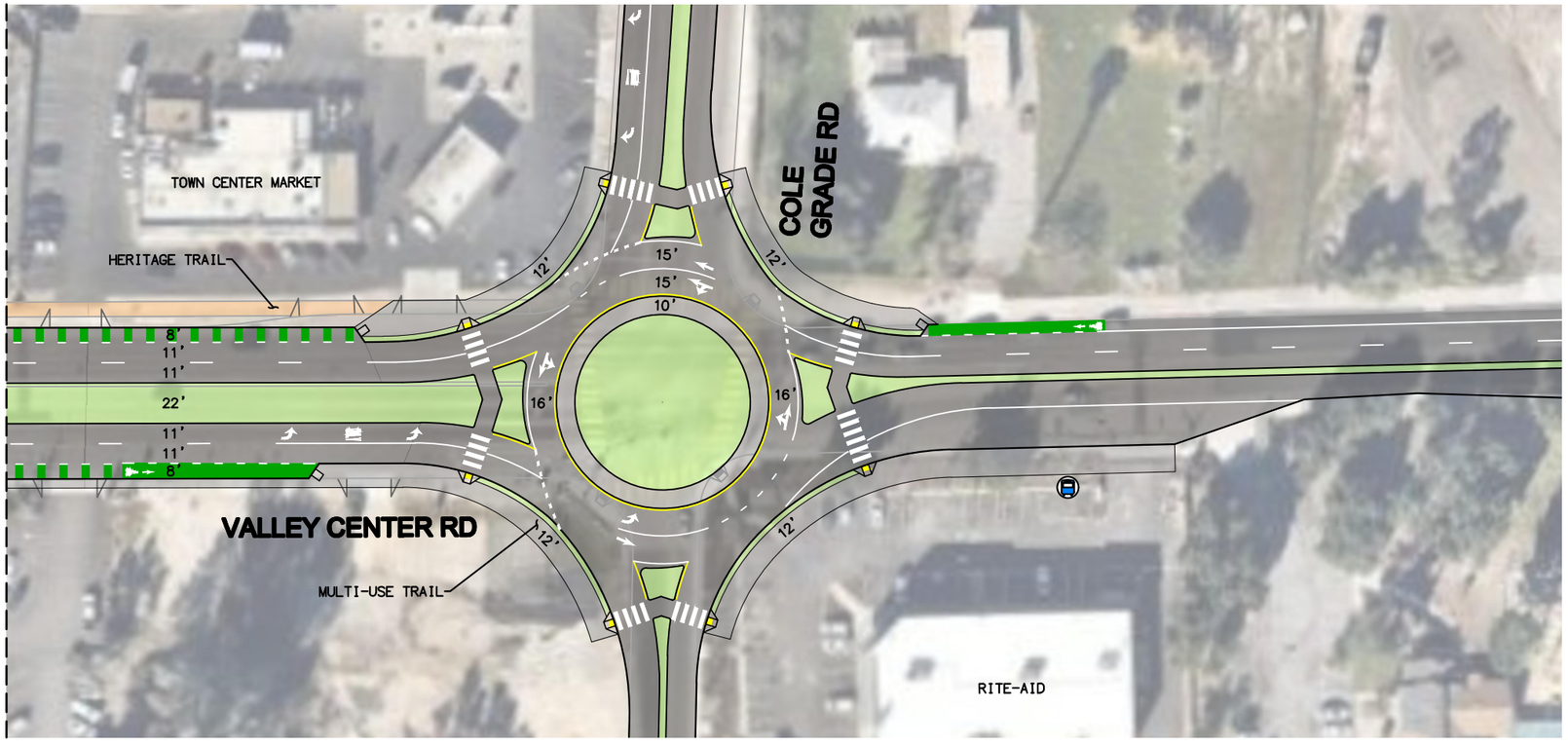
Draft Corridor Concept Plan

SHEET 5 OF 6

Figure 7

H:\PDATA\170071_VALLEY CENTER CORRIDOR\TRAFFIC\EXHIBITS\CADD\DLV\NOROW\170071-OVERALL-FINAL-NOROW.DWG MARTINEZ, JECELYN 4/25/2022 5:32 PM



LEGEND

- SIDEWALK
- LANDSCAPING
- HERITAGE TRAIL
- BIKE LANE TRANSITION AREA
- BIKE LANE CONFLICT AREA
- CURB
- BIKE LANE LINE
- ROAD STRIPE
- BUFFER WITH DELINEATORS
- CROSSWALK
- TRAFFIC SIGNAL
- STOP SIGN
- RIGHT TURN ONLY SIGN
- BUS STOP
- CURB RAMP
- RAISED BIKE CROSSING
- EXISTING DRIVEWAY
- BIKE RAMP TRANSITION

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SCALE: 1"=80'

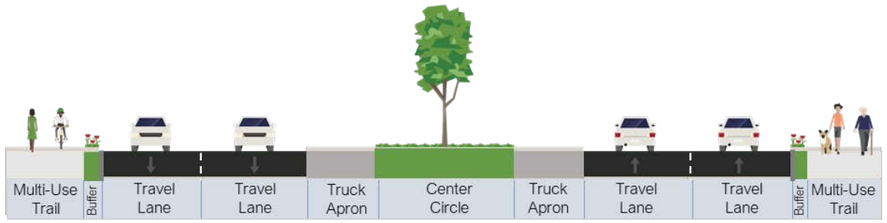
Michael Baker INTERNATIONAL

Draft Corridor Concept Plan

SHEET 6 OF 6

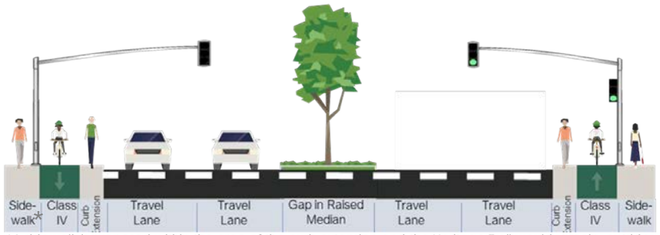
Figure 7

H:\PDATA\170071_VALLEY CENTER CORRIDOR\TRAFFIC\EXHIBITS\CADD\DLV\NOROW\170071-OVERALL-FINAL-NOROW.DWG MARTINEZ, JECELYN 4/25/2022 5:31 PM



A Typical Two-Lane Roundabout

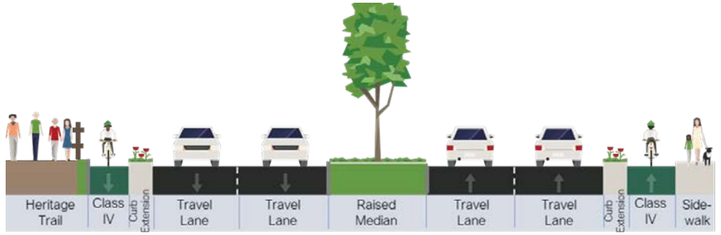
Pedestrians and bicyclists travel around the perimeter of the roundabout on a multi-use trail. The trail is accessible to bicycles via bike ramps on the approach to and departure from the roundabout. Bicyclists may also choose to share the lane and travel through the roundabout with vehicles. Marked crosswalks are provided on all legs of the roundabout for pedestrians. Splitter islands provide a refuge area for pedestrians as they cross each direction of traffic.



*A sidewalk is proposed within the area of the curb extension and the Heritage Trail would remain, outside of the curb extension area.

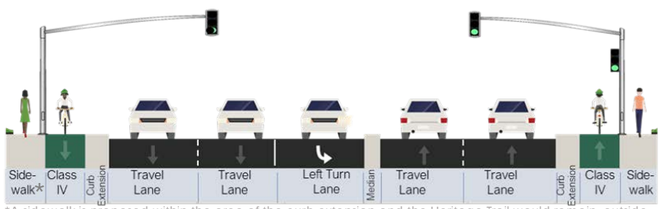
B Controlled Pedestrian Crossing with Curb Extensions

The controlled pedestrian crossing at Rinehart Lane may include either a hybrid beacon (HAWK) or a pedestrian traffic signal. Either option will be activated by the pedestrian using a push button and both will stop traffic to provide a dedicated time for pedestrians to cross the street while vehicles are stopped at a red light. A gap in the raised median at the controlled crossing provides a refuge area for a pedestrian should they need additional time to cross the street.



C Typical Curb Extension

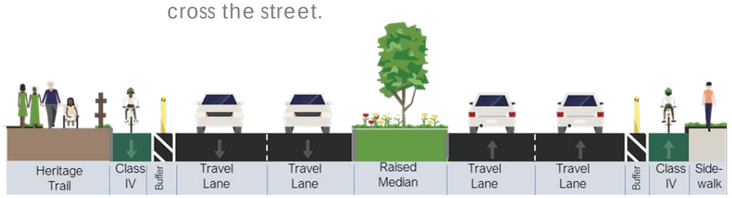
Curb extensions shorten the crossing distance for pedestrians across Valley Center Road. Curb extensions also provide additional traffic calming along the road. The Class IV separated bikeway ramps up to sidewalk level through the curb extension to allow level crossing for pedestrians across the bikeway



*A sidewalk is proposed within the area of the curb extension and the Heritage Trail would remain, outside of the curb extension area.

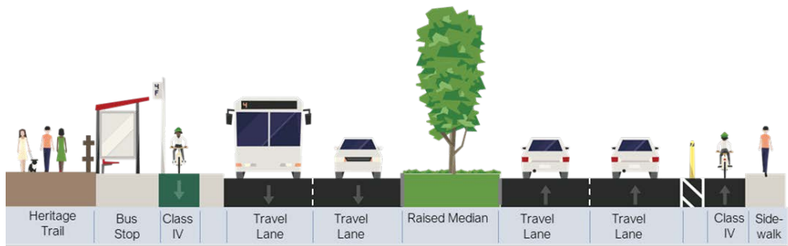
D Typical Signalized Intersection with Curb Extensions

Traffic signals will improve access along the Valley Center Road corridor by clearly defining time for pedestrians, bicycles and vehicles to cross or proceed along the roadway. Curb extensions are included at all signalized intersections to reduce the crossing distance and reduce the amount of green time needed for a pedestrian to cross Valley Center Road. Signal phasing and other features will provide safe crossing accommodations for pedestrians and bicyclists.



E Typical Road Section

The Draft Corridor Concept Plan includes Class IV separated bikeways with flexible delineator posts. The posts and the striped buffer provided a physical separation for bicycles from the adjacent vehicles. Green paint is used in conflict zones (areas where bicycles and vehicles could intersect) and in transition areas (approaching and departing intersections and driveways) to provide a visual queue to the driver of potential bicyclists. Sidewalks are provided on the east and south side of Valley Center Road and the Heritage Trail is provided on the west and north side. The buffer and bicycle lane provide a physical separation between pedestrians along the sidewalk and the vehicle lanes.



F Typical Bus Stop with Curb Extension

Buses must stop along the curb for passengers to board. Since the Class IV separated bikeway would prevent buses from entering the bicycle lane to stop curb adjacent, the bicycles are moved behind a bus loading area. The Class IV separated bikeway is ramped up to sidewalk level the length of the bus stop to provide level crossing from the bus stop waiting area to the curb to board.

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Cross-Sections

Figure 8

1. 2-Lane Roundabouts (Cole Grade, Miller Road, Lilac Road and Woods Valley Road)

A roundabout is an intersection controlled by road signs where all traffic moves counterclockwise around a central island. A series of roundabouts are included in the Draft Corridor Concept Plan to help improve safety, reduce traffic speeds, reduce stops and delays at intersections, and reduce pedestrian crossing distances.

Safety Improvements

According to information published by Caltrans, roundabouts have demonstrated substantial safety and operational benefits compared to most other intersection forms and controls, with significant reductions in fatal and injury crashes. By converting a signalized intersection to a roundabout, locations can experience as much as a 78% reduction in severe or fatal crashes and 48% percent reduction in overall crashes[1].

The *National Cooperative Highway Research Program Report 672, Roundabouts: An Informational Guide, Second Edition (NCHRP Report 672-2)* presented a diagram of vehicle–vehicle conflict points for a traditional three-leg (T) intersection and a three-leg roundabout. As shown in **Figure 9**, the number of vehicle–vehicle conflict points for roundabouts decreases from nine to six for three-leg intersections. For a four-legged intersection, the number of conflict points is reduced from 32 to eight (for a one-lane roundabout). In the *NCHRP Report 672-2*, before and after studies were conducted for 55 roundabout locations in the United States and findings were reported for both total and injury accidents. The findings of these studies all showed that injury crashes are reduced more dramatically than crashes involving property damage only. This is in part due to the configuration of roundabouts, which eliminates severe crashes such as broadside and head-on crashes.

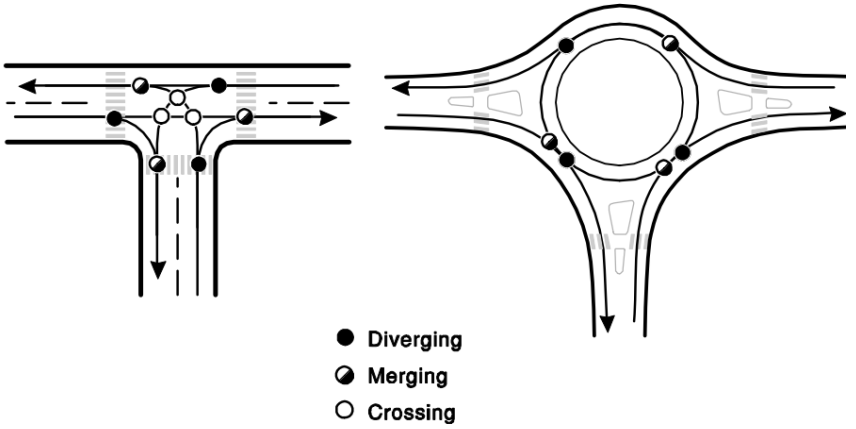


Figure 9: Conflict Points at a Typical 3-legged Roundabout (Source: *NCHRP Report 672-2*)

Traffic Calming Feature

At the time this report was prepared, there were four (4) traffic signals along Valley Center Road. The lack of disruptions to traffic along the corridor due to the limited number of controlled intersections (i.e., signals, roundabouts, all-way stops), results in speeds that exceed the posted speed limit consistently along the corridor. The existing traffic signals are relatively far apart along Valley Center Road and typically maintain the green light for through traffic when there are no vehicles on the side street. Hence, vehicles do not need to slow down entering the intersection. As such, the existing traffic signals have little impact on the overall speed along this corridor.

High traffic speeds impact the safety for all modes including autos, pedestrians, bicyclists, equestrians, and those using transit. Aligning the traffic speed with the posted speed limit and creating an environment that is appropriate for walking, bicycling, and riding along the corridor is one of the purposes of this Corridor Concept Plan. Roundabouts can have traffic calming effects on streets by reducing vehicle speeds using geometric design. Consequently, speed reduction can be realized at all times of day and on streets of any traffic volume. It is difficult for drivers to speed through an appropriately designed roundabout with raised channelization that forces vehicles to physically change direction. These types of physical modifications to the corridor are required to achieve the goal of reducing traffic speeds.

[1] California Local Technical Assistance Program, Proven Safety Countermeasures https://californialtap.org/index.cfm?pid=1084#:~:text=By%20converting%20from%20a%20signalized,percent%20reduction%20in%20overall%20crashes.

Traffic Flow Assessment

According to the *NCHRP Report 672-2*, the maximum flow rate that can be accommodated at a roundabout entry depends on two factors: the circulating flow on the roundabout that conflicts with the entry flow, and the geometric elements of the roundabout (refer to **Figure 10**). Two-lane roundabouts can carry over 50,000 vehicles per day when more than half of the volume through the roundabout remains on the main roadway. When there is a more equitable split between the main road and the side street, the maximum capacity is closer to 45,000 vehicles per day. Valley Center Road currently carries between 24,000 to 26,000 vehicles per day and is anticipated to increase to 30,000 to 35,000 vehicles per day by 2035. Therefore, two-lane roundabouts will provide adequate capacity for existing and future volumes.

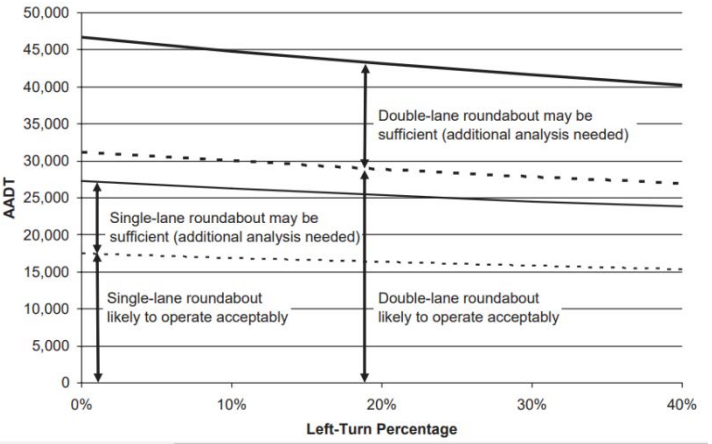


Figure 10: Potential Roundabout Capacity Based on Volumes and Geometrics (Source: FHWA, 2010)

Considering the existing and future volumes along Valley Center Road, two lane roundabouts are proposed, similar to that shown in **Photo 3**. As discussed further in Section 8 of this report, the analysis shows the improved traffic flow and reduced delay at intersections with the improvements of the Draft Corridor Concept Plan, including the roundabouts.

Photo 3: Typical two-lane roundabout with splitter islands (Sparks, Nevada)

Pedestrian and Bicycle Navigation at a Roundabout

Marked crosswalks and splitter islands are provided on each leg of the intersection for pedestrians. The raised splitter islands allow pedestrians to cross one direction of traffic at a time and provide a space to wait for gaps in traffic. This significantly reduces pedestrian exposure time to vehicular traffic when compared to a signalized intersection. Valley Center Road is 72 feet wide, which takes a typical pedestrian approximately 24 seconds to cross at a walking speed of three feet per second at the existing signalized intersections. With the roundabouts, pedestrians would cross one direction at a time for a distance of approximately 24 to 30 feet for each direction of traffic. That is equivalent to approximately eight to 10 second crossing per direction of traffic.

Bicyclists have two options for navigating the roundabout. The Class IV separated bikeway with flexible delineator posts end approaching the roundabout and transition to a bicycle ramp that leads to a sidewalk level multiuse path that follows the perimeter of the roundabout. This path is intended to be shared with pedestrians and provides bicyclists the option to navigate the roundabout outside of the vehicle lanes. Bicyclists may also merge with traffic and ride through the roundabout in the travel lanes. Roundabouts slow drivers to speeds more compatible with typical bicyclist travel speeds, which commonly range from 12 to 20 mph. Designing roundabouts such that vehicles travel at similar speeds minimizes the speed differential between bicyclists and motorists thereby improving safety and usability for the cyclist.

Four roundabouts are included in the Draft Corridor Concept Plan. A brief discussion of each roundabout is provided below.

Woods Valley Road

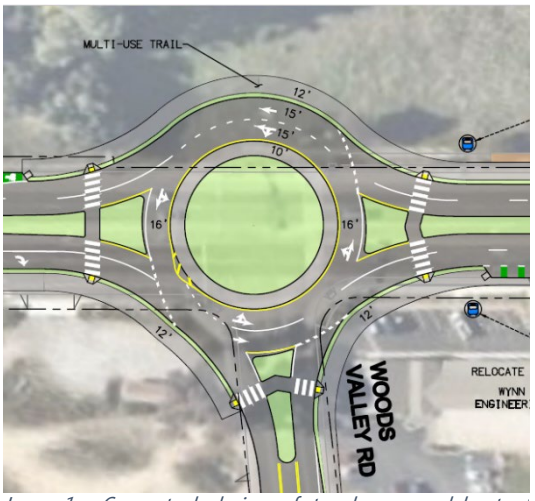


Image 1: Conceptual design of two-lane roundabout at Woods Valley Road

Woods Valley Road is located at the south end of the corridor within the South Village. A roundabout at this location will reduce speeds entering the South Village from the south and provide visual cues that the driver is entering the commercial core of Valley Center. Two lanes are provided northbound and southbound through the roundabout, as shown in **Image 1**. Through traffic can use either the inside or the outside lane to navigate the roundabout. Left turning vehicles enter the roundabout in the inside lane and right turning vehicles use the outside lane. The crash analysis for the corridor indicates 5 of the 12 collisions that occurred within 500 feet of this intersection were reported as broadside collisions. Broadside collisions occur when a vehicle heading straight collides with vehicle turning left. Since all traffic flows in the same direction through a roundabout, this through-left conflict point is eliminated when a roundabout is constructed.

Lilac Road

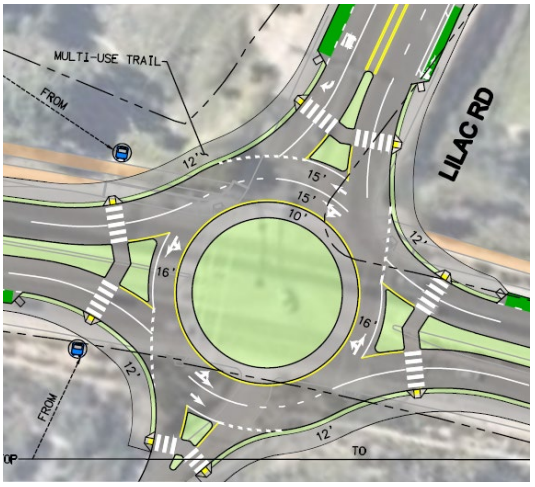


Image 2: Conceptual design of two-lane roundabout at Lilac Road

Lilac Road intersects Valley Center Road at the north end of the South Village. It provides access to Valley Center Fire Protection District Station 1 (approximately 400 feet west of Valley Center Road) and the Valley Center Community Hall and Park (approximately 650 feet west of Valley Center Road). A roundabout at this location will improve operating conditions by reducing delay and improving safety through the intersection. Two lanes are provided northbound and southbound through the roundabout along Valley Center Road. Through traffic can use either the inside or the outside lane to navigate the roundabout. Left turning traffic enters the roundabout in the inside lane and right turning traffic enters using the outside lane. Eastbound Lilac Road entering the roundabout includes a dedicated right turn lane and a shared through/left lane. Only the shared left/through lane circulates around the center circle, as shown in **Image 2**. The crash analysis for the corridor indicated that three of the 18 collisions reported within 500 feet of Lilac Road were head-on collisions and three were broadside. Head-on or broadside collisions occur when the front end of two vehicles traveling in opposite directions collide. Once again, since all traffic flows in the same direction in a roundabout, the potential for head-on collisions is nearly eliminated when a roundabout is constructed.

Miller Road

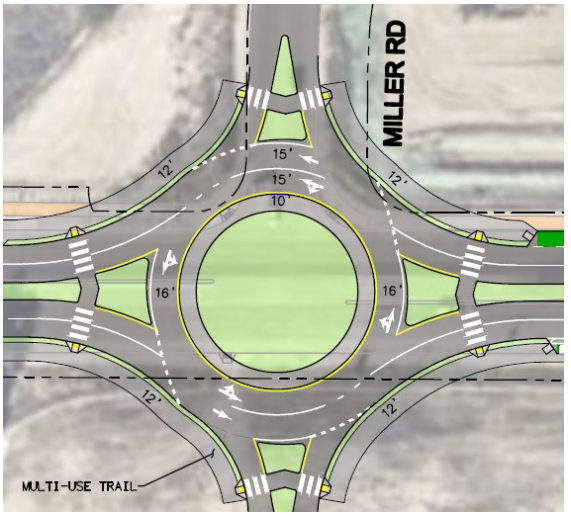


Image 3: Conceptual design of two-lane roundabout at Miller Road

Miller Road is located at the west end of the North Village and is currently a three-legged intersection. A proposed development on the south side of Valley Center Road at Miller Road will add the fourth leg on the south side of the intersection, as shown in **Image 3**. The geometry of the north and south legs will be determined during final engineering design and will align with traffic conditions forecast for the intersection as projects are considered for development along the corridor.

A roundabout at this location will improve safety, provide access to existing and future development, and reduce speeds entering the North Village. Over the five-year crash analysis period studied, 23 crashes occurred at Miller Road of which 11 occurred within 500 feet of the intersection. One fatal crash was reported as a result of a head-on collision due to driving on the wrong side of the road. One severe injury crash was reported as a result of a broadside collision, where a driver failed to yield the right-of-way to the other driver. In addition to these two crashes, an additional 10 were rear-end collisions primary due to unsafe speed. Broadside, head-on, and speed related crashes are correctable with the construction of a roundabout.

Cole Grade Road

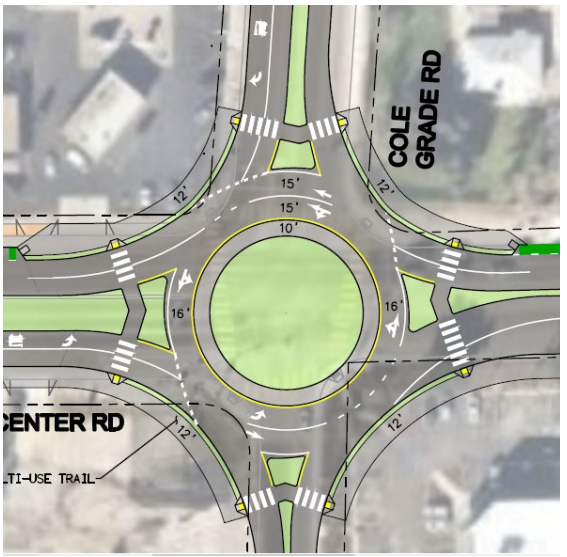


Image 4: Conceptual design of two-lane roundabout at Cole Grade Road

Cole Grade Road is located at the east end of the North Village and currently experiences heavy eastbound to northbound left turn movements and southbound to westbound right turn movements as drivers transition from Valley Center Road to Cole Grade Road. Approximately eight miles to the north, Cole Grade Road connects with State Route 76 (SR-76), which provides regional access to Valley Center. To address the heavy turn movements, dedicated right and left turn lanes are included in the layout of the roundabout, as illustrated in **Image 4**. Existing driveways may be affected by the design of the roundabout. Access to existing property and the relocation of driveways will be addressed during final engineering design.

Cole Grade Road also has the highest number of crashes reported for all intersections studied along Valley Center Road. Over the five-year period studied, 44 crashes were reported of which 10 were broadside collisions and one was head-on, all of which occurred within the intersection. As described previously, broadside and head-on crashes are correctable with the construction of a roundabout as all traffic circulates in the same direction around the center circle.

ROUNDABOUTS: EMERGENCY RESPONSE AND EVACUATION IMPACTS

In an emergency evacuation situation, large volumes of traffic may be loaded onto a roadway putting pressure on the roadway capacity and intersection controls along the route. San Diego County Board of Supervisors approved the *County Emergency Operations Plan (EOP)* in September 2018, which describes the emergency management system deployed when disaster situations occur. The plan includes operational concepts that address a wide array of emergency situations and outlines the responsibilities of each agency during the response. Annex Q of the *EOP* addresses evacuations including the strategies and procedures that can be implemented for a coordinated evacuation effort. The evacuation response operations section of the *EOP* Annex Q includes processes by which evacuation routes are identified and how traffic is managed along those routes.

As stated in the *EOP*, there are many strategies available to enhance traffic flow to reduce evacuation times including law enforcement and public officials directing traffic, contraflow, phased evacuations, road barriers, Intelligent Transportation Systems, and traffic signal coordination. The EOP is silent on roundabouts and operations; however, as more roundabouts are constructed in the County the *EOP* should be modified to address strategies for traffic control through the roundabout in emergency situations. When considering the impact of a roundabout on emergency response and evacuation times, the physical design of the roundabout should have no effect on the implementation of emergency response strategies or evacuation times when compared to a signalized intersection.

Contra-Flow: In extreme situations, San Diego County's contra-flow operations referenced in the *EOP* could be implemented. Contra-flow is where the lanes of a roadway are reversed to maximize traffic flow and capacity with all lanes traveling in one direction. Roundabout geometrics are favorable for contra-flow operations as outlined in the *EOP* and would not prevent the direction of traffic flow from being reversed if necessary.

Traffic Flow and Capacity: Replacing traffic signals with roundabouts reduces the need to address traffic signal timing and operations during an emergency response. Two-lane roundabouts can provide continuous traffic flow and can carry between 45,000 and 50,000 vehicles per day depending on turn frequency. According to the County of San Diego capacity tables, the roadway capacity for Valley Center Road in its existing condition ranges from 27,000 to 36,000 vehicles per day. Therefore, roundabouts provide more capacity than the typical roadway section and traffic flow can be maximized to reduce delays and queues by controlling side street traffic and turns. This is consistent with the EOP strategies for using road barricades and law enforcement to control intersection operations along an evacuation route.

Emergency Vehicle Access: The Federal Highway Administration (FHWA) prepared materials to help educate the public on the safety of roundabouts, which address concerns about roundabout safety and first responder access. Provided as **Appendix G** to this report, the *Roundabouts & First Responders, Saving Lives Together* pamphlet states that:

> *"Roundabouts are not designed to inhibit traffic. Rather, they are optimized for the safety and efficiency of all users. Roundabouts can be designed for large trucks, including a special purpose apparatus such as a ladder truck. This is accomplished by using features such as wider entry and exit lanes for efficient movement of traffic through the roundabout, mountable aprons and curbs intended for use by vehicles with a wide and/or long wheelbase, and curvature and radii that allow for easy turning movements, including u-turns."*

The conceptual design of the roundabouts along Valley Center Road includes two circulating lanes, wide entry lanes, a truck apron and other features that will ensure large vehicles – including hook and ladder trucks, fire trucks and large commercial vehicles – can easily navigate the roundabout with the passenger vehicles. Additional analysis of emergency vehicle access and circulation, including lane and entry widths, will be conducted during final engineering design of the roundabouts.

During Workshop #2 (August 2020), questions were raised about how people should respond when an emergency vehicle approaches the roundabout with sirens and lights flashing. In this way, roundabouts are no different from other intersections – drivers must clear the intersection, pull off to the right, and let the emergency vehicle pass. The FHWA's informational guide on roundabouts states that "when car drivers approach a roundabout, do not overtake large vehicles" (Section 2.6.1.7)

When final engineering design of the roundabouts is underway, outreach events are recommended to help educate the public on how to safely navigate the roundabouts and how to respond to emergency vehicles. There are many resources available from states and cities where roundabouts are common. Involvement with the fire department in the educational events as well as during the roundabout final engineering design is highly recommended. First responders can contribute to general roundabout education by helping explain how to react when an emergency vehicle approaches.

2. Install New Traffic Signals (Indian Creek Road, Old Road, Sunday Drive, Park Circle Way, and Mirar De Valle Road)

Traffic signals have traditionally been identified as a condition of approval for projects when new development results in a new access point along Valley Center Road or when an existing intersection operates at LOS E or F. Conditions of approval for private development projects typically require that the traffic signal warrants included in the *MUTCD-CA* be met for the signal to be installed. The traffic signals identified for the Draft Corridor Concept Plan are either conditions of approval for a new project or have been identified as potential access improvements for future development. **Photo 4** shows the recently constructed traffic signal at Park Circle Way and Valley Center Road, which was a condition of approval for the Park Circle development. **Image 5** shows how traffic signals are depicted in the Draft Corridor Concept Plan. As discussed further in Section 8 of this report, the analysis shows the improved traffic flow and reduced delay at intersections with the improvements of the Draft Corridor Concept Plan.

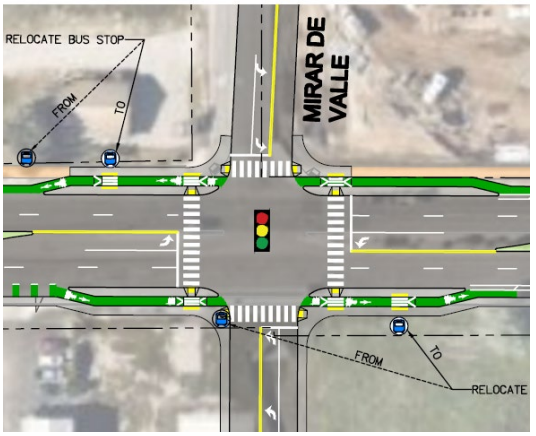


Image 5: Conceptual design of traffic signal with curb extensions at Mirar de Valle Road

Photo 4: Traffic signal constructed in 2021 at the intersection of Valley Center Road and Park Circle Way as part of the Park Circle development

3. Controlled Pedestrian Crossing (Rinehart Lane)

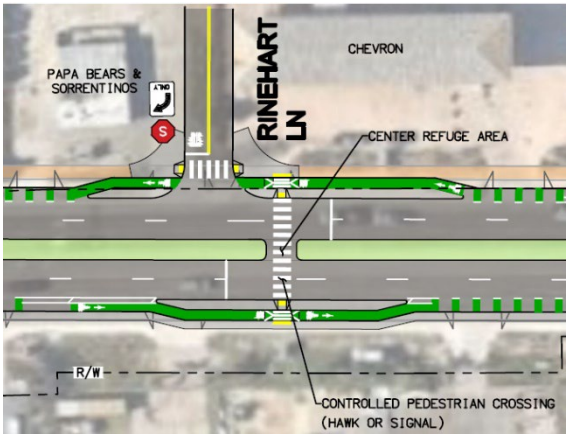


Image 6: Conceptual design of controlled pedestrian crossing at Rinehart Lane

One controlled pedestrian crossing is included in the Draft Corridor Concept Plan and is located at Rinehart Lane in the South Village, as depicted in **Image 6**. Adding this crossing achieves the goal of providing controlled pedestrian approximately every quarter mile in the South Village. Two potential control options are considered in this plan: a pedestrian hybrid beacon (high intensity activated crosswalk beacon, referred to as a HAWK) and pedestrian signal. **Photos 5 and 6** illustrate the two options considered and identified in the plan. At the time the controlled pedestrian crossing is installed, County staff will provide guidance on the preferred control device. Due to the high speed of traffic and traffic volume along the corridor, the marked crossing location will require one of these two devices be installed along with curb extensions and a pedestrian refuge area in the center median.

Photo 5: Example of HAWK signal at controlled crosswalk.

Photo 6: Example of signal-controlled crosswalk.

4. Class IV Separated Bikeway with Flexible Delineator Posts

The County of San Diego General Plan *Mobility Element Network* calls for Class IV separated bikeways for Valley Center Road from Cole Grade Road to Woods Valley Parkway. A Class IV separated bikeway requires a physical separation between vehicular traffic and bicycles.

Class IV separated bikeways dedicate and protect space for bicyclists in order to improve perceived comfort and safety as well as reduces the risk and fear of collisions with over-taking vehicles. Class IV separated bikeways can greatly improve the biking experience along Valley Center Road.

Figure 11 illustrates the County's concept for directional Class IV separated bikeways as included in the County *ATP*. The physical separation can be either striping with delineators (shown on the left side of the figure) or a raised median with landscape (shown on the right side of the figure). For the Draft Corridor Concept Plan, the striping with flexible delineator posts option is proposed and is depicted as shown in **Image 7**.

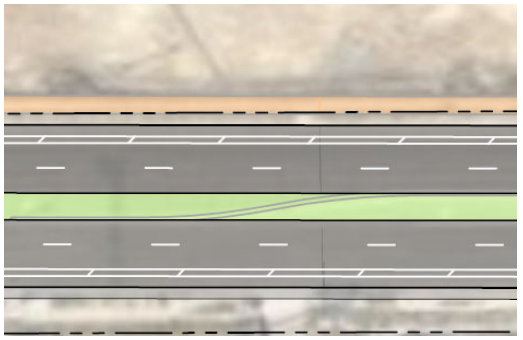


Image 7: Conceptual striping for separated bikeway.

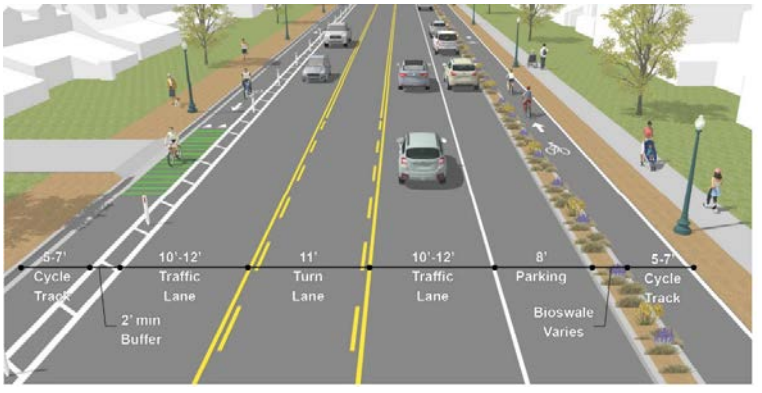


Figure 11: Class IV Separated Bikeway (Source: County of San Diego *Active Transportation Plan*, 2018. Appendix B Toolbox)

5. Replace All Existing Crosswalks with Continental Crosswalks

The *MUTCD-CA* identifies three types of crosswalks as appropriate for marked pedestrian crossings: ladder, diagonal, and continental. Diagonal and continental are considered high visibility crosswalk markings per the *MUTCD-CA*. To improve the visibility of the existing marked crossings and for all new marked crossing installations, continental crosswalks are proposed for the corridor. **Photo 7** shows the recently completed marked crosswalk at Valley Center Road / Mirar de Valle Road signalized intersection.

High-visibility continental crosswalks are preferable to standard parallel crosswalks. These are more visible to approaching vehicles and have been shown to improve yielding behavior. Marked pedestrian crossings are only recommended on controlled approaches to an intersection and are depicted on the Draft Corridor Concept Plan as shown in **Image 8**. Controlled approaches include roundabouts, traffic signals, hybrid beacons (HAWK), and stop signs. Uncontrolled marked crossings are not recommended for the Valley Center Road corridor due to the volume and speed of traffic.

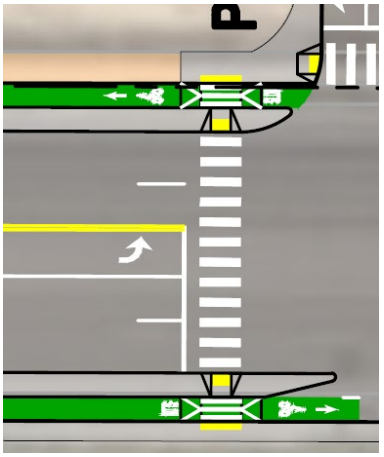


Image 8: Conceptual design of continental crosswalk striping at Park Circle Way.

Photo 7: Continental crosswalk marking at Mirar de Valle Road along Valley Center Road.

6. Curb Extensions (Indian Creek Road, Old Road, Sunday Drive, Park Circle Way, Mirar de Valle Road)

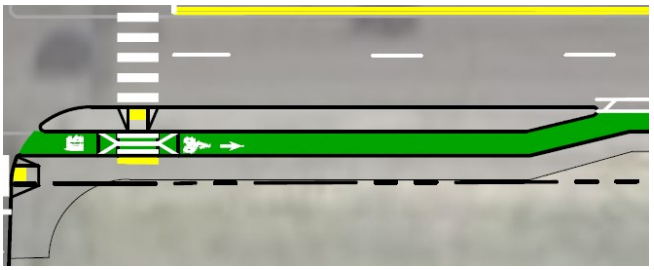


Image 9: Conceptual design of curb extension at Indian Creek Road

Curb extensions reduce the crossing distance and exposure time for pedestrians by extending the curb toward the travel lanes. Since there is no on-street parking on along Valley Center Road, the curb extensions are designed to relocate the bicycle lane behind the pedestrian waiting area at the intersection as illustrated in **Image 9**. Once the pedestrian is adjacent to the curb, the crossing distance is reduced by approximately 16 feet (five-foot bike lane plus three-foot buffer on each side of the roadway). At a typical walking speed of 3 feet per second, the pedestrian exposure time is reduced by approximately five to six seconds.

Curb extensions narrow the curb-to-curb with of the roadway, which helps to calm traffic and reduce traffic speeds through the intersections. They also provide opportunities to integrate stormwater treatments, landscaping, and bicycle racks along the corridor.

Two ways in which the curb extension can accommodate the Class IV separated bikeway in are illustrated in **Photos 8 and 9** below**.** One option is to bring the bicycles up to sidewalk level for a length of the curb extension, shown in Photo 8. Another option, shown in Photo 9 would bring the bicycles to sidewalk level only where pedestrians cross the Class IV separated bikeway. Bicycles are ramped up to sidewalk level only near the curb ramps, which is the approach included in the Draft Corridor Concept Plan. The use of color concrete, paint or surface treatments should be used to distinguish the pedestrian and bicycle dedicated areas when the Class IV separated bikeway is at sidewalk level.

Photo 8: Example of Class IV separated bikeway adjacent to and at same grade as sidewalk (Cupertino, California)

Photo 9: Example of bicycle lane ramping up to sidewalk level at curb extension (Fremont, California).

7 & 8. Raised Median / No Left Turn

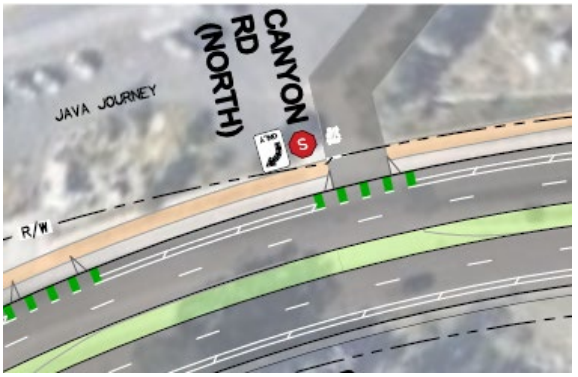


Image 10: Conceptual design of raised median and turn restriction at Canyon Road (North)

A raised median was constructed along most of the corridor with the 2006 corridor widening (two to four lanes). However, sections were not constructed in the South Village. Concerns were raised about the increase in U-turns required to access businesses along Valley Center Road that could occur with a median. With the new traffic signals and roundabouts included in the Draft Corridor Concept Plan, U-turns and left turns can be made more easily and with intersection traffic control. By consolidating the locations where left turns and U-turns can be made at controlled intersection locations, safety along the corridor is improved. Therefore, the gaps along the existing median will be completed, as shown in **Image 10**.

Where the median is constructed through an intersection or an existing driveway, "no left turn" and stop signs will be installed on the side street or driveway. **Photo 10** illustrates the R3-2 "no left turn" sign type per the *MUTCD-CA*, which is the preferred option for installation. This is anticipated to occur at Canyon Road North and South, Chaparral Terrace, Calle de Vista, Moosa Creek Way, Charlan Road, and Rinehart Lane, as illustrated previously in Figures 6 and 7.

Photo 10: Example of stop sign with no left turn sign

9. Relocate and Improve Bus Stops

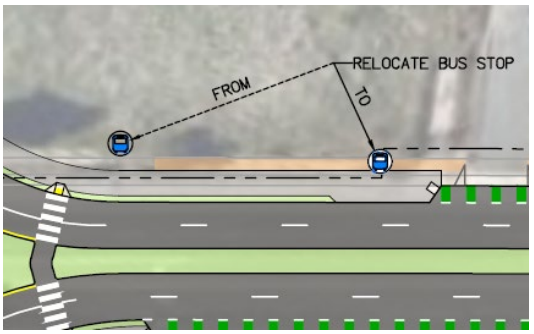


Image 11: Designation of a relocated bus stop on the Draft Corridor Concept Plan.

Class IV separated bikeways provide a physical barrier between the travel lanes and the bicycle lane. In order for passengers to board a bus, either the curb needs to be moved to the edge of the travel lane and the bicycles moved behind the bus stop (similar to the curb extensions discussed previously) or the Class IV separated bikeway needs to be converted to a Class II bike lane so the buses can enter the bike lane to stop curb adjacent. In some cases, the bus stop may need to be relocated from its existing location to align with other design elements such as roundabouts and curb extensions as shown in **Image 11**.

For the Draft Corridor Concept Plan, the conceptual design moves the curb adjacent to the travel lanes and the Class IV separated bikeway is placed behind the pedestrian boarding area, similar to the concept illustrated in **Photo 11**. The conceptual design for the corridor provides level crossing for the pedestrians from the curb to the bus island. This is achieved by ramping the bicycles up to sidewalk level at the beginning of the bus island and then down to street level on the far side of the bus island, similar to that shown in **Photo 12**. Both of these are options that could be considered during final engineering design and will need to take into consideration the context, drainage and street grade when selecting the most appropriate design of the bus stops.

Photo 11: Example of bus stop along separated bikeway. (Long Beach, California)

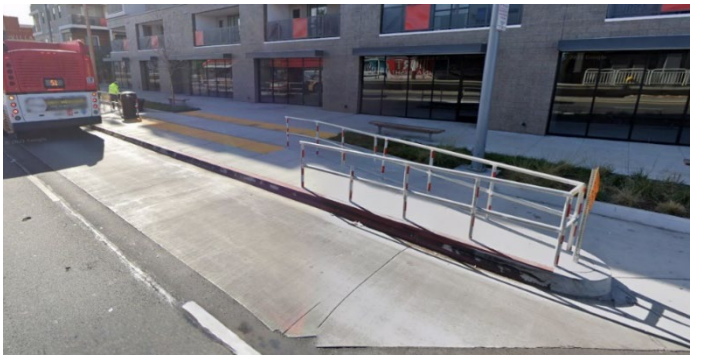


Photo 12: Example of sidewalk level crossing for pedestrians where bicycles ramp up and then down through bus stop. (Long Beach, California)

10. Potential Gateway Feature south of South Village

Gateway features can range from small signs along the side of the road to overhead entryways that span the width of the roadway. The intent of the gateway feature is to create a sense of place and alert the driver and visitors that you are entering Valley Center South Village or North Village. The gateway feature is included in the plans as a potential feature in the future and not a currently proposed component like the others mentioned in this report. A design and location for the potential gateway feature have not been established; however, the likely location is near the northbound entry into South Village.

11 & 12. Maintain the Heritage Trail / Complete Gaps in the Sidewalk

The Draft Corridor Concept Plan would maintain the decomposed granite Heritage Trail on the north and west sides of the corridor and would complete gaps in the sidewalk on the east and south sides of the corridor. These elements are consistent with the *Valley Center Community Right of Way Development Standards.* The Heritage Trail would only require modifications at locations where it would cross the roundabouts and curb extensions, as shown in Figures 6, 7, and 8. As mentioned previously, the Draft Corridor Concept Plan would implement a multi-use path on the outside of roundabouts for pedestrians and for bicyclists who choose to not ride within the roundabout. The multi-use path is proposed to be 12

feet wide, consistent with the *Caltrans Highway Design Manual* (this type of multi-use path is not currently covered in the County of San Diego *Public Road Standards*).

13. Reduction in segment lane widths (outside roundabouts) from 12' to 11'

The Draft Corridor Concept Plan includes a proposed reduction in the lane widths along the corridor, from the current 12 feet down to 11 feet, as shown in **Figure 7**. Lane widths within the proposed roundabouts would be wider, at 15 to 16 feet. This slight lane width reduction is proposed as an additional measure to address community concerns on the need for traffic calming along the corridor and increased pedestrian safety. In accordance with best practices for traffic calming and pedestrian safety, wider lanes are directly correlated to higher prevailing speeds and reducing lanes to 11 feet wide does not decrease safety. The lane width reduction will also provide additional space within the right-of-way for the buffer area for the Class IV bikeways proposed. The Draft Corridor Concept Plan does not propose further lane width reductions (such as 9 or 10-foot lanes) which can be more common in urban areas, particularly due to the prevalence of truck traffic along the corridor.

STORMWATER TREATMENT OPTIONS

Curb extensions, raised medians, and modifications to the bus stops create opportunities to capture stormwater and naturally filter the water before the water reaches the storm drain system. These roadway features may also require modifications to the existing storm drain inlets if the existing infrastructure is affected by the location of the curb extension or bus stop.

The Draft Corridor Concept Plan includes suggestions for stormwater treatment options. Specific proposals for stormwater treatment will be developed during final engineering design later in the process, due to the evolving nature of stormwater regulations and the need to factor in analysis that occurs during the final engineering design stage of the corridor study.

Photos 13 through 15 illustrate potential stormwater treatment options that should be considered for the corridor. Photo 13 illustrates a potential bioswale that could be integrated into the design of the curb extensions serving both as a stormwater treatment and a landscape improvement. To minimize landscape cost and maintenance, it is feasible to replace the landscape with role and mulch to capture and filter the stormwater as shown in Photos 14. Finally, storm drain inlets along the corridor may need to be upgraded when or if relocated or affected by construction. An example of a catch basin with a filtration system is illustrated in Photo 15.

The County of San Diego *Drainage Design Manual* (July 2005) and stormwater permitting and treatment requirements should be considered during final engineering design stage of the corridor study. The County of San Diego *Best Management Practices (BMP) Design Manual* (September 2020) provides guidance for land development and public improvement projects to comply with the 2013 Municipal Separate Storm Sewer System (MS4) Permit (Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100), which is focused on project design requirements and related post-construction requirements, not on the construction process itself.

Photo 13: Bioswale incorporated into parkway to capture stormwater from the roadway. The dip in the curb allows the water to flow into the landscaped areas where the water then naturally filters through the soil and into the ground as opposed to flowing into to storm drains.

Photo 14: Alternative to landscape bioswale. In this case, mulch and rock can be used in the median, in curb extensions, and near the transit stops as an infiltration system to capture water that flows either from the new sidewalk areas or from the roadway.

Photo 15: Catch basin with filtration system. This is an example of a modified storm drain inlet that includes a basin for capturing debris and a treatment system for reducing pollution before the water enters the storm drain. County of San Diego standards should be consulted for the exact design requirements for inlet and filtration system design when design drawings are prepared.

8.0 Vehicular Analysis

As referenced in Section 7 of this report, the project team considered stakeholder input and additional analysis in developing the Draft Corridor Concept Plan. This section explains the vehicular analysis process, including the evaluation of the Drat Corridor Concept Plan per analysis guidelines for vehicle miles traveled (VMT) and Level of Service (LOS). These analyses were conducted to look at existing traffic count data and forecasted traffic for a potential buildout year of 2035. Looking at those two timeframes, analysis outputs are provided based on the existing configuration of the corridor and per the Draft Corridor Concept Plan, for comparison. LOS thresholds for road segments are established through the County of San Diego *Public Road Standards*. The *Public Road Standards* do not yet differentiate road segment LOS capacity based on the intersection control type (roundabout, traffic signal, or stop sign-controlled). Intersection LOS was analyzed using Sidra Intersection, which is a software package commonly used for transportation analysis, including intersection capacity.

METHODOLOGY

Vehicle Miles Traveled

As part of the California Environmental Quality Act (CEQA), Senate Bill (SB) 743 requires transportation impacts be evaluated based on vehicle miles traveled (VMT). At the time of this report, the County was in the process of developing new guidelines for VMT analysis. Based on the latest guidance on VMT analysis from the State Office of Planning and Research (OPR) *Technical Advisory* (December 2018) certain types of projects do not require VMT analysis including, but not limited to, the following:

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets and that do not add additional motor vehicle capacity;
- Installation of roundabouts or traffic circles;
- Installation or reconfiguration of traffic calming devices;
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public right-of-way;
- Addition of Class I bike paths, trails, or multi-use paths, or other off-road facilities that serve non-motorized travel.

Therefore, a VMT analysis has not been included in this assessment.

Roadway Segment Analysis Methodology

The basis for roadway segment analysis is the ratio of daily volumes to LOS thresholds according to roadway classifications. The analysis results provide a planning-level assessment of whether a segment is under, approaching, or over capacity. **Table 2** presents the roadway segment capacity and LOS standards contained in the County of San Diego *Public Road Standards*.

Table 2: LOS Criteria for Roadway Segments

Mobility Element Roads			Levels of Service (in ADT)				
Road Classification		Travel Lanes	A	B	C	D	E
Expressway (6.1)		6	<36,000	<54,000	<70,000	<86,000	<108,000
Prime Arterial (6.2)		6	<22,200	<37,000	<44,600	<50,000	<57,000
Major Road	w/ Raised Median (4.1A)	4	<14,800	<24,700	<29,600	<33,400	<37,000
	w/ Intermittent Turn Lanes (4.1B)		<13,700	<22,800	<27,400	<30,800	<34,200
Boulevard	w/ Raised Median (4.2A)	4	<18,000	<21,000	<24,000	<27,000	<30,000
	w/ Intermittent Turn Lanes (4.2B)		<16,800	<19,600	<22,500	<25,000	<28,000
Community Collector	w/ Raised Median (2.1A)	2	<10,000	<11,700	<13,400	<15,000	<19,000
	w/ Continuous Left Turn Lane (2.1B)		<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Intermittent Turn Lanes (2.1C)		<3,000	<6,000	<9,500	<13,500	<19,000
	W/ Passing Lane (2.1D)		<3,000	<6,000	<9,500	<13,500	<19,000
	No Median (2.1E)		<1,900	<4,100	<7,100	<10,900	<16,200
Light Collector	w/ Raised Median (2.2A)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Continuous Left Turn Lane (2.2B)		<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Intermittent Turn Lanes (2.2C)		<3,000	<6,000	<9,500	<13,500	<19,000
	W/ Passing Lane (2.2D)		<3,000	<6,000	<9,500	<13,500	<19,000
	No Median (2.2E)		<1,900	<4,100	<7,100	<10,900	<16,200
	w/ Reduced Shoulder (2.2F)		<5,800	<6,800	<7,800	<8,700	<9,700
Minor Collector	w/ Raised Median (2.3A)	2	<3,000	<6,000	<7,000	<8,000	<9,000
	w/ Intermittent Turn Lanes (2.3B)		<3,000	<6,000	<7,000	<8,000	<9,000
	No Median (2.3C)		<1,900	<4,100	<6,000	<7,000	<8,000
Non-Mobility Element Roads			**Levels of Service (in ADT)**				
Road Classification		**Travel Lanes**	**A**	**B**	**C**	**D**	**E**
Residential Collector		2	-	-	<4,500	-	-
Rural Residential Collector		2	-	-	<4,500	-	-
Residential Road		2	-	-	<1,500	-	-
Rural Residential Road		2	-	-	<1,500	-	-
Residential Cul-de-Sac or Loop Road		2	-	-	<200	-	-

Source: County of San Diego, *Public Roads Standards* (March 2012).

Intersection Analysis Methodology

Level of service (LOS) is commonly used as a qualitative description of intersection operation. The intersection analysis conforms to the operational analysis methodology outlined the *Highway Capacity Manual (HCM) 6th Edition* and performed utilizing the *Synchro 10* and *Sidra 9* traffic analysis software. The HCM analysis methodology describes the operation of an intersection using a range of level of service from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding stopped delay, in terms of seconds per vehicle (sec/veh). The criteria for the LOS grade designations are provided in **Table 3.**

Synchro reports average delays for a signalized intersection, which correspond to a particular LOS, to describe the overall operation of an intersection. Unsignalized intersection LOS for all-way stops is based on the average delay for all approaches. Delay for one-way or two-way stop-controlled intersections is based on available gaps in traffic flow on the non-controlled approach and LOS is based on the approach with the worst delay. Sidra reports average delays to determine LOS for roundabouts.

Table 3: LOS Criteria for Intersections

LOS	Control Delay (seconds/vehicle)		Description
	Signalized Intersections	Unsignalized & Roundabouts	
A	<10	<10	Operations with very low delay and most vehicles do not stop.
B	>10 and ≤20	>10 and ≤15	Operations with good progression but with some restricted movements.
C	>20 and ≤35	>15 and ≤25	Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	>35 and ≤55	>25 and ≤35	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines.
E	>55 and ≤80	>35 and ≤50	Operations where there is significant delay, extensive queuing, and poor progression.
F	>80	>50	Operations that are unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.

Source: *Highway Capacity Manual, 6th Edition*

Traffic Volumes

Existing Conditions

As summarized in Section 2.0 of this report, traffic count data was collected in 2019. This data was used to establish a baseline operating condition for the corridor. **Figure 12** illustrates the existing conditions daily and peak hour volumes used in this analysis.

Future Conditions

In order to derive baseline future year 2035 traffic volumes, the daily traffic volumes from the SANDAG Series 14 regional travel demand forecasting model (Series 14 model) used for the regional transportation plan were provided by SANDAG. This data was used to establish a forecast growth rate that was applied to existing traffic volumes for each roadway segment and study intersection along the Valley Center Road corridor.

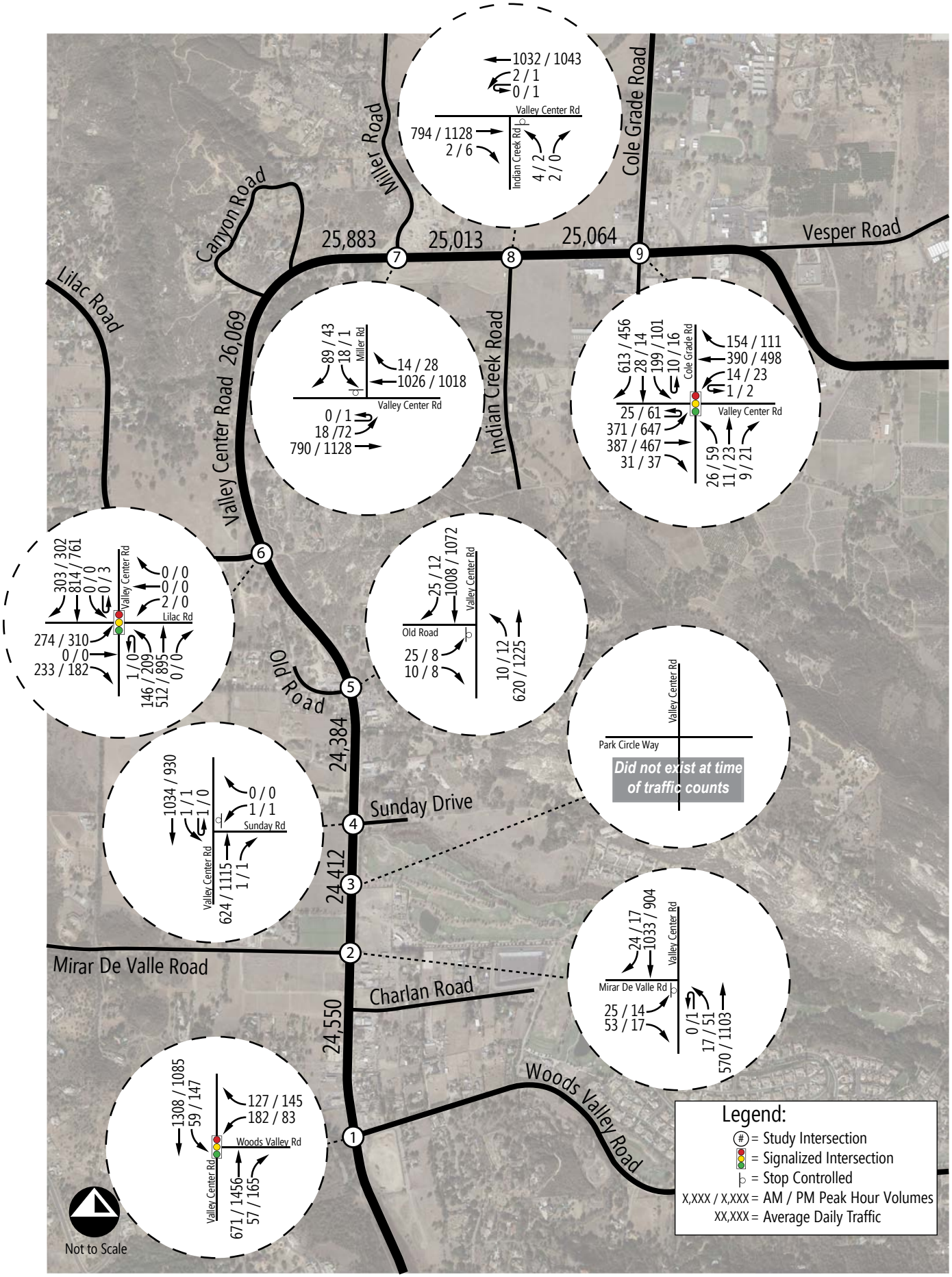
In addition, traffic associated with two approved developments that take access from Valley Center Road in the South Village were added to the forecast model traffic volumes based on trip generation and assignment information available from their respective traffic studies.

The following is a description of the projects added to the forecast growth along the corridor:

- Park Circle (Darnell & Associates, TIA dated December 2016)
    - Mixed use development with 33,700 square feet of neighborhood commercial, 232 multi-family dwelling units, and 101 single family dwelling units
    - Located on the west side of Valley Center Road north Mirar De Valle Road
    - Estimated trip generation of 6,188 daily trips with 419 AM peak hour trips & 550 PM peak hour trips

- Liberty Bell Plaza (Linscott, Law & Greenspan, TIA dated July 2019)
    - 85,000 square feet neighborhood shopping center
    - Located on the northeast corner of Valley Center Road and Mirar De Valle Road
    - Estimated trip generation of 7,956 daily trips with 318 AM peak hour trips & 612 PM peak hour trips

Future year 2035 traffic volumes calculated for the corridor and used to evaluate future operating conditions are provided in **Figure 13**.



Michael Baker INTERNATIONAL

Existing AM/PM Peak Hour Volumes, Daily Traffic Volumes

March 2022

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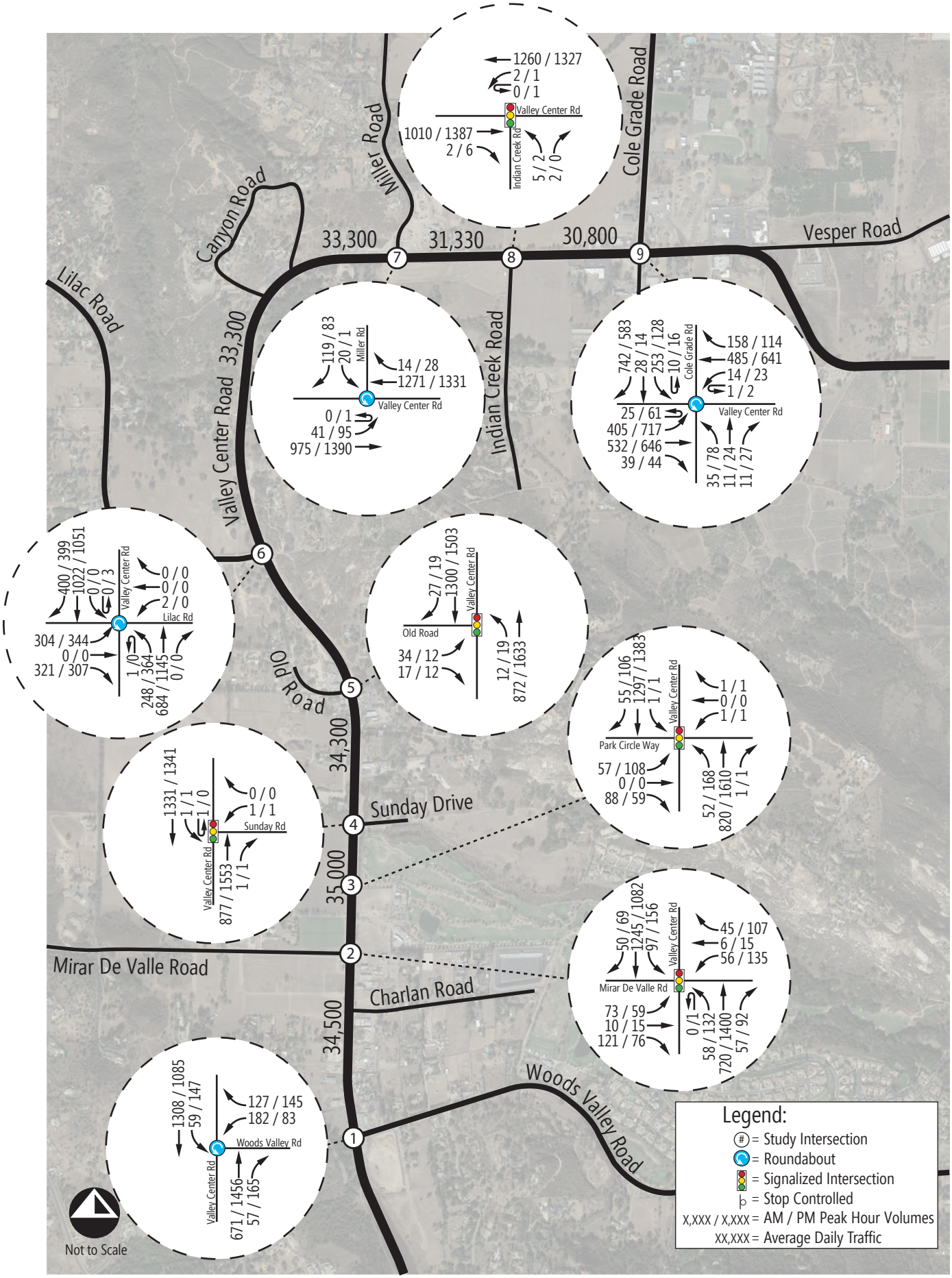
Figure 12



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Future Forecast (2035) AM/PM Peak Hour Volumes, Daily Traffic Volumes

March 2022

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Figure 13

ROADWAY SEGMENT ANALYSIS

Improvements proposed as part of the Draft Corridor Concept Plan can primarily be constructed within the existing right-of-way. The existing curb-to-curb width of Valley Center Road will not be changed with the exception the additional right-of-way that would be obtained to construct the roundabouts. Adding a raised median to the roadway segments that are currently constructed with a striped center median, would support the anticipated future capacity needs of the corridor. The addition of the raised median would change the "as constructed" classification from Boulevard with Intermittent Turn Lanes (2.4B) to Boulevard with Raised Median (4.2A), with an increased capacity from 27,000 vehicles per day to 30,000 vehicles per day. **Table 4** summarizes the roadway segment level of service for existing and future forecast year 2035 without and with the improvements proposed in the Draft Corridor Concept Plan.

Table 4: Roadway Segment LOS Summary

Roadway	Segment	No. Lanes	Median Type	Roadway Classification [1]	LOS E Capacity	Existing		Future Year 2035	
						ADT	LOS	ADT	LOS
Existing Roadway Classification									
Valley Center Road	Woods Valley Road to Mirar de Valle Road	4	Undivided	Boulevard - 4.2B (w/ intermittent turn lanes)	28,000	24,550	D	34,500	F
	Mirar De Valle Road to Sunday Drive	4	Divided	Boulevard - 4.2B (w/ intermittent turn lanes)	28,000	24,412	D	35,000	F
	Sunday Drive to Lilac Road	4	Divided	Boulevard - 4.2B (w/ intermittent turn lanes)	28,000	24,384	D	34,300	F
	Lilac Road to Canyon Road	4	Divided	Major Road - 4.1A (w/ raised median)	37,000	26,069	C	33,300	D
	Canyon Road to Miller Road	4	Divided	Major Road - 4.1A (w/ raised median)	37,000	25,883	C	33,300	D
	Miller Road to Indian Creek Road	4	Divided	Boulevard - 4.2A (w/ raised median)	30,000	25,013	D	31,300	F
	Indian Creek Road to Cole Grade Road	4	Divided	Boulevard - 4.2A (w/ raised median)	30,000	25,064	D	30,800	F
With Draft Corridor Concept Plan									
Valley Center Road	Woods Valley Road to Mirar de Valle Road	4	Undivided	Boulevard - 4.2A (w/ raised median)	30,000	24,550	D	34,500	F
	Mirar De Valle Road to Sunday Drive	4	Divided	Boulevard - 4.2A (w/ raised median)	30,000	24,412	D	35,000	F
	Sunday Drive to Lilac Road	4	Divided	Boulevard - 4.2A (w/ raised median)	30,000	24,384	D	34,300	F
	Lilac Road to Canyon Road	4	Divided	Major Road - 4.1A (w/ raised median)	37,000	26,069	C	33,300	D
	Canyon Road to Miller Road	4	Divided	Major Road - 4.1A (w/ raised median)	37,000	25,883	C	33,300	D
	Miller Road to Indian Creek Road	4	Divided	Boulevard - 4.2A (w/ raised median)	30,000	25,013	D	31,300	F
	Indian Creek Road to Cole Grade Road	4	Divided	Boulevard - 4.2A (w/ raised median)	30,000	25,064	D	30,800	F

Notes:
[1]Based on San Diego County General Plan, Valley Center Mobility Element Network Appendix. The Woods Valley Road to Mirar De Valle Road segment and the Sunday Drive to Lilac Road segment are currently built as Boulevard with intermittent turn lanes (4.2B), but the Draft Corridor Concept Plan would bring these segments in line with the current Mobility Element Network planned classification of Boulevard with raised median (4.2A).
ADT = Average Daily Traffic
LOS = Level of Service

While the addition of the raised median does provide additional capacity along the corridor, the forecast traffic volume will exceed the capacity of the Boulevard classification. The future year 2035 condition results in LOS F conditions along all segments classified as Boulevard with Raised Median (4.2A), which includes the segments from Woods Valley Road to Lilac Road and Miller Road to Cole Grade Road). The capacity thresholds are set by the *County Public Road Standards*, which do not currently consider the positive effects of certain intersection controls (such as roundabouts) on traffic delay. The four roundabouts proposed would allow the corridor to avoid traffic congestion conditions typically associated with failing LOS and avoid community character impacts of further widening the corridor.

Note that roadway segment LOS is generally used as long-range planning guideline to determine the roadway capacity and classifications and are not always an accurate indicator of roadway performance. Typically, the performance and level of service of a roadway segment is heavily influenced by the ability of signalized intersections to accommodate peak hour flow. Therefore, peak hour operating conditions along the Valley Center Road corridor were evaluated.

INTERSECTION ANALYSIS

In April 2019, an *Existing Conditions Technical Memorandum* (Appendix A of this report) was completed. As part of the analysis of the Draft Corridor Concept Plan, the study area was expanded to include two additional intersections shown below in **bold**.

1. Valley Center Road / Woods Valley Road
2. Valley Center Road / Mirar De Valle Road
3. **Valley Center Road / Park Circle Way**
4. Valley Center Road / Sunday Drive
5. **Valley Center Road / Old Road**
6. Valley Center Road / Lilac Road
7. Valley Center Road / Miller Road
8. Valley Center Road / Indian Creek Road
9. Valley Center Road / Cole Grade Road

In order to determine the intersection operating conditions with the Draft Corridor Concept Plan, the existing traffic volumes were evaluated with the intersection control included in the Draft Corridor Concept Plan. **Table 5** summarizes the results of the existing conditions intersection analysis without and with the Draft Corridor Concept Plan.

Under existing conditions, the intersection analysis showed all the study locations operate at acceptable LOS in the AM peak hour and two of the 9 study locations operate at LOS E or F during the PM peak hour with the signals and stop control that was in place at the time the traffic count data was collected. These include the unsignalized intersections of Valley Center Road / Mirar De Valle Road and Valley Center Road / Sunday Drive. With the Draft Corridor Concept Plan and the existing traffic volumes, all the study locations are shown to operate at LOS B or better in the AM and PM peak hours.

Table 5: Existing without and with Draft Corridor Concept Plan Intersection LOS

Study Intersection		With Existing Geometry & Traffic Control[1]						With Draft Corridor Concept Plan					
		Traffic Control	AM			PM		Traffic Control	AM			PM	
			Delay[2]	-	LOS	Delay[2]	- LOS		Delay[2]	-	LOS	Delay[2]	- LOS
1-	Valley Center Road / Woods Valley Road	Signal	7.5	-	A	9.0	- A	ROBO	4.4	-	A	14.6	- B
2-	Valley Center Road / Mirar De Valle Road	OWSC	29.7	-	D	**45.2**	- **E**	Signal	11.4	-	B	13.2	- B
3-	Valley Center Road / Park Circle Way	N/A[3]						Signal	3.4		A	3.7	A
4-	Valley Center Road / Sunday Drive	OWSC	26.7	-	D	**51.7**	- **F**	Signal	9.6	-	A	9.5	- A
5-	Valley Center Road / Old Road	OWSC	26.1		D	30.1	D	Signal	5.4		A	5.6	A
6-	Valley Center Road / Lilac Road	Signal	17.5	-	B	13.5	- B	ROBO	12.9	-	B	12.5	- B
7-	Valley Center Road / Miller Road	OWSC	27.3	-	D	15.2	- C	ROBO	7.8	-	A	10.0	- B
8-	Valley Center Road / Indian Creek Road	OWSC	16.9	-	C	26.1	- D	Signal	6.4	-	A	13.3	- B
9-	Valley Center Road / Cole Grade Road	Signal	31.3	-	C	33.5	- C	ROBO	9.6	-	A	13.0	- B

Note: Deficient intersection operation indicated in **bold**. LOS = level of service. ROBO = Roundabout
[1] Existing conditions data was collected for the corridor prior to the buildout of the Park Circle and Liberty Bell Plaza developments. OWSC = One-Way Stop Control, worst approach delay and LOS reported.
[2] Average seconds of delay per vehicle.
[3] The Park Circle Way intersection did not exist at the time of the 2019 analysis of existing conditions.

Table 6 summarizes the results of the intersection analysis under future year 2035 without and with the Draft Corridor Concept Plan conditions. As shown the following locations are shown to operate at deficient levels of service by year 2035 with the existing intersection traffic control (signal and stop signs):

- Int 2 – Valley Center Road / Mirar De Valle Road (LOS E during AM peak hour; LOS F during PM peak hour)
- Int 4 – Valley Center Road / Sunday Drive (LOS F during the PM peak hour only)
- Int 5 – Valley Center Road / Old Road (LOS F during the AM & PM peak hours)
- Int 7 – Valley Center Road / Miller Road (LOS E during the AM peak hour only)

With the Draft Corridor Concept Plan, intersection delays are reduced such that all study intersections are forecast to operate at LOS D or better in year 2035.

Table 6: Future Year 2035 without and with Draft Corridor Concept Plan Intersection LOS

Study Intersection		With Existing Geometry & Traffic Control						With Corridor Concept Plan					
		Traffic Control	AM			PM		Traffic Control	AM			PM	
			Delay[1]	-	LOS	Delay[1]	- LOS		Delay[1]	-	LOS	Delay[1]	- LOS
1-	Valley Center Road / Woods Valley Road	Signal	7.8	-	A	10.0	- A	ROBO	5.1	-	A	11.6	- B
2-	Valley Center Road / Mirar De Valle Road	OWSC	**42.5**	-	**E**	**70.8**	- **F**	Signal	16.9	-	B	53.1	- D
3-	Valley Center Road / Park Circle Way	Signal	12.8	-	B	18.4	- B	Signal	12.8		B	18.4	B
4-	Valley Center Road / Sunday Drive	OWSC	32.7	-	D	**72.9**	- **F**	Signal	12.9	-	B	15.5	- B
5-	Valley Center Road / Old Road	OWSC	**1338.7**		**F**	**214.2**	**F**	Signal	8.0		A	9.5	A
6-	Valley Center Road / Lilac Road	Signal	26.7	-	C	20.5	- C	ROBO	16.5	-	C	27.9	- D
7-	Valley Center Road / Miller Road	OWSC	**45.3**	-	**E**	17.4	- C	ROBO	8.1	-	A	9.9	- A
8-	Valley Center Road / Indian Creek Road	OWSC	19.8	-	C	32.0	- D	Signal	6.0	-	A	6.5	- A
9-	Valley Center Road / Cole Grade Road	Signal	31.3	-	C	47.7	- D	ROBO	14.5	-	B	21.6	- C

Note: Deficient intersection operation indicated in **bold**. LOS = level of service. ROBO = Roundabout
[1] Average seconds of delay per vehicle. OWSC = One-Way Stop Control, worst approach delays and LOS reported.

TRAFFIC SIGNAL WARRANTS

Traffic signal warrants provide criteria to determine whether installation of a traffic signal is justified at a particular location using methodology outlined in the *MUTCD-CA*. Although a traffic signal warrant provides justification for installation of a traffic signal, other factors may also be considered including access, circulation, and connectivity in the community. Therefore, it is possible that a traffic signal may be installed that does not meet the *MUTCD-CA* warrants if the traffic signal improves safety, improves access, or serves as part of a corridor-wide traffic control strategy.

The *MUTCD-CA* provides several detailed warrants by which an intersection can be evaluated. Since this Draft Corridor Concept Plan is a planning document, the detailed warrant analysis was not conducted but rather the planning level warrant was evaluated. The planning level warrant is based on daily traffic thresholds and used to provide a high level assessment whether the signals could meet the detailed warrants based on the existing or future daily traffic volumes through the intersection.

As shown in **Table 7**, none of the traffic signals identified in the Draft Corridor Concept Plan meet the planning level warrant as outlined in the *MUTCD-CA* under existing conditions. Under future year 2035 conditions, the planning level warrant is met for the intersection of Valley Center Road / Mirar de Valle Road. As mentioned in this report, the traffic count data was collected prior to the buildout of the Park Circle development and did not include the traffic signal constructed in 2021 at this intersection.

During final design of the corridor, new traffic count data should be collected for the corridor and detailed warrants should be conducted prior to installing the signals.

Table 7: Traffic Signal Warrants

Study Intersection		Planning Warrant			
		Existing Conditions		Forecast Year 2035 Conditions	
		Major/Minor ADT Volume	Warrant Met?	Major/Minor ADT Volume	Warrant Met?
2-	Valley Center Road / Mirar De Valle Road[1]	24,400 / 780	No	35,000 / 870	YES
3-	Valley Center Road / Park Circle Way[1]	Constructed in 2021			
4-	Valley Center Road / Sunday Drive[1]	24,400 / 600	No	35,000 / 700	No
5-	Valley Center Road / Old Road[1]	24,800 / 100	No	34,300 / 120	No
8-	Valley Center Road / Indian Creek Road	25,000 / 100	No	31,300 / 120	No

[1] The existing conditions data collection occurred prior to the buildout of the Park Circle and Liberty Bell Plaza developments.

9.0 Pedestrian Analysis

The project team analyzed pedestrian conditions along the corridor as part of the existing conditions phase of analysis. This section references that analysis of existing conditions and provides an analysis of pedestrian conditions that would be assumed upon implementation of the Draft Corridor Concept Plan.

METHODOLOGY

A Pedestrian Gap Analysis (PGA) was included in the *Existing Conditions Technical Memorandum* which analyzed the pedestrian facilities within the study area using the methodology outlined in the County of San Diego *Active Transportation Plan (ATP)*. A PGA is a qualitative pedestrian survey that assesses the quality of the walking environment along roadway segments and intersections. Pedestrian facilities are assigned a "Pedestrian Quality" grade based on the point system developed in the PGA. The PGA Criteria includes:

- The condition of sidewalk/pathway and associated characteristics such as obstructions, slope, grade, and curb ramp configuration (25 percent = 1,000 points);
- Distance from pedestrian generators (25 percent = 1,000 points);
- Health data supplied by the County Health and Human Services Agency (25 percent = 1,000 points);
- Socioeconomic data supplied by County Health and Human Services Agency (10 percent = 400 points);
- County Public Works / Capital Improvement Program project list (10 percent = 400 points); and
- Proximity to schools (5 percent = 200 points).

The evaluation of the existing condition of the sidewalk and paths was refined to focus on the critical conditions along the corridor including obstructions, sidewalk condition, driveway conditions, presence of curb ramps, and other factors. The physical conditions evaluated are clearly described in the *Existing Conditions Technical Memorandum*. The total points of individual street segments within the study area provide a comparison ranking utilizing weight allocation based on the six ranking factors stated above. Each street segment's points scored are displayed in color brackets based on the color-coding point brackets displayed in the PGA. The color bracket point ranges are presented on **Table 8**.

Table 8: PGA Point Ranges

Color Code	Pedestrian Quality	Point Range
	Very Good	215 - 627
	Good	628 - 1191
	Average	1192 - 1535
	Poor	1536 - 1824

ANALYSIS RESULTS

Out of the 28 segments analyzed along Valley Center Road summarized in **Table 9**, The PGA rates seven segments as very good, eight segments as good, 10 segments as average, and three segments as poor. The three segments that were rated poor include the east side of Valley Center Road from Charlan Road to Mirar De Valle Road, from Indian Creek Road to Old Town Center Plaza western boundary, and from Old Town Center Plaza eastern boundary to Cole Grade Road in the eastbound direction. There are no existing sidewalks, trails, or pedestrian facilities on these segments.

The quality of the existing marked crossings along and across Valley Center Road was evaluated by reviewing crosswalk amenities, design type and type of markings as shown in **Table 10** per the PGA methodology in the *ATP*. Marked crosswalks along the corridor are only provided at signalized intersections and at a limited number of side street stop-controlled intersections. As shown, the signalized intersection crosswalk locations are rated strong and the four unsignalized locations are rated as needs improvement due to the lack of crosswalks along side streets. Marked crossings across Valley Center Road are more than half a mile apart making crossing Valley Center Road challenging for pedestrians.

The Draft Corridor Concept Plan includes elements that will improve pedestrian access, visibility and connectivity including connecting the numerous gaps in the sidewalk, constructing curb extensions to reduce the crossing distance, and striping

continental crosswalks. New traffic signals will include improved pedestrian crossing amenities such as count-down timers, ADA pedestrian ramps with truncated domes, and oversized pedestrian push buttons. The existing Heritage Trail will remain on the north and west sides of the road through the corridor.

Table 9: Pedestrian Conditions without and with Concept Plan

Segment		Existing Conditions				With Draft Corridor Concept Plan			
		East / South Side of Valley Center Rd.		West / North Side of Valley Center Rd.		East / South Side of Valley Center Rd.		West / North Side of Valley Center Rd.	
		Total Score	Rating	Total Score	Rating	Total Score	Rating	Total Score	Rating
Valley Center Road	Woods Valley Road to Charlan Road	1150	Good	901	Good	1139	Good	897	Good
	Charlan Road to Mirar De Valle Road	1646	Poor	1286	Average	1441	Average	1221	Average
	Mirar De Valle Road to 27634 Valley Center Road Driveway	1269	Average	1242	Average	1205	Average	1179	Good
	27634 Valley Center Road Driveway to Sunday Drive	601	Very Good	286	Very Good	312	Very Good	221	Very Good
	Sunday Drive to Old Road	685	Good	375	Very Good	441	Very Good	307	Very Good
	Old Road to Lilac Road	879	Good	769	Good	709	Good	769	Good
	Lilac Road to Valley Center Road bridge (S)	667	Good	1043	Good	488	Very Good	1020	Good
	Valley Center Road bridge(S) to Valley Center Road bridge(N)	392	Very Good	177	Very Good	288	Very Good	175	Very Good
	Valley Center Road bridge (N) to Canyon Road (N)	464	Very Good	376	Very Good	288	Very Good	360	Very Good
	Canyon Road (N) to Miller Road	596	Very Good	1127	Good	360	Very Good	1127	Good
	Miller Road to Indian Creek Road	552	Very Good	707	Good	383	Very Good	629	Good
	Indian Creek Road to Old Town Center Plaza west boundary	1596	Poor	1375	Average	1355	Average	1307	Average
	Old Town Center Plaza west boundary to east boundary	1338	Average	1398	Average	1203	Average	1245	Average
	Old Town Center Plaza east boundary to Cole Grade Road	1712	Poor	1424	Average	1409	Average	1409	Average

Note: Scores were derived from existing conditions observed in December 2018.

Table 10: Existing Intersection Crosswalk Evaluation

Study Intersection		Existing Conditions			With Draft Corridor Concept Plan		
		Traffic Control	Score	Rating	Traffic Control	Score	Rating
1 -	Valley Center Road / Woods Valley Road	Signal	4	Strong	Roundabout	9	Strong
2 -	Valley Center Road / Mirar De Valle Road	OWSC	74	Needs Improvement	Signal	4	Strong
3 -	Valley Center Road / Sunday Drive	OWSC	74	Needs Improvement	Signal	9	Strong
4 -	Valley Center Road / Lilac Road	Signal	4	Strong	Roundabout	9	Strong
5 -	Valley Center Road / Miller Road	OWSC	74	Needs Improvement	Roundabout	4	Strong
6 -	Valley Center Road / Indian Creek Road	OWSC	74	Needs Improvement	Signal	4	Strong
7 -	Valley Center Road / Cole Grade Road	Signal	4	Strong	Roundabout	9	Strong

Note: Scores were derived from existing conditions observed in December 2018.
OWSC = One Way Stop Control

10.0 Bicycle Analysis

Like the preceding analysis of pedestrian conditions, this section summarizes existing conditions analysis for bicycle facilities along the corridor and connects that to bicycle facility conditions that would be assumed upon implementation of the Draft Corridor Concept Plan.

METHODOLOGY

Existing bicycle facilities were examined in the *Existing Conditions Technical Memorandum* using a level of traffic stress (LTS) analysis, which is a qualitative measure that assesses a bicyclist's level of discomfort or stress based on the quality of the bicycle environment and provided facilities. The LTS scoring criteria range from LTS 1 (most comfortable, least stressful) to LTS 4 (least comfortable, most stressful) and is consistent with the methodology outlined in the *ATP*. The four types of cyclists range from "no way no how," representing individuals who are not interested in biking, to "strong and fearless," which represents the most active and confident cyclists. People in the "interested but concerned" category, which represents approximately 60% of all bicycling activity, typically prefer to ride along facilities classified as LTS 1 or LTS 2. These facilities are physically separated from vehicular traffic with dedicated lanes for bicycling and minimal conflict points.

People in the "enthused and confident" category, representing 7% of all bicycling activity, feel comfortable bicycling along a facility with an LTS 3 or better. People in the "strong and fearless" category represent less than 1% of bicycling activity who may tolerate bicycling along an LTS 4 facility, as they are the most experienced and confident. These bicyclists are generally seasoned bicycle commuters or recreational cyclists. Those in the "no way no how" population segment will not ride a bicycle no matter how comfortable the facility is.

LTS analysis traditionally considers existing facilities—such as bike lanes, bike paths, bike routes, and any provided separation from vehicles. The data used included the number of lanes in each direction, presence and type of bicycle facility, presence, and type of median, speed, and functional class of the roadway. **Table 11** summarizes the criteria for roadways with a Class I or Class II bike facility as defined in the *ATP*.

Table 11: LTS Criteria for Roadways with Bicycle Facilities

	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Street Width (through lanes per direction)	1-2	2 if directions are separated by a raised/striped median	More than 2 or 2 without a raised/striped median	(no effect)
Bike Facility Type	Class I	Class II	(no effect)	(no effect)
Speed	<35 mph (unless Class I or Class IV)	(no effect)	35 mph	40 mph or more

ANALYSIS RESULTS

As shown in **Table 12**, the existing bicycle facilities along Valley Center Road result in a high level of bicycle stress (LTS 4) primarily attributed to the high vehicle speeds along the corridor. LTS 4 indicates that most confident bicyclists (categorized as the "strong and fearless") would likely use the facility and less experienced or less confident bicyclists may not feel comfortable riding along Valley Center Road.

The Draft Corridor Concept Plan will include elements that will improve the bicycle facilities within the Corridor for all levels of bike user (LTS1 - LTS4) including the addition of a Class IV separated bikeway with flexible delineator posts along the entire length of the corridor, adding green conflict striping (dashed green) across driveways and approaching intersections to raise awareness of potential cyclists, and adding transitional striping (solid green) in advance of intersections and driveways to indicate potential bicycle-vehicle conflict areas. At roundabouts, bike ramps will allow cyclists who do not feel comfortable traveling with vehicles through the roundabout to exit the roadway onto a multiuse trail and ride around the perimeter of the roundabout outside of the vehicular travel lanes. Bicyclists can then re-enter the Class IV separated bikeway on the other side of the roundabout.

Table 12: Level of Traffic Stress (LTS) Summary

Roadway	Segment	No. Lanes	Facility Type	Roadway Classification	Posted Speed Limit (mph)	Dir.	Existing Conditions		With Draft Corridor Concept Plan		
							LTS Score	Suitable for	Prop. Facility Type	LTS Score	Suitable for
Valley Center Road	Woods Valley Road to Mirar De Valle Road	4	Class II	Boulevard - 4.2A (w/ rasied median)[1]	45	NB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
						SB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
	Mirar De Valle Road to Sunday Drive	4	Class II	Boulevard - 4.2A (w/ raised median)[1]	45	NB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
						SB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
	Sunday Drive to Lilac Road	4	Class II	Boulevard - 4.2A (w/ raised median)[1]	45	NB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
						SB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
	Lilac Road to Canyon Road	4	Class II	Major Road - 4.1A (w/ raised median)	45	NB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
						SB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
	Canyon Road to Miller Road	4	Class II	Major Road - 4.1A (w/ raised median)	45	EB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
						WB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
	Miller Road to Indian Creek Road	4	Class II	Boulevard - 4.2A (w/ raised median)	45	EB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
						WB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
	Indian Creek Road to Cole Grade Road	4	Class II	Boulevard - 4.2A (w/ raised median)	45	EB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident
						WB	4	Strong and Fearless	Class IV	1	Interested but Concerned / Enthused and Confident

Notes:

[1] With the Draft Corridor Concept Plan, Valley Center Road from Woods Valley Road to Lilac Road will change from Boulevard 4.2B (with intermittent turn lanes) to Boulevard 4.2A (with raised median) due to the addition of the raised median through this section.

11.0 Transit Assessment

The draft Concept plan integrates proposed improvements with existing transit facilities along the corridor. In some cases, relocation of existing bus stops would be necessary to implement certain components, such as the roundabouts in some locations. In addition, this section provides recommendations for bus stop upgrades to improve the transit rider's experience along the corridor.

North County Transit District (NCTD) operates the local bus service along Valley Center Road. As shown in **Figure 14,** NCTD's Route 388 travels along Valley Center Road between the Pala Casino and the Escondido Transit Center, connecting Pala, Rincon, Valley Center and Escondido. The Escondido Transit Center provides regional connections to ten other transit services, four FLEX routes, two MTS routes, SPRINTER, Greyhound, and Riverside Transit Authority (RTA).

Table 13 shows the existing amenities at the 11 bus stops within the study area.

A complete assessment of the existing amenities at the bus stop locations within the study area was included in the *Existing Conditions Technical Memorandum*.

The Draft Corridor Concept Plan identifies improvements at select bus stop locations as well as modifications to stop locations adjacent to signalized intersections and roundabouts. Recommended improvements at the bus stop include:

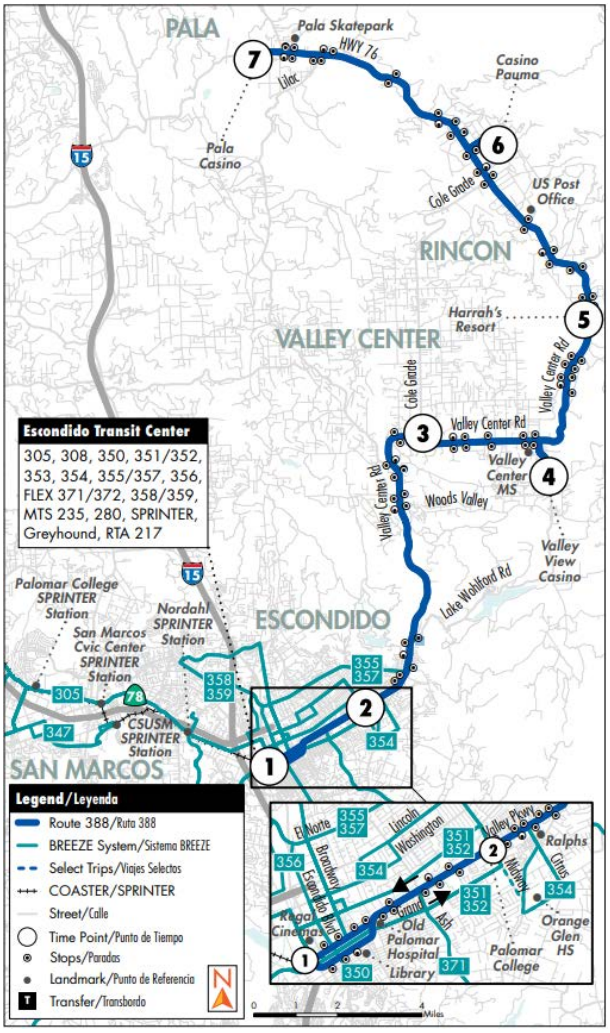

Figure 14: NCTD Route 388; Effective April 4, 2021

- New shelters
- New benches
- Additional trash receptacles
- Better safety lighting

Table 13 also summarizes the opportunity areas for improving the available amenities and the bus stops to be relocated.

Table 13: Recommended Bus Stop Amenities and Relocation

Stop Location (Direction)	Improvements included in Draft Corridor Concept Plan							
	Relocate Bus Stop?	Shelter	Bench	Trash Receptacle	Sign	Map	Lighting	Currently ADA Compliant or Accessible?
1 Woods Valley Road (NB)	Relocate stop approximately 140 feet north of existing location. Stop curb adjacent in bike lane. Bicycles share lane with buses.	✓	R	✓	R	✓	✓	Yes
2 Mirar De Valle Road (NB)	Move from south to north side of intersection. Stop curb adjacent along curb extension. Bikes travel behind curb extension.	✓	R	✓	R	✓	✓	Yes
3 Old Road (NB)	Existing location OK. Stop curb adjacent along curb extension. Bikes travel behind curb extension in Class IV separated bikeway.	✓	✓	✓	R	N	✓	No
4 Lilac Road (NB)	Move from south of intersection to north of roundabout. Stop curb adjacent along the multiuse trail on the exit to roundabout. Bikes travel on multiuse trail.	✓	✓	✓	R	✓	✓	Yes
5 Miller Road (EB)	Existing location OK. Stop curb adjacent along multiuse trail approaching roundabout. Bikes travel on multiuse trail.	✓	✓	✓	R	✓	✓	No
6 Cole Grade Road (WB)	Existing location OK. Construct curb extension for bus to stop curb adjacent. Bikes travel behind curb extension on Class IV separated bikeway.	R	R	N	R	N	✓	No
7 Miller Road (WB)	Existing location OK. Stop curb adjacent along multiuse trail on exit to roundabout. Bicycles travel along multiuse trail.	✓	✓	✓	R	N	✓	No
8 Lilac Road (SB)	Relocate stop approximately 120 feet south of existing location. Stop curb adjacent along multiuse trail on exit to roundabout. Bikes travel along multiuse trail.	✓	R	R	R	✓	✓	Yes
9 Old Road (SB)	Existing location OK. Construct curb extension for bus to stop curb adjacent. Bikes travel behind curb extension in Class IV separated bikeway.	✓	R	R	R	✓	✓	No
10 Mirar De Valle Road (SB)	Relocate approximately 50 feet north of existing location. Stop curb adjacent along curb extension. Bikes travel behind curb extension in Class IV separated bikeway.	✓	R	R	R	✓	✓	No
11 Woods Valley Road (SB)	Relocate approximately 120 feet north of existing location. Stop curb adjacent along multiuse trail on exit to roundabout. Bikes travel along multiuse trail.	✓	R	✓	R	✓	✓	Yes

Note: Bus Stop locations are illustrated in **Figure 6 and Figure 7**.

Bus Stops to be relocated

Amenity Improvement Opportunity

R – reuse existing bench or sign; N – replace existing bench or sign; ✓ – does not exist, needs new bench, sign, map, lighting, etc.

12.0 Engineering Estimate of Cost

As part of the process, Rough Order of Magnitude (ROM) costs have been developed to provide a general idea, of costs to implement the Draft Corridor Concept Plan. While implementation of the Draft Corridor Concept Plan as one project is possible, a more likely scenario (due to overall costs) would involve a phased approach. See Section 13 for additional details on implementation options. Assumptions and methodologies used to develop the ROM costs are described below, followed by a table with the ROM cost details.

In coordination with County staff including Department of Public Works Capital Improvement Program (CIP) and Transportation Planning staff, a set of high-level unit costs were established to develop a rough order of magnitude cost estimate for the improvements along the corridor. Costs were broken down into:

- General overhead related items (mobilization, traffic control, stormwater protection plan, monument preservation, and utility relocation / coordination)
- General construction items (non-decorative) including contingency
- Project delivery costs (preliminary engineering, right of way coordination/mapping, and construction engineering)

Due to ongoing material cost, labor costs and general inflation, all unit costs were increased by 30% over the estimates developed for the themes assessment. General lump sum and assumptions included in the cost estimate are as follows:

- Mobilization – 4% of total construction cost rounded to the nearest $100,000
- Traffic control – 4% of total construction cost rounded to the nearest $100,000
- Stormwater protection plan – lump sum of $50,000 based on similar project costs
- Monument preservation and restoration – lump sum of $50,000 based on similar project costs
- Utility relocation coordination – lump sum of $10,000 based on similar project costs
- Contingency – 30% of general and overhead construction items
- Preliminary engineering (environmental studies and permitting) – 15% of general and overhead construction items
- Preliminary engineering (plans, specifications and estimates) – 32% of general and overhead construction items
- Right of way engineering – 5% of general and overhead construction items
- Right of way acquisitions and utilities – 7% of general and overhead construction items
- Construction engineering – 20% of general and overhead construction items

General construction assumptions included in the estimates:

- **Full depth AC pavement removal and replacement:** Assumes removal of approximately 2.5 miles of 72-foot wide roadway pavement. This excludes removal of any existing medians. This assumes that the pavement would need to be replaced when the project is constructed. To reduce cost the pavement removal could be replaced with a grind and overlay.

- **New medians:** New medians will be constructed to close gaps in the existing median at uncontrolled intersections or driveways. Assumes a 12- to 14-foot wide median and does not include landscaping.

- **New sidewalks:** Includes new or repaired sidewalk sections, curb ramps and curb extensions. Assumes a typical sidewalk width of 5 feet. Curb extension dimensions vary based on the location and the conceptual layout.

- **Signing and striping (travel lanes):** This line item includes both signing and striping as well as the installation of raised pavement markings. Signage is considered in the unit cost.

- **Signing and striping (Class IV and conflict striping, green skip stripe):** Assumes a 5-foot-wide solid green bike-lane paint at approaches/departures to intersections and an 8-foot-wide conflict striping through driveways

- **Two-lane roundabout:** Estimated based on past projects and in consultation with County of San Diego. Includes curb, sidewalk/trail, pavement, and lighting, but excludes ornamentation/landscaping.

- **New traffic signal (3-legged and 4-legged):** Lump sum based on past projects. Assumes traffic signal equipment including signal poles, heads, pedestrian push buttons, count down timings, traffic signal controller, communications, and other standard features.

- **Controlled pedestrian crossing:** Lump sum based on past projects. Includes the installation of traffic signal poles, heads, pedestrian push buttons, pedestrian countdown timers, traffic signal controller and other standard features. Configuration based on the concept drawing.

- **Street lighting:** Lump sum based on past projects. Assumes typical spacing of streetlights along the corridor

- **Water quality:** Lump sum based on past projects. Most of the corridor will maintain curbs in place. This is focused on the curb extensions and roundabouts and locations with new curb.

- **Grind and overlay (to match edge conditions):** Lump sum based on past projects. Limited to locations where the new medians and curb extensions are proposed to match pavement edge conditions.

- **Drainage:** Lump sum based on past projects. Most of the curbs will remain untouched; however, drainage improvements may be required at new curb extensions including bioswales, infiltration basins or new catch basins with filtration systems. Conceptual designs do not specifically identify locations for drainage improvements. This cost could vary widely.

- **Gateway feature:** Estimated based on research related to typical costs for monument style feature. Cost for this could vary widely depending upon the design of the feature.

The estimated cost of a gateway feature is not factored into the overall estimate because the gateway features is not proposed as part of this plan but referenced in this report as a potential future addition to the plan.

Table 14 summarizes the rough order of magnitude cost estimate for the Draft Corridor Concept Plan.

Table 14: Rough Order of Magnitude Cost Estimate – Draft Corridor Concept Plan

Item No.	Item	Quantity	Units	Unit Cost	Total Item Cost
General Overhead-Related Construction Items					
1	Mobilization	1	LS	$1,605,000	$1,605,000
2	Traffic Control	1	LS	$802,000	$802,000
3	Stormwater Protection Plan	1	LS	$50,000	$50,000
4	Monument Preservation & Restoration	1	LS	$50,000	$50,000
5	Utility Relocation Coordination	1	LS	$10,000	$10,000
	Subtotal of Construction Overhead Items:				$2,517,000
General Construction Items (non-decorative only)					
6	Full Depth AC Pavement Removal	882,050	SF	$3.00	$2,646,200
7	Install Full Depth AC Pavement	587,191	SF	$7.00	$4,110,400
8	New Medians	23,425	SF	$15.00	$351,400
9	New Sidewalks (Includes Curb-Ramps & Curb-Extensions)	50,000	SF	$12.00	$600,000
10	Signing and striping (Roadway)	23,180	LF	$5.00	$115,900
11	Signing and striping (Bikelane Conflict Striping)	35,900	SF	$10.00	$359,000
12	Two-Lane Roundabout	4	LS	$1,000,000	$4,000,000
13	Single-Lane Roundabout	0	LS	$750,000	$0
14	New Traffic Signal (3-Legged)	2	LS	$300,000	$600,000
15	New Traffic Signal (4-Legged)	2	LS	$350,000	$700,000
16	Controlled Ped Crossing (Signal or HAWK)	1	LS	$150,000	$150,000
17	RRFB	0	LS	$20,000	$0
18	Street Lighting	1	LS	$75,000	$75,000
19	Water Quality	2.5	mile	$1,000,000	$2,500,000
20	Grind and Overlay (to match edge cond.)	1	LS	$100,000	$100,000
21	Drainage	2.5	mile	$1,500,000	$3,750,000
22	Gateway Feature	0	LS	$150,000	$0
	Subtotal of General Construction Items:				**$20,057,900**
	Contingencies (% of General & Overhead Construction Items):			**30%**	$6,772,500
	Total (General & Overhead Construction Items & Contingencies) cost:				**$29,347,400**

Project Delivery Costs:		
Type of Project Cost		**Cost $**
Preliminary Engineering (PE)		
Environmental Studies and Permits(PA&ED)	15%	$4,402,100
Plans, Specifications and Estimates (PS&E)	32%	$9,391,200
Total PE:		**$13,793,300**
Right of Way (RW)		
Right of Way Engineering	5%	$1,467,400
Acquisitions and Utilities	7%	$2,054,300
Total RW:		**$3,521,700**
Construction Engineering (CE)		
Construction Engineering (CE)	20%	$5,869,500
Total Project Delivery:		**$23,184,500**
Total Project Costs - Draft Corridor Concept Plan 2022 (Total Construction Cost & Project Delivery):		**$52,531,900**
3% Escalation (2022 - 2035)		$24,613,000
Total Project Cost with Escalation (Draft Corridor Concept Plan)		**$77,144,900**

13.0 Implementation Plan

There are various options to be considered for implementing the project. This section provides options for phasing and suggestions for sources of implementation funding. Flexibility will be needed in the implementation process, with consideration of timing, to maximize available funding, including grant funding. Upon adoption of a Final Corridor Concept Plan by the County Board of Supervisors, development projects along the corridor could be conditioned for conformance (e.g., projects with frontage on the corridor or that impact intersections and segments of the corridor), including contributing to a proportionate share of the buildout.

The implementation plan for the Draft Corridor Concept Plan focuses on two key areas: phasing and funding. Phasing describes the sequencing of the construction of improvements. While it would be ideal to construct all improvements at the same time, this could be both financially infeasible and impractical. This section explores opportunities to advance improvements for immediate or near team construction and construct other more complex and costly elements at a later time as funding becomes available.

The second element of the implementation plan is funding. The implementation plan outlines available grant programs applicable to this corridor study and the elements of the Draft Corridor Concept Plan eligible to be funded by the grant.

Finally, this section will provide a peer review of similar agencies that have planned, designs, and constructed similar projects.

PHASING

Provided below is a potential order of phase improvements, based on complexity and cost. Lower complexity items (top of the list) focus on elements such as signing and striping and marked crossing that require no physical modifications to the roadway. They are low cost, high impact improvements that provide an immediate benefit to the community. Most can be constructed independent of the other improvements.

Some improvements in the list below include physical modifications of the roadway including curb extensions, medians, sidewalks, and Class IV separated bikeway. In most cases, these improvements are medium cost and address gaps in the bicycle and pedestrian network, resulting in improved access and safety.

The more expensive and complex improvements are found toward the bottom of the list. They may also include improvements that require right-of-way acquisition such as sidewalk construction or trail relocation and the majority of utility relocation. Improvements outside the public right-of-way may also require environmental clearance. As a result, these improvements may require a longer time to process the administrative requirements, design and right-of-way.

SUMMARY OF PHASED IMPROVEMENTS

Based on the descriptions provided above, the elements of the plan are listed in a potential order of phasing, if implementation is accomplished through a phased approach.

- ✓ Restripe roadway within existing right-of-way to include Class IV separated bikeway with flexible delineator posts and narrower travel lanes
- ✓ Upgrade all existing crosswalks to continental, high visibility crosswalks
- ✓ Construct new controlled pedestrian crossing
- ✓ Construct curb extensions and transit stop improvements

- ✓ Install the unbuilt traffic signals (Park Circle Way is now built) associated with private development conditions at Mirar de Valle Road and Indian Creek Road (the Mirar de Valle signal likely to be completed by the developers by the time this plan is adopted)
- ✓ Install medians, stop signs, and associated "No Left Turn" signage
- ✓ Construct missing sidewalk on the east and south sides of the corridor
- ✓ Construct roundabouts at Woods Valley Road, Lilac Road, Miller Road, and Cole Grade Road
- ✓ Construct traffic signals at Old Road and Sunday Drive
- ✓ Construct missing sidewalk between Lilac Road and North Village
- ✓ Relocate and improve bus stops near roundabouts
- ✓ Realign Heritage Trail near roundabouts, including conversion to the proposed multi-use path on the outside of roundabouts

FUNDING PROGRAMS

Funding for planned improvements could require a combination of grants, fee programs, and/or developer mitigation. As discussed in this section, a number of grant programs are available to public agencies in San Diego County from local programs, state funded programs and federally funded programs that have been leveraged to construct street improvement projects similar to the scope of this corridor study. **Figure 15** on the following pages summarizes several projects that have been recently constructed and the funding source for the improvements. As noted on the figure, most projects leveraged multiple funding sources to see the project from planning through construction.

A brief description of potential funding programs that may be applicable for the Valley Center Road Draft Corridor Concept Plan is provided below. It should be noted that funding programs change after each funding cycle and are dependent upon the agency and funding source. Therefore, this list should be reviewed and updated as the corridor study moves from this concept development phase to final engineering design and construction.

Figure 15: Street Transformation Matrix (page 1 of 2)

Agency	Project Name	Description (length, location, nature of changes)	Timing	Cost	Est. Av. Cost per ft	Funding Source (s)	Before Photo	After Photo
City of Imperial Beach	Imperial Beach Blvd	Road diet, water drainage upgrades, activated pedestrian space and bike infrastructure along a 1.65mi stretch of roadway on Imperial Beach Boulevard from Seacoast Drive to 14th Street.	March 2019 - Summer 2020	$10.6M	$1.2k per linear foot	$1M Anuual SB1; $1.1M State Climate Investment Urban Greening Grant; $1.9M Storm Water Grant; $200k Storm Water Local Match; $2.5M CA Active Transportation Grant; $211k Public Works Department's reserves account; $1M Port of San Diego Fiber Optic Infra. Project; $1M IB Blvd Sewer Force Main Project; $1.3M Commercial Paper Ped Access Project; $250k Bi-Annual Slurry Seal Project; $200k Sidewalk Infill Citrus Ave Project		
City of Solana Beach	Stevens Ave Road Diet	Road diet on Stevens Ave, installation of new sidewalks and bike lanes.	2015-2018	$500K	$120 per linear foot	A combination of: TDA grant from SANDAG; Gas Tax; and TransNet funding provided to the City via SANDAG	N/A	N/A
Lancaster Redevelopment Agency	Lancaster Boulevard	Redevelopment of a 9-block stretch of roadway in downtown Lancaster. The design includes a rambla (pedestrian strip in the middle of the road) with parking clustered around. Crosswalks, rows of palm trees, pop-outs, etc.	Construction phase - March 2010 - November 2010; broken up into three phases, no more than 3 months per phase	$11.5M for the streetscape; $41M includes residential projects and development	$3.6k per linear foot for streetscape	$41 million from the public Lancaster Redevelopment Agency, now disbanded		
City of San Diego	La Jolla Blvd - Bird Rock	The project consisted of community outreach, planning, engineering, and construction of road diet, installation of three mini-roundabouts, and the replacement of sewer mains along a 0.6mi stretch of roadway on La Jolla Blvd.	2000-2007	$7.2M	$2.3k per linear foot	$2M in smart growth grant from Caltrans; a SANDAG transportation grant; development impact fees, and private contributions		
City of Vista	Paseo Santa Fe	This project is a 0.75mi segment of S Santa Fe Ave between Main Street and Civic Center Dr, which includes a road diet from four to two lanes.	2014-2021	$40M	$10k per linear foot	A combination of funding sources have been used for this project including multiple grants (Smart Growth Incentive Program, Active Transportation, Prop 1, Prop 84), TransNet, Developer Impact Fees, Developer Contributions, and General Fund contributions.		
City of Encinitas	Leucadia Streetscape (first phase only)	The project is still in progress and has been divided into multiple phases, so the City can better apply for funding. The design consists of creation of public gathering space, enhancements to pedestrian lighting, roundabouts, outside seating, and public art. Traffic calming elements include: lane narrowing, diagonal parking, upgraded crosswalks, well-marked bike lanes, and roundabouts. Construction is scheduled to begin in Fall 2020.	2010-2021 (in progress)	$7-8M (in progress)	~$610 per linear foot (in progrss)	First phase funding will come from: TransNet; and Regional Transportation Congestion Improvement Program		
City of Oceanside	Mission Ave Improvement Project	This project was the conversion of Mission Ave (a two-way roadway) to a one-way west bound couplet, and Seabreeze (a two-way roadway as well) to a one-way east bound couplet with traffic calming, pedestrian, and bike improvements. Traffic calming elements were primarily implemented on Mission Ave. Later funding was sought for more traffic calming on Seagaze (see below).	2013	$3.6M	$2.4k per linear foot	ATP and City's matched redevelopment bond funds.		

Street Transformation Matrix (page 2 of 2)

Agency	Project Name	Description (length, location, nature of changes)	Timing	Cost	Est. Av. Cost per ft	Funding Source (s)	Before Photo	After Photo
City of Oceanside	Seagaze Improvement Project	**Phase I -** see Mission Ave Improvement Project description **Phase II -** The City was awarded a smart growth grant thru SANDAG to do more pedestrian and traffic calming enhancements.	2013-2018	**Phase II** - $488k	$336 per linear foot	Phase II was primarily funded through SANDAG and matched 15% by Oceanside's CIP		
City of Oceanside	Streetscape Project on Coast Highway	Just went through the study, design. and EIR. which Council approved. No funding currently to move forward with project.	In progress	Unknown	NA	City is in the process of finding funding sources for this project	N/A	N/A
City of Del Mar	Downtown Streetscape Project	The project included major upgrades of street lighting, drainage and irrigation on Camino del Mar between Plaza and 9th streets. The Downtown Streetscape Project was first envisioned in 1996 as part of a citywide street and sidewalk improvement program. Originally planned at $7.1M but extra, optional enhancements were added and failing drainage were addressed	1996-2019	$8.3M	$580 per linear foot	$4M Measure Q (local tax); $2.5M short-term financing; $1.2M City budget; $96k SB1; $50k AB939.		
KTUA (on behalf of National City)	**8th Street Smart Growth**	**Phase I** included undergrounding overhead utilities and replacing the sewer main and laterals. **Phase II** included traffic calming, pedestrian, bicycle, Safe Routes to School and streetscape enhancements on 8th Street between Harbor Drive and Highland Avenue to encourage smart growth revitalization and multi-modal connections to the 8th Street Trolley Station. Along with bike and ped infrastructure and traffic calming elements, the City is converting four travel lanes to two travel lanes with protected left turn lanes at intersections, landscaped islands midblock and replacement of parallel parking with angle parking.	2015-2020	$9M	$1.7k per linear foot	$400k General Fund; $600k Gas Tax Fund; $2.8M Sewer Service Fund; $500k TransNet Prop A; $2M Grants-SGIP: $450k Grants-SRTS; $750k Tax Increment; $1.5M Rule 20A Utility Underground		
SANDAG	**Georgia-Meade Bikeway**	The Georgia – Meade Bikeway will provide a vital connection for residents to walk and bike between vibrant communities within San Diego's urban core. Proposed features include buffered bike lanes, neighborhood traffic circles, raised crosswalks, and other traffic calming measures designed to make the streets more pleasant for everyone – people who bike, walk, and drive. This is one of seven segments planned as part of the North Park/Mid City Bikeways.	2012-2022	$28.6M	$1.6k per linear foot	TransNet Local Sales Tax (other funding sources unsuccessful)		

Grant Programs

The State of California and the federal government award grants for transportation projects ranging from water conservation to active transportation. Caltrans has developed a California Grants Portal that is an effective tool for researching and planning for grant opportunities. The link can be found here: https://www.grants.ca.gov/

The following grant programs may be applicable to the Draft Corridor Concept Plan for Valley Center Road:

Smart Growth Incentive Program (SGIP)

The SGIP provides funding for transportation-related infrastructure improvements and planning efforts that support smart growth development in Smart Growth Opportunity Areas on the Smart Growth Concept Map. Valley Center was identified as an existing Rural Village Smart Growth area in 2016. The goal of the SGIP is to fund comprehensive public infrastructure projects and planning activities that facilitate compact, mixed-use, transit-oriented development and increase housing and transportation choices. Grant applications for the SGIP program are typically due annually.

Active Transportation Grant Program (ATGP - SANDAG)

The goal of the ATGP issued through SANDAG is to encourage local jurisdictions to plan and build facilities that promote multiple travel choices and increase connectivity to bus, schools, retail centers, parks, work, and other community gathering places. The grant program also encourages local jurisdictions to provide bike parking, education, encouragement, and awareness programs that support pedestrian and bike infrastructure. Grants submitted through the State of California's ATP program (see the following section for details on the state program) are directly forwarded to SANDAG for consideration on a bi-annual cycle on the even-numbered year.

Urban Greening Programs

The California Natural Resources Agency has awarded four rounds of grants that fund projects that reduce greenhouse gases by sequestering carbon, decreasing energy consumption and reducing vehicle miles traveled, while also transforming the built environment into places that are more sustainable, enjoyable, and effective in creating healthy and vibrant communities. In 2021, $28.5 million in grants were awarded for projects across California. Projects in this grant program must either acquire, create, enhance, or expand community parks and green spaces, and/or use natural systems or systems that mimic natural systems to achieve multiple benefits. Parkways, median improvements and enhancements to the Heritage Trail may be funded by this program. Future funding will be determined annually based on funds available through the Greenhouse Gas Reduction Fund (GGRF).

Stormwater Improvement Grants

The California Water Board has issued two rounds of grant programs that fund planning and implementation of multi-benefit stormwater management projects which may include, but shall not be limited to, green infrastructure, rainwater and stormwater capture projects and stormwater treatment facilities. Round 2 grants were funded in 2019. Future grants through this program are uncertain, however parkway and median improvements may be funded through grants in this program as long as improvements aim to capture and treat stormwater or improve existing stormwater treatment infrastructure.

Highway Safety Improvement Program (HSIP)

The Highway Safety Improvement Program (HSIP) is a federal funding program aimed at reducing traffic fatalities and serious injuries on public roads. HSIP project selection is data-driven based on crash data with improvements focused on the benefits associated with crash reductions. Lighting, access control, pedestrian and bicycle improvements and other roadway improvements may be funded along the corridor at high crash locations or locations where fatalities or severe injury collisions have occurred. A Local Roadway Safety Plan (LRSP) is required to apply for HSIP grants beginning in 2022.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant Program

The RAISE program is the latest US Department of Transportation funding program aimed at improving safety, environmental sustainability, quality of life, economic competitiveness, state of good repair, innovation, and partnership. Previously known as TIGER and BUILD grant programs, the latest grant program focuses on projects that demonstrate improvements to racial equity, reduce impacts of climate change, and create good-paying jobs. Over $1 billion in funding was issued with a maximum of $100 million per the state. Grants through the TIGER, BUILD and RAISE programs have been issued annually since 2010. This is a highly competitive program and may not be viable for the Draft Corridor Concept Plan for Valley Center Road. However, the program should be monitored annually to determine if the goals of the program align with the objectives of the corridor study.

Solutions for Congested Corridors

Issued by the State's Transportation Commission, this grant program requires projects to be included in an adopted regional transportation plan or a comprehensive corridor plan. The projects through this program will focus improvements to state highways, local streets and roads, rail facilities, public transit facilities, bicycle and pedestrian facilities, and restoration or preservation work that protects critical local habitat or open space. Program funding cited is SB-1 and the grant program will be issued in 2022. The Draft Corridor Concept Plan may need to be co-sponsored by SANDAG or Caltrans.

Active Transportation Grant Program (ATP - CA):

The California Transportation Commission (state) issues Active Transportation Program grant funding opportunities on a bi-annual basis. The objective of the corridor study is to increase the proportion of trips accomplished by walking and biking, increasing the safety and mobility of non-motorized users, advancing efforts of regional agencies to achieve greenhouse gas reduction goals, enhancing public health, and providing a broad spectrum of projects to benefit many types of users including disadvantaged communities. Pursuant to statute, the purpose of the program is to encourage increased use of active modes of transportation, such as biking and walking. The goal of the ATP includes advancing the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals as established pursuant to Senate Bill 375 (Chapter 728, Statutes of 2008) and Senate Bill 391 (Chapter 585, Statutes of 2009). Successful grant applications through this program tend to focus on disadvantaged communities and safe routes to school at the state level. Sidewalk, trail, bike lane and traffic calming improvements of this Draft Corridor Concept Plan may be eligible.

Development Fee Programs

A development impact fee is a monetary exaction other than a tax or special assessment that is charged by a local governmental agency to an applicant in connection with approval of a development project for the purpose of defraying all or a portion of the cost of public facilities related to the development project[2]. A development impact fee is not a tax or special assessment and must be reasonably related to the cost of the service provided by the local agency. If a development impact fee does not relate to the impact created by development or exceeds the reasonable cost of providing the public service, then the fee may be declared a special tax. For this Corridor Concept Plan, impacts associated with future development may be mitigated by improving pedestrian, bicycle and transit connections along the corridor and in the community. The County is currently evaluating potential VMT mitigation fee programs.

Development Frontage Improvements

Based on the intended adoption process for this Corridor Concept Plan, the County will be able to condition future private development projects along the corridor, for conformance with the *Final Corridor Concept Plan* as adopted by the County Board of Supervisors (later in the process). Either through developer contribution programs (described in fee programs

[2] "*A Short Overview of Impact Fees*". Peter N. Brown, City Attorney. Graham Lyons, Deputy City Attorney. City of Carpinteria. http://www.ca-ilg.org/sites/main/files/file-attachments/resources__overviewimpactfees.pdf

above) or through physical improvements, projects may be responsible for constructing improvements such as roundabouts, curb extensions, striping and multimodal improvements.

Public Works Projects

Roadway improvements along the corridor to repair or slurry seal pavement, replace or repair utilities or other roadway repairs may result in resurfacing the roadway, which provides an opportunity to couple the restriping to Class IV separated bikeway with a public works project. As projects are identified and planned for the corridor, opportunities should be identified to integrate curb modifications and striping to align with the corridor study.

IMPLEMENTATION AND FUNDING SUMMARY

Table 15 aligns the implementation phase and potential funding source for each feature identified in the Draft Corridor Concept Plan. Grant funding cycles, release of grant funds and other factors may affect the implementation phase (i.e., near to long term shift). As private development projects along the corridor are reviewed, conditions of approval are anticipated to be applied, for consistency with a Final Corridor Concept Plan to be adopted by the County Board of Supervisors.

Table 15: Implementation and Funding Summary

	Implementation Phase (✓)			Potential Funding Sources (◆)											
				Grant Funding							County Programs				
	Immediate	Near Term	Long Term	ATPG/ATP	SGIP	Urban Greening Grant	Stormwater Grant	HSIP	RAISE	Solutions for Congested Corridors	Mitigation Programs	Fee Programs	Frontage Improvements	Public Works Projects
2-lane roundabouts (Cole Grade Rd, Miller Rd, Lilac Rd and Woods Valley Rd)			✓		◆		◆	◆	◆	◆	◆	◆	◆	◆
New traffic signals (Indian Creek Rd, Old Rd, Sunday Dr, Park Circle Wy, and Mirar De Valle Rd)		✓	✓					◆	◆	◆	◆	◆	◆	◆
New controlled pedestrian crossing Rinehart Ln		✓		◆	◆			◆	◆	◆	◆	◆	◆	◆
Raised median (Complete gaps along length of corridor)		✓			◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
No left turn and stop control on side streets with median (Canyon Rd North and South, Chaparral Terrace, Calle de Vista, Moosa Creek Way, Charlan Rd, Rinehart Ln)		✓						◆	◆	◆	◆	◆	◆	◆
Class IV separated bikeway (Entire corridor)	✓			◆	◆			◆	◆	◆	◆	◆	◆	◆
New sidewalk (West/south side from Lilac Rd to Miller Rd)			✓	◆	◆			◆	◆	◆	◆	◆	◆	◆
New sidewalk (West/South side in North Village to complete gaps)		✓		◆	◆			◆	◆	◆	◆	◆	◆	◆
Replace all existing crosswalks with continental crosswalks (Entire corridor)	✓	✓	✓	◆	◆			◆	◆	◆	◆	◆	◆	◆
Curb extensions (Indian Creek Rd, Old Rd, Sunday Dr, Park Circle Wy, Mirar de Valle Rd, Rinehart Ln)		✓		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Relocate and improve transit stops (Align with intersection improvements)		✓	✓		◆				◆	◆	◆	◆	◆	◆
Potential gateway feature (South of South Village)			✓		◆				◆	◆	◆	◆	◆	◆

14.0 Next Steps

The Draft Corridor Concept Plan will be presented to the community at a workshop in 2022 in an effort to solicit feedback on the plan. Following the presentation to the community, the plan will be refined to reflect input received as well as direction from County of San Diego staff. A Pre-Final Corridor Concept Plan will then be prepared and presented to the County Board of Supervisors for potential adoption.