Council Agenda Report

Item 7a

Department: Public Works
Cost Center: 5010
For Agenda of: 2/4/2025
Placement: Study Session
Estimated Time: 90 Minutes

FROM: Matt Horn, Public Works Director
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SUBJECT: STUDY SESSION ON HIGUERA COMPLETE STREETS PROJECT

RECOMMENDATION

1. Receive an update on the Higuera Complete Streets Project; and
2. Provide input on the Higuera Complete Streets Project plans, including specific input on the following features:
    a. Limits of proposed "road diet" on Higuera Street.
    b. Material used for vertical separation where protected bike lanes are proposed.
    c. Preferred design alternative for the Higuera Street/Los Osos Valley Road intersection; and
3. Provide input to staff on whether to continue further planning and design efforts for a potential shared-use path on Madonna Road as a future project separate from the Higuera Complete Streets Project.

POLICY CONTEXT

On February 2, 2021, the City Council adopted the City's first Active Transportation Plan (ATP), which recommends proposed improvements to bicycling and walking, including the Higuera Complete Streets Project (the "Project") as a Tier 1 (highest priority) project. As part of the FY 2023-25 Financial Plan, the City Council approved an allocation of $1.05 million in local funds to support planning, environmental review, design and construction of this Project, and the City's Active Transportation Committee (ATC) identified the Project as their top funding priority for the FY2023-25 and upcoming FY2025-27 Financial Plans.

The Project directly aligns with the City's current Major City Goal of Climate Action, Open Space, & Sustainable Transportation and is consistent with the recommendations presented in the City's Draft Vision Zero Action Plan, which is scheduled for City Council review and potential adoption in March 2025. As noted in the Draft Vision Zero Action Plan, Higuera Street is part of the City's High-Injury Network—the 10% of city road miles where 75% of fatal and severe injury collisions have occurred. Over the past five years alone, there have been five (5) fatal collisions on Higuera Street within the Project limits, all involving victims who were walking or bicycling.

The Project supports the City's General Plan Circulation Element and Climate Action Plan's sustainable transportation goals and modal shift objectives. The Project does include one intersection design alternative for the Higuera Street/Los Osos Valley Road intersection that is projected to result in future traffic operations that would conflict with the General Plan Circulation Element's adopted minimum automobile level of service (LOS) thresholds. Staff is seeking policy input from the Council on this design alternative, as well as general input on the current draft Project designs.

REPORT-IN-BRIEF

The Higuera Complete Streets Project is intended to provide improved safety and accessibility for all road users, including pavement repairs, and important enhancements to the north/south and east/west connections to local schools, businesses, parks, community services, the downtown, and residences for people walking and bicycling. The Project is identified as a Tier 1 (highest-priority) project in the Active Transportation Plan (ATP) and its goal of increasing access and safety for walking and bicycling supports the City's Climate Action and General Plan modal shift goals. The Project also supports the City's Vision Zero objectives to eliminate severe traffic collisions. Staff has secured approximately $9.1 million in outside grant funding to support construction of the Project:

- $6.951 million from the Caltrans Active Transportation Program (ATP)
- $2.185 million from the SLOCOG Community Betterments Program (plus and additional $500,000 specifically for the separate South/King Crossing Project)

Staff's target is to start construction by late 2025, with an ultimate deadline of February 2026 to secure approval from Caltrans to allocate construction funding and advertise the Project for construction before forfeiting grant funds.

Over the course of the last two years, staff has conducted public outreach, environmental review, and traffic operations studies to guide development of Project designs. With designs now at the 95% complete stage, this study session provides a final opportunity for the community and City Council to provide input on the Project prior to initiating construction. Staff welcomes input on all aspects of the Project, with a specific request for Council input on the following:

a) Limits of proposed lane reductions ("road diet") on Higuera Street
    - Seeking input on start/end points of proposed 4-lane to 3-lane "road diet", as well as if road diet is supported or opposed at all.

b) Material to be used for vertical separation where protected bike lanes are proposed (i.e. concrete curbing vs. rubber flex posts, etc.)
    - Seeking input on preference for more permanent and durable concrete bikeway separation vs. more flexible and lower-cost quick-build materials, such as rubber flex posts.

c) Design alternatives at the Higuera Street/Los Osos Valley Road intersection
    - Two design alternatives have been evaluated, with one alternative providing greater bicycling comfort at the expense of generating a future traffic operations impact. The other alternative retains the existing bikeway configuration, which is less comfortable, but with no substantial change to traffic operations.

While staff welcomes Council direction to guide final design for the Higuera Complete Streets Project, as discussed in detail later in this report, it should be noted that substantial changes to the Project scope could require approval from grant funding agencies and may ultimately risk the funding secured for this Project. For example, the abovementioned grants were awarded based on a competitive call-for-projects process and ranked based on the proposed Project's features that improve safety and/or access for active transportation users (i.e. number of upgraded pedestrian ramps, new miles of protected bike lanes, number of upgraded signalized intersections, etc.). Any significant reduction in these measurable features will likely require a formal scope change request, which will add delays and may ultimately not be approved by the grant agency, which could risk forfeiture of funds.

Additionally, staff is asking Council whether to proceed with further planning to explore a potential separated bikeway on the Madonna Road overpass as a future capital project separate from the current Higuera Complete Streets Project. This concept was studied exhaustively as part of the Higuera Complete Streets Project but is not feasible within the funding and schedule limitations of the current grant-funded Project. Council input will help shape future budget requests and project priorities for this concept.

DISCUSSION

Background

In 2021, the City Council adopted the City's first ATP to promote bicycling and walking as modes of transportation to help reach the City's climate action, modal shift, and traffic safety goals. The ATP identifies a list of infrastructure projects organized by tier, with "Tier 1" projects representing the highest-priority projects with the greatest potential to increase bicycle and pedestrian mode share and reduce existing collision trends. Following adoption of the ATP, the City's Active Transportation Committee (ATC) ranked the Higuera Street corridor as the top ATP Tier 1 project to advance to project development. Since early 2022, staff has completed preliminary concept planning, secured $9.1 million in outside grant funding, completed traffic operations and environmental technical studies, and conducted significant public outreach to guide design of the Higuera Complete Streets Project. The purpose of this Council Study Session is to provide a final opportunity for community and City Council input on the Project designs—now 95% complete—before the Project advances to construction.

Project Scope
The Project extents include Higuera Street as a primary north/south backbone corridor, with additional improvements along Madonna Road to the west and through the Meadow Park neighborhood to the east to complete connections between the Higuera Street corridor, schools, popular destinations, and other prominent active transportation routes to the east and west. The Project limits are as follows:

- Higuera Street (Los Osos Valley Road to Marsh Street)
- Madonna Road (Entrance to Madonna Inn/US 101 Southbound Ramps to Higuera Street)
- Meadow Park Neighborhood Greenway Segments connecting Higuera east to Broad and South Streets along Bridge, Exposition, Corrida, and Woodbridge Streets.

See **Attachment A** for an overview map identifying the Project area, highlights of major improvements and connections to destinations.

The Project design includes improvements for all road users, traffic calming elements to address illegal speeding, as well as enhancements to improve safety, including but not limited to:

a) Pavement repairs and roadway sealing along full Project extents

b) 45 upgraded or new pedestrian crosswalks

c) ADA upgrades at more than 70 pedestrian curb ramps

d) ADA-compliant audible pedestrian signal upgrades at signalized intersections

e) Reconfiguration of the Higuera/Walker/Pacific Street intersection to reduce conflict points and improve pedestrian safety, as recommended in the Mid-Higuera Enhancement Plan.

f) Reconfiguration of the northwest corner of the Higuera/Madonna intersection to improve bicycle and pedestrian crossings.

g) Installation of a new signalized crossing at the Higuera/Elks intersection

h) Installation of high-visibility traffic signal backplates with yellow reflective borders to reduce red light running at all signals within Project limits

i) Addition of radar speed feedback signs to discourage illegal speeding

j) Reconfiguration of Higuera Street to one auto lane in each direction between Margarita and Bridge Streets to provide width for a center median/turn lane, buffered/protected bike lanes, and discourage illegal/unsafe speeds.

k) Neighborhood greenway connections to Hawthorne Elementary School and Broad Street, including traffic calming within the Meadow Park neighborhood on streets with existing speeding concerns.

l) Addition of green bike lane markings to increase visibility at intersection and driveway conflict areas

m) Installation of over 2 miles of physically protected bike lanes (see focused discussion later in this report regarding bikeway separation).

See **Attachment B** for the draft (95%-level) striping plans, which illustrate the general design details for the Project. **Attachment C** shows typical street cross sections to further illustrate the proposed street configurations. Additional information on Project details is also available on the Higuera Complete Streets Project website.

Focus Areas for City Council Input

While staff is inviting input from the community and City Council on all components of the Project, there are several focused discussion items presented below where staff is seeking specific policy direction from the Council to guide final designs.

Question #1 for Council: Is the Council interested in modifying the limits or configuration of the road diet currently proposed for Higuera Street between Margarita and Bridge Street?

Portions of the Higuera Street corridor are not currently wide enough to add buffered or protected bike lanes and keep the current number of travel lanes. The project description for Higuera Street in the adopted ATP notes that auto lane reductions or narrowing (often referred to as a "road diet") or street widening may be required to provide separated/protected bike facilities on portions of this street.

Proposed Road Diet Limits on Higuera Street

Early in the project development process, Central Coast Transportation Consulting (CCTC), a local transportation engineering consulting firm, was commissioned to prepare a traffic operations study for the Higuera Complete Street Project. CCTC evaluated traffic operations along the full Higuera Street corridor for the following analysis scenarios:

- Existing Conditions
- Near-Term Conditions (5–10-year horizon)
  - Includes full build-out of San Luis Ranch, Avila Ranch, Froom Ranch and other recently approved developments
  - Assumes Prado Road Interchange, Prado Road Bridge Replacement and Prado Road Extension east to Broad Street are not yet constructed.
- Cumulative Conditions (20+ year horizon)
  - Reflects build-out of the General Plan land use and circulation plans
  - Assumes Prado Road Interchange, Prado Road Bridge Replacement and Prado Road Extension east to Broad Street have been constructed.

CCTC's traffic analysis concluded that removal of existing traffic lanes was not recommend on the majority of the corridor, with the exception of the segment of Higuera between Bridge Street and Margarita Avenue where existing and projected future traffic volumes are lower. For this stretch of Higuera, existing and future volumes remain within the thresholds that can be served with a single auto lane in each direction while still operating within the City's adopted level of service (LOS) standards[1]. Levels of service at intersections along the proposed road diet segment are summarized as follows:

Table 1: Traffic Operations Along Proposed Road Diet Limits

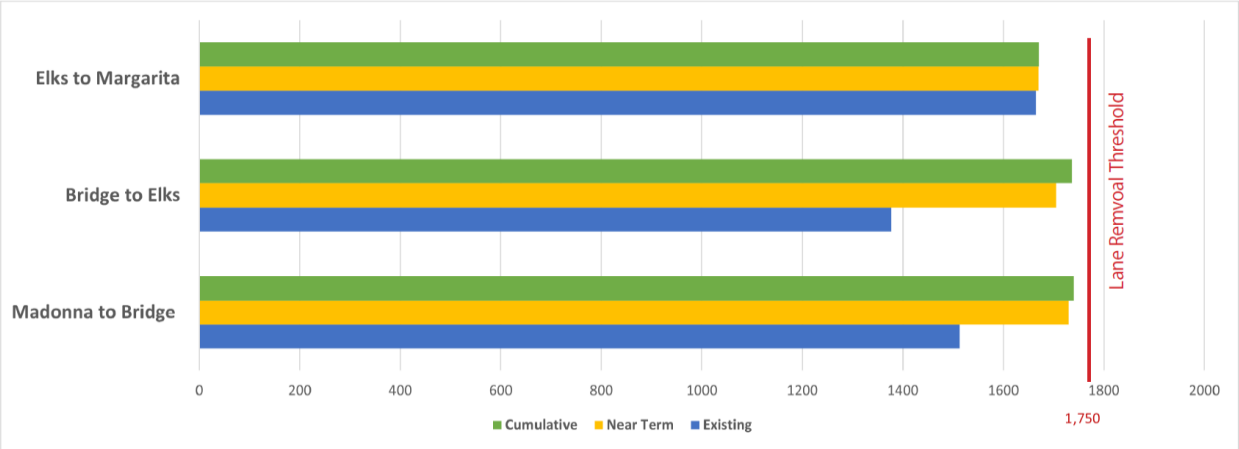
Intersection	Worst-Case (PM) Peak Hour LOS					
	Existing	Existing + Project	Near-Term	Near-Term + Project	Cumulative	Cumulative + Project
Higuera & Bridge[3]	LOS C	LOS C	LOS C	LOS C	LOS D	LOS C
Higuera & Elks[4]	LOS F	LOS B	**LOS F**	LOS B	**LOS F**	LOS B
Higuera & Chumash	LOS B	LOS C	LOS C	LOS C	LOS C	LOS C

1. Source: Higuera Complete Street Project – Traffic Operations Evaluation Report, Central Coast Transportation Consulting, January 2, 2025.
2. City's General Plan Circulation Element Multimodal Level of Service Thresholds identify LOS D or better as acceptable and LOS E or F as deficient. Locations with deficient LOS are highlighted in **bold** above.
3. Operations at Higuera/Bridge intersection improves with Project for Cumulative Conditions due to addition of center turn lane.
4. Operations at Higuera/Elks intersection improves with Project due to installation of a traffic signal.
5. Note that no changes to traffic lanes are proposed at Higuera/Margarita (road diet begins north of Margarita); thus, there are no changes to traffic operations at this intersection.

[1] The San Luis Obispo General Plan Circulation Element (Policy 6.1.2) establishes a minimum vehicle level of service (LOS) standard of LOS D or better for routes outside of the Downtown Core, such as Higuera Street. "Traffic Level of Service" (LOS) refers to a qualitative measure that describes how well a roadway is operating based on factors like speed, travel time, maneuverability, and delay, typically graded with letters from A (representing free-flowing traffic) to F (severe congestion), where A indicates the best operating conditions and F represents the worst conditions.

Based on this analysis, the Project proposes restriping Higuera from four lanes (two auto lanes in each direction) to a 3-lane configuration (one auto lane each direction with a center turn lane/median) between Bridge and Margarita, retaining the existing number of traffic lanes along the rest of the corridor.

The chart below shows existing, near-term, and cumulative traffic volumes on Higuera Street between Bridge and Margarita compared to the maximum threshold recommended by the Federal Highway Administration (FHWA) for a 3-lane road diet (1,750 vehicles per hour during peak hour periods). However, it should be noted that if the Prado Road Interchange is not constructed within the cumulative 20-year horizon, the volumes on this segment of Higuera Street are projected to be higher and exceed the thresholds recommended for a 3-lane road diet by 5%-10%. By providing a connection over US 101, the Prado Interchange is expected to shift trips off Higuera Street north and south of Prado Road. See **Attachment D** for CCTC's detailed traffic operations study for the Project for more details.

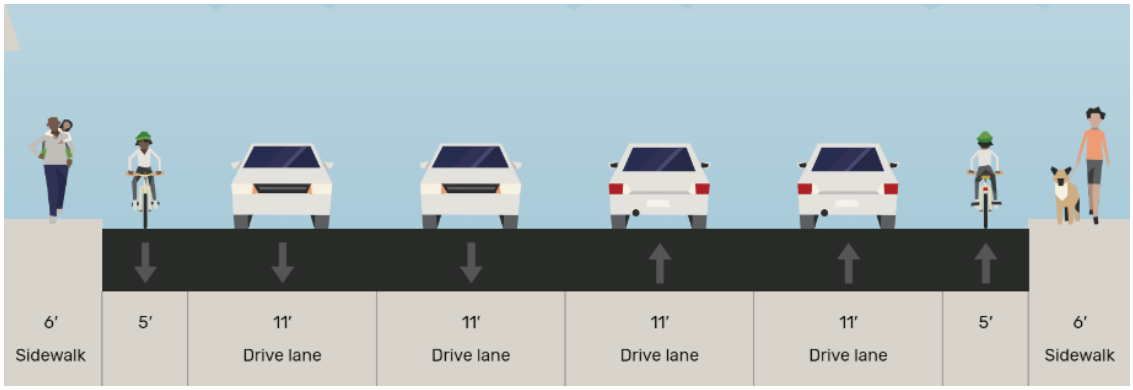


Peak Hour Vehicular Volumes on Higuera Street Compared to FHWA Recommended 3-Lane Road Diet Thresholds

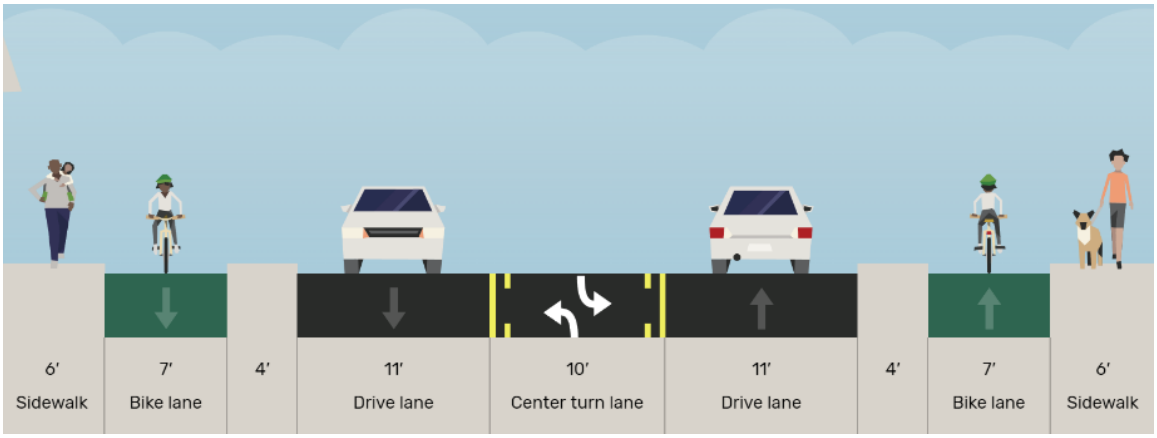
The proposed "road diet" provides additional width to add protected bike lanes, increase buffer space between vehicle traffic and pedestrian sidewalks, and a continuous center turn lane (no center turn lane exists currently between Bridge and Fontana). Road diets are an FHWA proven safety countermeasure that have been shown to reduce illegal speeding and improve safety for all road users[2]. This segment of Higuera Street has some of the highest speeds along the corridor (85th percentile speed = 45 mph) and an above-average crash rate. There have been two fatal collisions and two severe injury collision on this portion of Higuera Street in the past five years, including a fatal hit and run collision in 2024 involving a driver who struck two cyclists riding within the unprotected southbound bike lane near Fontana Avenue, resulting in one fatality. The second fatal collision reported along this segment was from a motorist who drove off the road near the intersection with Chumash Drive.

[2] Per the Federal Highway Administration, 4-lane to 3-lane road diets reduce overall collision rates by 19%-47% on average.

The proposed road diet is intended to improve safety, while maintaining traffic operations within the City's adopted General Plan level of service (LOS) performance thresholds. However, staff has received comments from several community members during the public outreach process, particularly from the Chumash Village senior community, expressing concern that removal of auto lanes will create traffic congestion and challenges for drivers entering/exiting driveways on Higuera Street. Staff held a focused town hall meeting with residents of Chumash Village and agreed to conduct focused analysis of their driveway as part of the project traffic study.



Existing – Higuera (Bridge to Margarita)



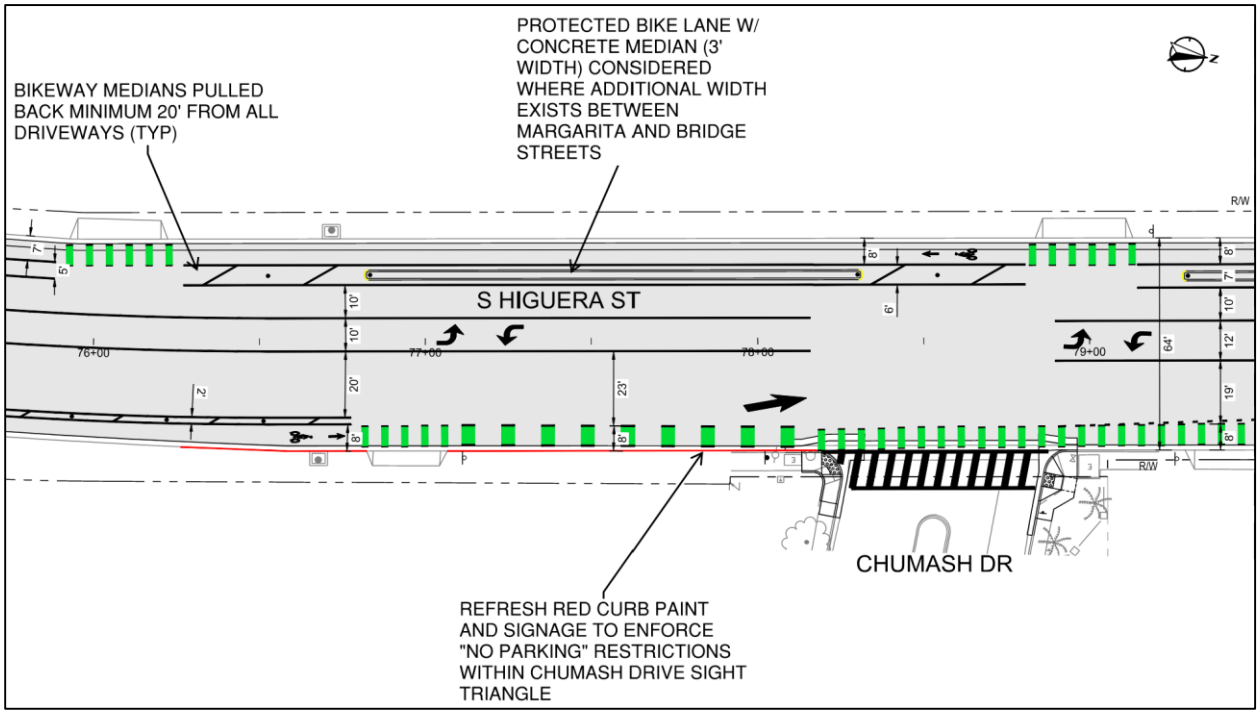
*Proposed – Higuera (Bridge to Margarita)**

*Note – While not clearly shown on this conceptual cross section graphic, detailed designs include a minimum 1-foot edge stripe to provide a buffer on each side of any raised medians.

CCTC's traffic analysis of the Chumash Village driveway (see **Attachment D**) concluded that the driveway would operate acceptably within the City's adopted thresholds for vehicle delay/congestion at level of service (LOS) C or better during peak hour periods with the proposed road diet. The project would increase the average delay by 3-5 seconds per vehicle for drivers exiting this driveway during peak commute hours, but it can often be easier for some drivers to judge gaps in traffic with one lane in each direction vs. two when exiting driveways, such as Chumash Drive. In addition, the proposed project will

increase the width of the center two-way left-turn lane at this location, improving use of this lane for two-stage left turns. Several Chumash Village residents requested additional improvements at the Chumash Village driveway as part of this project, including request for a traffic signal, additional streetlighting, and more aggressive measures to reduce illegal parking within the intersection line-of-sight. CCTC's analysis confirmed that this location does not meet the thresholds or "warrants" required to legally install a traffic signal; however, staff plans to accommodate these other requests and has already installed additional parking signage and red curb to address illegal parking concerns.

The typical street cross section labeled "Proposed – Higuera (Bridge to Margarita)" provided on the previous page represents the proposed lane configuration on Higuera near Chumash Drive. The striping plan for this location is also provided below for reference.



Proposed Roadway Striping Plan for Higuera at Chumash Drive

It should also be noted that all project designs maintain consistency with state and local fire code requirements by retaining more than 30-foot roadway clearance for emergency vehicle access at all locations (state and local fire codes require minimum 20 feet clearance between any physical elements on most streets and 26 feet clearance fronting taller buildings to accommodate a ladder truck with outriggers). The narrowest street within the project, the road diet segment of Higuera, would provide at least 30 feet clear, including a continuous striped center median/turn lane, which provides a clear bypass lane for emergency vehicles during a response event. Preliminary plans have been reviewed with City Fire Department staff for concurrence, and updated plans will be reviewed again with the Fire Department following Council direction from this Study Session.

Based on this analysis, staff recommends implementing a road diet on Higuera as currently proposed; however, staff is requesting input from the Council on this design approach before finalizing plans. The pros and cons of the current design and various alternatives are summarized below for Council consideration:

Higuera Street Road Diet Design Options		
Design Option	**Advantages**	**Disadvantages**
Current Proposal Reconfigure Higuera to 3 lanes (one lane each direction + center turn lane) from Bridge to Margarita Avenue	• Provides width for continuous protected bike lanes that meet City's preferred width standards • Provides greatest potential to reduce illegal speeding and improve separation between autos and peds/bikes • Supports ATP and Draft Vision Zero Action Plan recommendations • Roadway can be reconfigured to four lanes in future without substantial cost (requires roadway restriping and removal of concrete medians, which are poured on top of existing roadway and do not require significant excavation to demolish)	• More substantial change to road configuration, not supported by some community members due to congestion concerns • Less excess road capacity during special events (i.e. detours from US 101 during collisions/road work) • Potential for congestion and deficient levels of service in the long-term if City land use or circulation plans change from current General Plan (i.e. greater buildout development potential or Prado Rd Overpass delayed significantly) • More challenging to retain efficient traffic flow during construction work or collision events
Q1, Alt. A: No Road Diet Do not remove any auto lanes on Higuera Street.	• No change to current road configuration or reduction in traffic capacity, likely less potential for public concern/opposition • Retains excess road capacity to accommodate additional future growth or changes to circulation plans beyond current General Plan • Retains additional flexibility to accommodate traffic flow during construction and collision events • Excess width provides	• Insufficient width to add continuous center turn lane, widen bike lanes or add physical separation between auto traffic and cyclists/pedestrians • Less potential to reduce illegal speeding and improve overall road safety • Less optimal design for proposed Higuera/Elks traffic signal (no width for dedicated NB left-turn lane or NB bike left-turn queue area without auto lane reductions) • Substantial change to project scope may require scope change approval by grant

	additional road clearance for emergencies and special event detours (i.e. incidents on US 101) • Reduces project construction costs by eliminating bikeway separation	agency and risk >$9 million in grant funding for Project if not approved.
Q1, Alt. B: Modify Road Diet Limits Adjust start and end points of road diet to retain four traffic lanes at most driveways (i.e. reduce road diet limits to only the narrowest section between the Cemetery to Fontana Ave)	• Retains two auto lanes in each direction at Chumash Village and other higher-activity driveways. May reduce some community concern/opposition to road diet • Where road diet remains, same benefits noted in "Current Proposal" option above. • Reduces project construction costs by reducing limits of bikeway separation	• Insufficient width to provide buffered/protected bike lanes along full segment • Insufficient width to provide center turn lane/median along the full segment • May require scope change approval by Caltrans/CTC. Less risk to >$9 million in grant funding compared to removing road diet, but some risk to funding exists. • Where road diet remains, same disadvantages noted in "Current Proposal" option above.
Q1, Alt. C: Road Diet in One Direction Only Reduce number of auto lanes in one direction only (i.e. retain 2 southbound auto lanes)	• Retains existing traffic pattern and roadway capacity in highest-volume direction (southbound) • Still provides potential to add buffered/protected bike lanes along most of route, but with narrower width than preferred per City Standards • Retains additional flexibility to accommodate traffic flow during construction and collision events compared to full road diet • May reduce some project construction costs by reducing extent of bikeway separation	• Insufficient width to add both buffered/protected bike lanes and continuous center turn lane. May require narrowing bike lanes and removing buffer/barrier at certain intersections/driveways where center turn lane is desired • Likely to require scope change approval by Caltrans/CTC. Less risk to >$9 million in grant funding compared to removing road diet, but risk remains. • Where road diet remains, similar disadvantages noted in "Current Proposal" option above.

While protected bikeway separation is discussed further in the next focus area topic below, it is important to note that proposed road diet can be designed in a manner that allows for flexibility to restore four traffic lanes on Higuera Street in the future if City build-out projections change or if desired by a future City Council. As discussed in the next topic, the type of materials used for vertical bikeway separation will have the greatest influence on the level of difficulty and cost to "undo" the proposed road diet in the future.

Question #2 for Council: Does the Council have a clear preference for the type of material used for vertical separation on protected bike lanes?

Various materials can be used to provide the physical separation between motor vehicles and bicyclists when installing protected bike lanes. Materials range from lower-cost and more flexible "quick-build" materials, such as flex posts, rubber bumps and parking stops, to more high-cost and durable materials, such as concrete medians/curbs on-street or reconstructing the bike lane to the sidewalk level. There are clear advantages and trade-offs with each option.

While quick-build materials, like flex posts, provide the advantage of lower installation costs, ability to easily modify/remove bikeway separation, and less potential to damage motor vehicles when struck, these materials provide less physical protection from vehicle traffic, require more frequent maintenance obligations (i.e. replacing broken or worn flex posts or rubber bumps), and are less effective at discouraging illegal parking/encroachment into the bike lanes. More permanent materials such as concrete medians provide greater physical protection, less potential for vehicle encroachment, and less ongoing maintenance obligations, with the trade-off of creating greater potential to damage vehicles when struck and less flexibility to remove/modify these features, as well as increased costs of installation. Some users have also noted that taller vertical features, such as flex posts, have greater visibility than lower-profile concrete curbs. For purposes of comparing costs, a concrete median can require 3-4 times the cost of a rubber flex post per linear foot of protected bike lane for initial installation; but a concrete median can generally remain for more than 20 years with little-to-no maintenance, while flex posts may require replacement every 5-10 years, depending on location and exposure to traffic, incurring higher ongoing equipment and labor costs to maintain.

Ongoing maintenance costs also include potential costs for sweeping by outside contractors, either manually or using a narrower street sweeper than the equipment currently owned by the City—ongoing sweeping costs would be relatively the same regardless of the type of barrier installed. These costs can vary by location and assume that the City never purchases a narrow streetsweeper to allow for in-house sweeping of these facilities. A ballpark estimate of annual contract sweeping costs for this Project as a whole is approximately $20,000 to $30,000 per year, which does not include the potential reduction in in-house sweeping costs if City staff is no longer sweeping these locations.

It should also be noted that placing any physical objects in the roadway, whether flexible or rigid materials, will inherently increase the potential for vehicles and cyclists to accidently hit these objects. Further, more experienced road cyclists often prefer the flexibility of having no bikeway separation to allow for more convenient passing of slower cyclists and maneuverability to enter/exit the bike lane. While design details are important and type of bikeway design should be considered closely on a project-by-project basis, these trade-offs should be acknowledged with any protected bike lane project as well as the available data which consistently concludes that addition of physically-protected bike lanes—even when using only flex posts for separation—increases bicycle mode share[3,4] and improves overall road safety[5].

As currently designed (see **Attachment B** and **C)**, the Project includes flex posts only where protected bike lanes are proposed, except for the road diet segment of Higuera Street between Bridge Street and Margarita where greater bikeway width is available and vehicle speeds are highest. Street width is constrained along most of the Project extents, generally allowing for only 5-foot-wide bike lanes with 2-foot-wide buffers—the minimum widths per City engineering standards. Flex posts are proposed for these narrow segments to provide more functional clearance for cyclists and drivers and to reduce potential damage when these objects are hit. While some ATC members would prefer more substantial concrete barriers, the ATC expressed general support for the current project designs.

For the road diet segment of Higuera Street (Bridge to Margarita), where greater width is available to provide wide bike lanes and buffer distance between vertical objects and vehicle traffic, the current plans propose cast-in-place concrete medians, similar to what currently exists on Marsh Street and Santa Barbara Street. This median design provides durability at a lower cost than full street reconstruction and can be installed or removed at a much lower cost than typical concrete medians, which require street excavation to construct/remove. See below for examples of each treatment.

[3] Per a study published by the Portland State University Transportation Education and Research Center, addition of protected bike lanes in multiple cities resulted in an increase in bicycle ridership ranging from 21% to 171%.

[4] Per preliminary traffic counts collected in November 2024 for the City of San Luis Obispo's North Chorro Greenway Project, bicycle ridership on Chorro Street and Broad Street increased by approximately 120% and 45%, respectively following installation of protected bicycle lanes. Additional "after study" monitoring data for this project will be published in 2025.

[5] Per the Federal Highway Administration , converting existing bike lanes to protected bike lanes with flexible delineators can reduce bicycle/vehicle crashes by up to 53%.

Example of Protected Bike Lane with Quick-Build Flex Posts

Example of Protected Bike Lane with Concrete Separation

When asked for preference on material used for bikeway separation during public outreach activities, in general, more community members who cycle expressed support for concrete separation than for flexible quick-build materials, while some drivers expressed concern over risk of hitting concrete features. Ultimately, there are clear trade-offs with each option and staff is seeking Council input on this design direction.

The pros and cons of the current design and various bikeway separation materials alternatives are summarized below for Council consideration:

Protected Bikeway Separation Design Options		
Design Option	**Advantages**	**Disadvantages**
Current Proposal Use flex posts only where bikeway width is narrow, use cast-in-place concrete medians where extra width is available within Higuera road diet extents (Bridge to Margarita).	• Provides some form of physical bikeway along majority of project extends. • Flex post provide greater functional width and flexibility where width is constrained • Less potential to damage vehicles where flex posts are used • Where more width is available, concrete medians provide more permanent barrier and greater physical protection between vehicle traffic and cyclists • Less installation costs where flex posts are used, less ongoing maintenance costs where concrete barrier is used	• More challenging and costly to remove barriers (temporarily or permanently) where concrete separation is used • Less durability and higher ongoing maintenance costs where flex posts are used. • Less physical protection from motor vehicles where flex posts are used • Higher potential for damage to vehicles when hit where concrete medians are used
Q2, Alt. A: Use Only Flex Posts Use flex posts throughout where protected bike lanes are proposed, no concrete medians/curbs.	• Reduced project costs compared to current proposal of concrete medians for the road diet limits on Higuera between Margarita and Bridge St. (anticipated savings of approx. $400,000 using only flex posts for project) • Retains safety benefits of providing some form of physical separation from motor vehicle traffic • More flexibility to remove barrier (temporarily or permanently) in the future • Allows for incremental, lower-cost safety upgrades now with potential for more substantial/permanent improvements in future, if desired. • Unlikely to require major scope change approval from grant agency—low risk of losing grant funding	• Less physical protection from motor vehicles where flex posts are used compared to concrete medians • Less durability and higher ongoing maintenance costs compared to concrete

Q2, Alt. B: Use Only Concrete Use concrete medians/curbs for vertical separation throughout where protected bike lanes are proposed (Madonna to LOVR).	• Provides more permanent barrier and greater physical separation between vehicle traffic and cyclists where width is less constrained • Less ongoing maintenance costs compared to flex posts	• Wider profile than flex posts, provides less functional clearance for vehicles and cyclists where width is constrained • Greater potential for vehicle damage when hit • Higher initial installation costs • More challenging (and costly) to remove/modify barrier, either temporarily or permanently in future • No risk to project grant funding, but major increase to project cost and additional funding need (anticipated increase of approx. $750,000 to $1 million)
Q2, Alt. C: No Vertical Separation Eliminate vertical separation from all bikeways in Project, provide striped buffers only where width allows	• Lowers overall project cost and ongoing maintenance and street sweeping costs • Eliminates potential for vehicles or cyclists to hit bikeway separation • Preferred by many experienced road cyclists • Retains more clear width and flexibility for shifting traffic during construction or collision events, and for vehicles to pull to curbside to allow emergency vehicles to pass	• Substantial change to project scope may risk >$9 million in grant funding for Project • Does not support intended mode shift and safety objectives of Project as strongly as current proposal • Less potential to attract less experienced “interested but concerned” cyclists

There are additional variants to the above-mentioned design options, such as the addition of rubber quick-build elements between flex posts, such as rubber parking stops or bumps, or use of pre-cast concrete medians, similar to concrete parking stops, which can be more easily removed (but cost more to install). Staff welcomes further questions and input on these options from the Council during the study session.

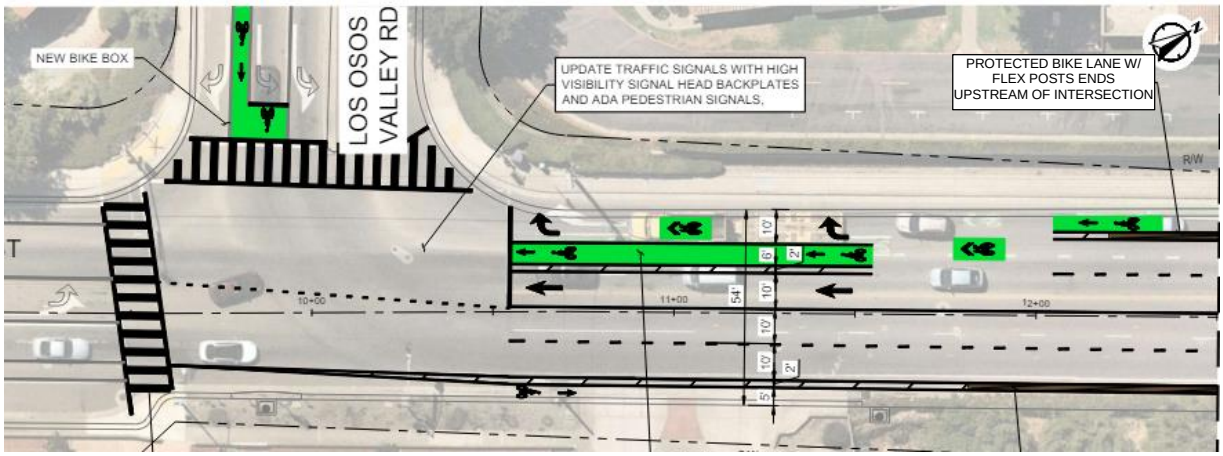
As discussed in the previous section on road diet considerations, project plans have been designed for compliance with applicable state and local fire codes, and preliminary plans have been reviewed with the City Fire Department. While previous review with Fire Department staff did not identify any significant concerns or fatal flaws with the proposed project, the Fire Department does generally prefer as much flexibility and clearance as possible for emergency response—narrow flex posts would generally provide more clearance and flexibility for fire trucks and other emergency response vehicles than wider concrete medians.

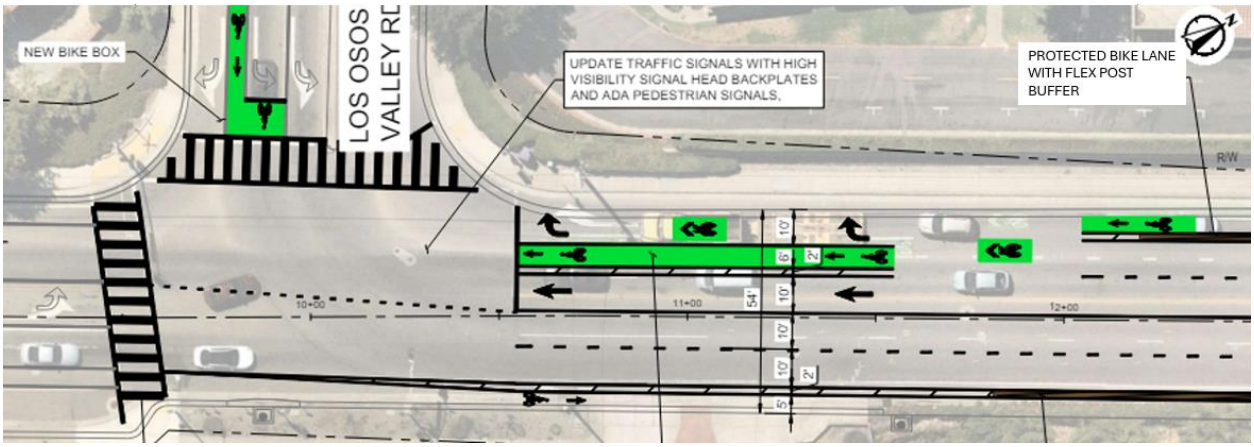
If the Council has interest in eliminating concrete bikeway separation from the project, staff would recommend Design Alternative A (Flex Posts Only), as a preferred design option, as this best balances the priorities of (a) improving active transportation access and safety, (b) reducing initial project costs, (c) maintaining flexibility to modify the roadway configurations in the future, and (d) minimizing risk of forfeiting >$9 million in project grant funding with a major scope change. As noted briefly in the previous section, the use of less permanent materials, such as flex posts, would add additional flexibility to modify or "undo" the proposed Higuera Street road diet in the future if the City's long-term development and circulation plans change, or if restoring additional traffic capacity is desired by a future Council. For example, if the planned Prado Road Interchange Project is delayed or deferred significantly, future traffic volumes on Higuera Street north of Prado Road may increase above current projections and lead to additional congestion and potential traffic operations impacts beyond what is currently projected in the Project traffic study.

<u>Question #3 for Council</u>: Does the Council support the currently proposed design option for the Higuera Street/Los Osos Valley Road intersection that reduces conflicts for bicyclists if this option results in future traffic operations impacts?

Two design options have been developed as part of the Project for the Higuera Street/Los Osos Valley Road intersection. These options are summarized as follows:

Option 1 (Retain Existing Southbound Bike Lane Design): This option generally retains the existing intersection configuration, with a southbound bike lane on Higuera that transitions from the curbside to the left of the adjacent traffic lane on Higuera approaching Los Osos Valley Rd. This requires southbound cyclists to merge across the adjacent traffic lane on a high-speed roadway to continue southbound, which can be challenging for most cyclists and intimidating for less-experienced cyclists. The addition of a protected northbound left-turn signal phase is proposed with this design alternative to address existing collision trends, but otherwise the intersection design would be similar to existing conditions. Under this option, the intersection is projected to operate at acceptable LOS D for existing, near-term and cumulative traffic conditions.





Higuera/Los Osos Valley Road Intersection Option 1

Option 2 (Southbound Curbside Protected Bike Lane with Bike Signal): This concept was identified as an option to provide a lower-stress route for southbound cyclists consistent with the City's ATP Design Guidance[6] and other industry best practices, which recommend the addition of bicycle signals or setback/protected intersection crossings at locations that conflict with heavy right-turning movements. This concept would retain the southbound protected curbside bike lane all the way to the intersection, then separate the southbound bicycle movement from right-turning vehicles with a dedicated bike signal phase. Right turns on red are already prohibited at this approach and would remain prohibited during the bike signal phase. As with Option 1, this design would add a protected northbound left-turn phase to address ongoing collision concerns.

Analysis of traffic operations under Option 2 shows that adding a dedicated bicycle phase would create a significant traffic impact, resulting in a degradation from acceptable LOS D to unacceptable LOS E for future near-term and cumulative conditions. This option would operate at acceptable LOS D for existing conditions with the Project, but vehicle queues would increase significantly above existing levels in the eastbound and southbound directions.

The City Council would need to formally accept this General Plan policy deficiency before this design could be advanced further. It should also be noted that in addition to increasing traffic congestion, this design relies more heavily on compliance from motorists and cyclists in obeying red lights and right-turn on red restrictions to safely separate conflicts between vehicles and cyclists. With limited traffic enforcement resources to patrol this intersection frequently, this consideration should not be ignored in guiding final project designs.

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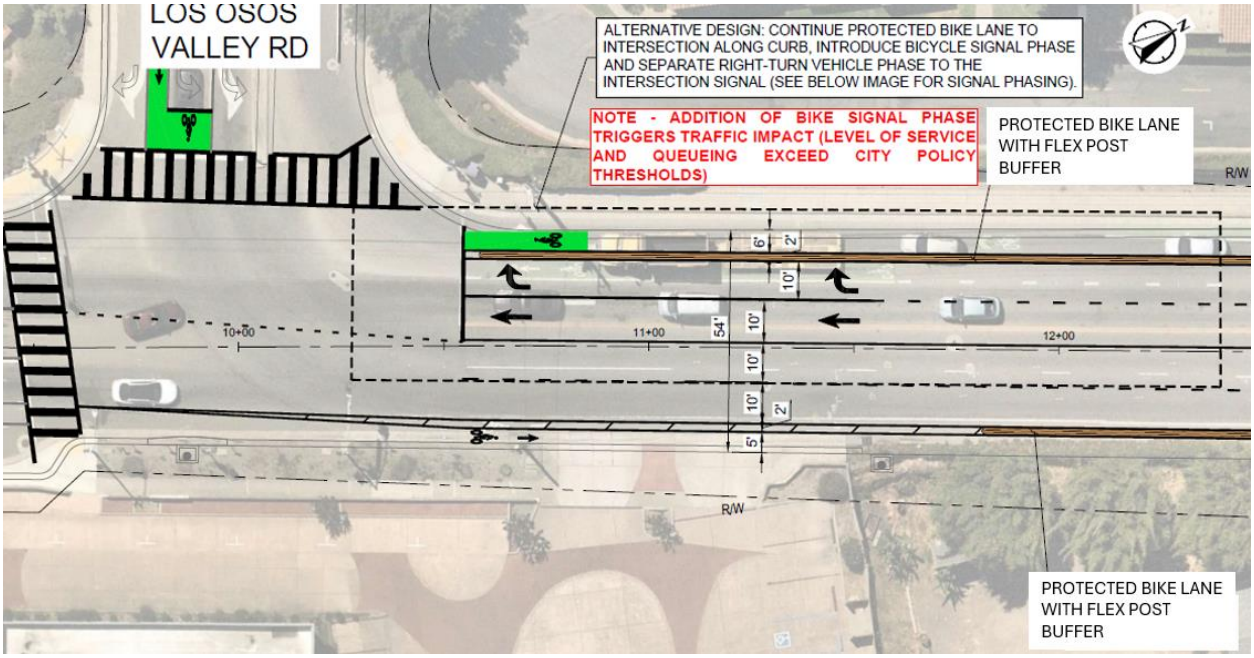
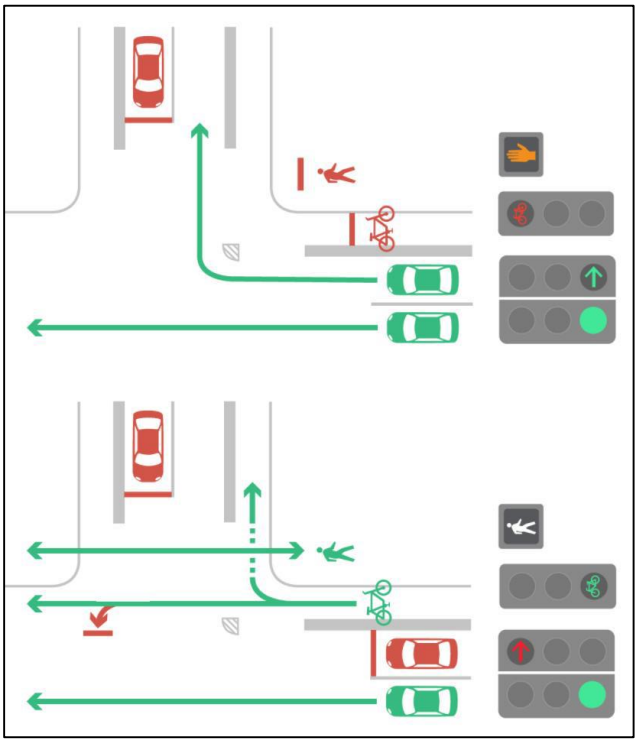
[6] 2021 City of San Luis Obispo Active Transportation Plan, Appendix C (Design Guidelines), Policy 4.12: On streets with speeds of 30 mph or greater with striped bike lanes, or where protected bicycle lanes are provided, bike channelization should generally be avoided at right-turn lanes. Instead, alternative treatments such as protected intersections (setback crossings) or dedicated bike signal phases should be implemented to facilitate more comfortable intersection crossings for riders of all ages and ability levels.



Higuera/Los Osos Valley Road Intersection Option 2



Higuera/Los Osos Valley Road Signal Phasing (Option 2)

At their May 16, 2024, meeting, the ATC recommended advancing design Option 2 (Southbound Bike Signal) as the preferred design alternative, since it would provide a lower stress option for bicycling through this intersection for more than just the most confident bicycle riders. This is the design option shown in the current 95%-level plans (**Attachment B**)

The pros and cons of each design option are summarized below for Council consideration:

Higuera Street/Los Osos Valley Road Intersection Design Options		
Design Option	**Advantages**	**Disadvantages**
Q3, Option 1 (Retain Current Southbound Bikeway Configuration) Retain current southbound bike lane configuration, do not add bike signal phase.	• Less impact on traffic congestion, maintains operations within General Plan policy thresholds • Retains existing road configuration, likely more intuitive for drivers and cyclists • Less reliance on red light compliance for effectiveness and safety compared to Option 2 • Reduced project cost with fewer modifications to traffic signal (cost savings of approximately $100,000 compared to Option 2)	• Retains difficult merge for southbound bicyclists, more stressful for less experience cyclists • Not consistent with ATP Design Guidelines and best practices for bicycle facility design at intersections with heavy right-turn traffic
Q3, Option 2 (Southbound Bike Signal Phase) Retain curbside bike lane on southbound Higuera approaching the intersection, adding a southbound bike signal phase to separate cyclists	• More comfortable design for less experienced cyclists, eliminates need to merge across high-speed traffic lanes. • Consistent with City ATP Design Guidance and best practices for low-stress bikeway design at high-traffic intersections	• Increases traffic delay and congestion, resulting in future traffic operations deficiency conflicting with General Plan policy thresholds • May be less intuitive than existing configuration, with effectiveness relying on high red-light compliance from drivers and cyclists • Higher project cost compared to Option 1

It should be noted that both design options described above were included in the grant funding application for the Project, and staff does not expect the need for a scope change approval by the grant agency or risk to grant funding with either design option.

In addition, the General Plan Circulation Element and traffic studies prepared for several previous development projects identify the need for major reconstruction of the Higuera/Los Osos Valley Road intersection to add additional traffic lanes and capacity in the future with build-out of the city. If the Council prefers to advance Option 1 (Retain Current Southbound Bikeway Configuration) as part of this Project, there could be potential to explore further opportunities to improve bicycle facilities at this intersection as part of a larger intersection reconstruction project in the future.

Question #4 for Council: Should staff continue further planning for a potential protected bikeway/shared-use path on Madonna Road as a future project?

Early in Project development, staff explored opportunities to extend protected bike lanes on Madonna Road along the US 101 overcrossing, which would provide a continuous protected bikeway between Higuera Street and the terminus of the existing Madonna Road shared-use path at the US 101 SB Ramps/Madonna Inn intersection. This is a primary cross-town route for commuters, recreational bicycle riders, and Laguna Middle School students. The overpass of US 101 is under the jurisdiction of Caltrans and any proposed changes would require their design approval.

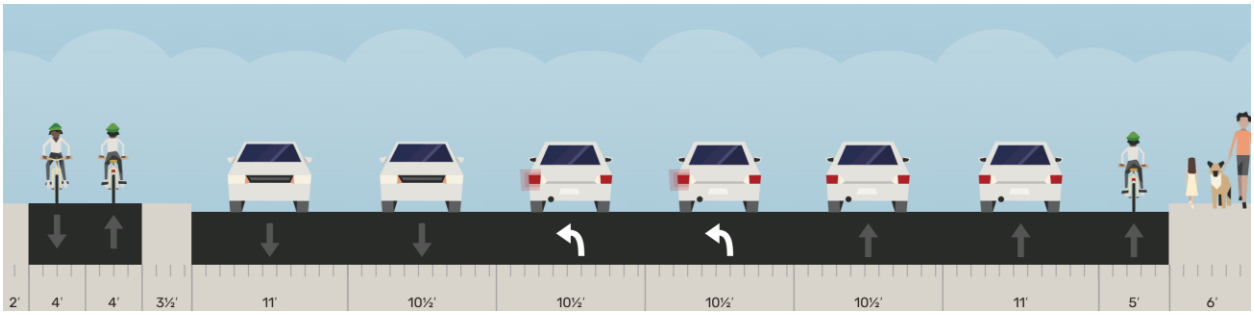
Initial discussions with Caltrans in 2022 indicated that protected bike lanes could not be supported on the overpass, as this would require narrower auto lanes and clear shoulder widths than allowed per Caltrans design standards. Thus, protected bikeways within Caltrans right-of-way on Madonna were not included in the initial Project scope or grant funding request.

During public outreach throughout 2023, staff received many comments from community members requesting staff to continue to pursue protected bikeways on Madonna Road, including suggestions to evaluate a concept that would add a two-way bikeway on the north side of the street, effectively extending the existing shared-use path on Madonna Road all the way east to Higuera Street. This concept would improve connectivity for Laguna Middle School commuters with a more seamless route that avoids the need for cyclists to cross Madonna Road.

Thus, staff continued coordination with Caltrans, developed additional design concept alternatives, collected additional traffic volume data, prepared additional traffic operations studies, and closely tracked progress on pending amendments to Caltrans design standards. Based on this additional design evaluation, review of updated Caltrans complete street design standards, traffic operations analysis, and discussion with the ATC at their May 16, 2024 meeting, the following conclusions were confirmed:

- There are no design options that would provide physically separated bikeways along the Madonna Road overpass that can be advanced at this time within the funding and schedule constraints of the grant-funded Higuera Complete Street Project. Current plans include standard bike lanes with striped buffers (where width allows) and green pavement markings only on this segment of Madonna.
- Any design alternatives for separated bikeways on the Madonna Road overpass would need to be explored as a future CIP project and will require additional funding, and approval of non-standard design elements by the City and Caltrans. Ultimately, these non-standard design elements may not be approvable, and protected bikeways may not be feasible without larger infrastructure changes, such as widening the bridge over US 101 or constructing a separate parallel ped/bike bridge.

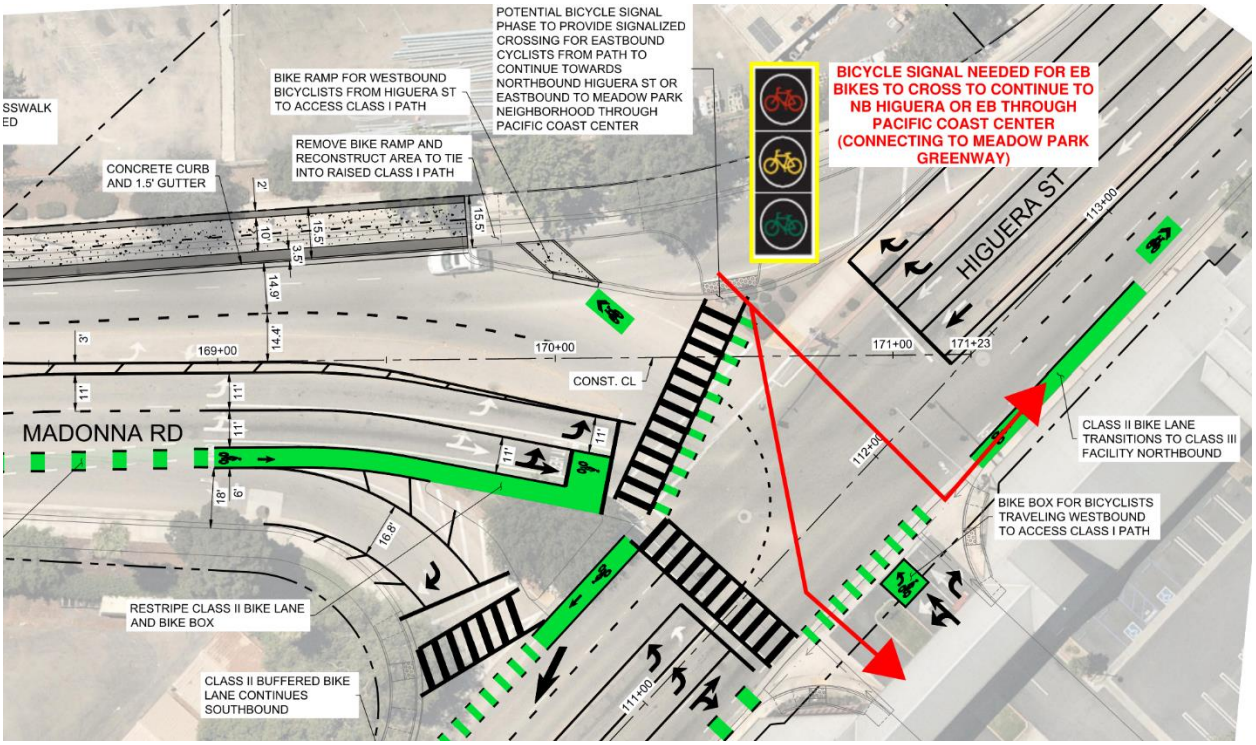
- The design option preferred by the ATC and staff for further evaluation as a future CIP project, depending on Council direction, includes addition of a two-way sidewalk-level shared-use path on the north side of Madona Road between the Madonna Inn/US 101 Southbound Ramp intersection and Higuera Street. This option would improve access for bicyclists and pedestrians (no sidewalks exist on north side of overpass) and provide a seamless low-stress route on Madonna Road. However, this design would require approval of non-standard auto & bike lane widths by the City and Caltrans and is anticipated to result in deficient traffic operations at the Higuera/Madonna intersection per City policy thresholds.



Future Madonna Overpass Shared-Use Path Concept - Looking East
(Concept Assumes No Widening to Existing Bridge)

See **Attachment E** for the latest concept design showing a potential two-way shared-use path on Madonna Road and **Attachment F** for a traffic operations study prepared by CCTC for this design concept.

As discussed in the traffic study for this concept, a bicycle signal phase would be required at the Higuera/Madonna intersection with this design in order to provide a reasonable option for eastbound cyclists to cross the intersection to continue to northbound Higuera Street or eastbound towards the Meadow Park neighborhood. However, addition of this signal modification would result in deficient LOS E operations at this intersection and significant vehicle queues during peak periods. For example, delay per vehicle for all vehicles entering the intersection would increase by approx. 30 seconds per vehicle on average, and eastbound queues could be expected to regularly spill back on Madonna Road to the US 101 NB Ramps with this design alternative (a distance of approx. 900 feet).



Higuera/Madonna Intersection w/ Potential Future Shared-Use Path

Considering these significant design constraints and anticipated traffic operations policy deficiencies, staff is seeking input from the Council on whether to continue further planning of this Madonna Road shared-use path concept. If Council has interest in continuing work on this concept, this project would need to be prioritized and additional funding would need to be approved as part of the FY2025-27 Financial Plan or another future budget cycle. Note that the ATC identified this as one of their priority project funding requests for the FY2025-27 Financial Plan and further improvements to Madonna Road are also recommended in the Draft Vision Zero Action Plan to address high collision rates (in the past five years there have been 2 severe injury collisions, one fatal collision, 7 bicycle collisions and 5 pedestrian collisions on Madonna Road between Higuera and Oceanaire).

The current Higuera Complete Streets Project includes pavement repairs and new roadway striping, including addition of striped bike lane buffers and green markings at conflict points where width allows; however, no physical bikeway separation will be included on the Madonna Overpass.

Previous Council or Advisory Body Action

The Active Transportation Committee (ATC) first reviewed the Higuera Complete Streets project on February 6, 2022, to provide early input on the conceptual design for the Project. The ATC then provided review and comment on 65% level design plans on May 16, 2024. The ATC's key recommendations to staff following review of 65% designs included:

1. Preference for the Higuera/Los Osos Valley Road intersection design alternative featuring addition of a dedicated bicycle signal phase (Question #3, Option 2 described above)
2. Support for the Higuera road diet as currently proposed between Margarita and Bridge Streets.
3. General preference for more permanent (concrete) vertical separation for protected bikeways, with interest in providing more gaps in bikeway barriers to allow cyclists to merge out of bike lanes to pass other riders and to merge across traffic lanes ahead of intersections.
4. Desire for more significant bicycle safety improvements, if feasible, at the Higuera/Suburban intersection, which has a history of bicycle right-hook collisions, including a recent fatal collision.
5. Preference for staff to continue further design refinement and coordination with Caltrans on a design concept for Madonna Road that includes a two-way shared-use path on the north side of the roadway as a future project.

The current 95% plans reflect most of the ATC's recommendations, except for (a) use of more permanent concrete barriers for bikeway separation throughout the Project, (b) addition of separated bikeways on the Madonna overpass, and (c) incorporation of major safety improvements at the Higuera/Suburban intersection. Primary safety concerns at the Higuera/Suburban intersection are related to northbound vehicle vs. bicycle right-hook collisions and conflicts between southbound vehicle left-turns vs. pedestrians and bicyclists. These concerns are highlighted with the tragic death of a cyclists at this intersection when hit by a right-turning vehicle in 2021. The City has since installed warning signage and green bike lane conflict markings. The recommended long-term improvements, which are described in the City's **Draft Vision Zero Action Plan**, require off-site right-of-way and road widening to provide a dedicated northbound right-turn lane to the right of the northbound bicycle lane; however, the scale of these improvements cannot be accommodated within the current grant-funded project. In the short-term, staff is proposing modifications to the traffic signal to provide (a) a protected southbound left-turn phase, and (b) an illuminated "RIGHT TURN YIELD TO BIKES" sign that activates when cyclists approach the intersection. These improvements are currently in design and staff is endeavoring to install them in 2025 prior to the Higuera Complete Streets Project with existing Traffic Safety/Vision Zero account funds. Additional long-term safety improvements for the Higuera/Suburban intersection will be pursued with future budget requests.

Public Engagement

Over the last three years, staff has held a series of community outreach activities for the Higuera Complete Streets project. The public engagement strategy consisted of a combination of both formal and less-formal outreach activities (including weekend, afternoons and weeknights) to maximize opportunities for feedback and to ensure that input reflects the diverse voices of the full San Luis Obispo community. For those who were not able to attend in-person events, staff also collected input via email and phone.

Public engagement activities included two neighborhood pop-ups (at Food 4 Less Market and Meadow Park), two open house workshops, a resident forum hosted by the Chumash Village community, multiple presentations to the ATC and a project webpage. For a comprehensive description of outreach activities and a summary of input, see **Attachment G**. General themes from the community input process include the following:

- Concerns for bicycle and pedestrian safety on Higuera Street and Madonna Road due to heavy traffic, illegal speeding and distracted driving. Interest in reducing traffic speeds and increasing physical separation for pedestrians and bicyclists.
- Concerns about bicycle safety traveling southbound on Higuera through the Madonna Road intersection due to need to merge across multiple vehicle traffic lanes.
- Interest in providing controlled ped/bike crossing on Higuera between Madonna Road and Margarita signals, ideally near Elks Lane.
- A desire to upgrade pedestrian infrastructure including curb ramps, sidewalks, and crosswalks
- A preference for a "gentle touch" approach to traffic calming along the Meadow Park neighborhood greenway vicinity, with general opposition to neighborhood traffic circles, as originally proposed, instead preferring measures such as speed humps, striped corner bulbouts, and stop-signs only where truly warranted.
- A preference for protected bike lanes with strategically placed gaps to facilitate left turns at intersections and passing mid-block.
- Concern from some residents, particularly from the Chumash Village community, about potential traffic congestion and delays traveling along Higuera Street and entering/exiting driveways with addition of the proposed road diet between Margarita and Bridge Streets.

Staff has endeavored to incorporate this feedback into the project designs, where feasible, including a redesign of proposed traffic calming strategies within the Meadow Park neighborhood based on initial feedback from community members.

CONCURRENCE

Transportation staff have reviewed draft project designs with City Fire Department staff and will present final plans for Fire Department review before advancing the project to construction.

ENVIRONMENTAL REVIEW

A draft environmental analysis has been prepared for the Project by Rincon Consultants, Inc. Based on evaluation of current Project details, the draft analysis concludes that the Project is eligible for a Class 1 Categorical Exemption (CE) under California Environmental Quality Act (CEQA) Section 15301(c) (Existing Facilities.) Based on Council input provided during this study session and final Project design details, the CEQA analysis will be finalized and documentation filed prior to advancing the project to construction.

It should be noted that the potential automobile level of service (LOS) impact discussed above at the Higuera Street/Los Osos Valley Road intersection would represent an inconsistency with local traffic congestion policy, but not an environmental impact under CEQA. Pursuant to California Public Resources Code Section 21099(b)(2) and CEQA Guidelines Section 15064.3, LOS or other measures of automobile delay shall no longer be used to define significant environmental impacts under CEQA. Instead, vehicle miles traveled (VMT) is now used as the primary quantitative metric for evaluating transportation impacts under CEQA. The Project includes many features proven to improve access to walking and bicycling, which are anticipated to reduce citywide VMT.

FISCAL IMPACT

Budgeted: Yes Budget Year: 2023-25
Funding Identified: Yes

Fiscal Analysis:
There is no immediate fiscal impact attributed to the recommendations of the report; however, the options presented do have impacts to the total cost of the project. Final project estimates will be presented to Council with the formal request to advertise the project for bids. The below provides background on existing project funding potential budgetary impacts.

When project planning began in early 2022, the estimated construction cost based on preliminary design was approximately $8.8 million and only a small amount of funding had been secured for preliminary planning efforts. Since then, staff has secured approximately $9.1 million in outside grant funding towards project construction, including $6.9 million from the Caltrans Active Transportation Program and more than $2 million in regional funding commitments from SLOCOG. An additional $1.1 million in local funding was also approved as part of the 2023-25 Financial Plan to fund the remaining pre-construction activities and contribute towards project construction.

Based on 65%-level designs, construction costs, including contingency and soft costs, are conservatively estimated between $10.5 and $11.5 million, which exceeds current project funding resources by approximately $700,000 to $1.7 million. The primary factors contributing to the increased costs above the preliminary 2022 planning-level estimates are increases in overall road construction costs, particularly pedestrian curb ramp costs, and increases in pavement maintenance/repair costs. Staff is actively working with the project design consultant to fine-tune cost estimates and refine/remove non-essential design elements where possible to reduce construction costs and believes that some cost reductions can be achieved with the final designs. **However, it is likely that a deficit of up to $1 million is likely to remain. Portions of this shortfall may be offset by funds remaining within other completed projects and potentially additional opportunities for regional funding increases via SLOCOG, however, staff plans to include a CIP request in the upcoming 2025-27 Financial Plan to fully fund project construction**.

As noted previously, major changes to the project scope would require formal approval by the grant funding agencies and could jeopardize forfeiture of the >$9 million in current grant funding, so staff may not have the discretion to eliminate major components of the project design in an effort to reduce costs.

Funding Sources	**Total Budget Available**	**Current Funding Request**	**Remaining Balance**	**Annual Ongoing Cost**
General Fund	$0	$	$	$
State	$0	$		
Federal				
Fees				
Other:	$0			
Total	**$0**	**$0**	$0	**$**

ALTERNATIVES

1. ***Council could direct staff not to move forward with this project all together, or to delay the project to a future date.*** This alternative is not recommended by staff, as this would risk forfeiture of >$9 million in outside grant funding. This would require the City to identify additional local funding to advance not only the active transportation and safety components of the project (if Council desires), but also to fund the pavement repairs included within the current project proposal ($3.8 million of project costs are for pavement repairs).
2. ***Council could provide specific feedback on topics other than focus area questions provided herein, and/or direct staff to pursue additional design alternatives not discussed in this staff report.*** Staff is supportive of receiving any feedback from the Council on this project. Staff would note some caution for feedback that requires removal of major project scope or requests that may incur significant delays, which could risk forfeiture of grant funding.

ATTACHMENTS

A – Project Vicinity Map
B – Project Plans (95% Level Striping Plans)
C – Typical Street Cross Sections
D – Higuera Complete Streets Project Traffic Study
E – Madonna Shared-Use Path Concept Design
F – Madonna Shared-Use Path Traffic Memo
G – Public Outreach Summary