



MOVE MONTEREY

Multimodal Plan for the City of Monterey

MAY 2021



Table of Contents

1	INTRODUCTION	1
	1.1: MONTEREY AT A GLANCE	4
2	COMPLETE STREETS.....	5
	2.1: DEFINITION.....	5
	2.2: TOOLS	6
	2.2.1: Complete Streets Tool Examples	6
	2.2.2: Pedestrian Tools	6
	2.2.3: Bicyclist Tools	8
	2.2.4: Transit Tools.....	9
	2.2.5: Streetscape Features.....	10
	2.2.6: Road Space Reallocation Features	11
	2.3: TYPES OF STREETS	12
	2.3.1: Residential District.....	12
	2.3.2: Commercial District.....	12
	2.3.3: Garden Road.....	13
	2.3.4: Ryan Ranch	13
	2.3.6: Pedestrian Oriented Space	14
	2.4: TRANSPORTATION EQUITY	14
	2.5: TOURISM AND TRANSPORTATION	15
	2.6: TRANSIT	15
	2.7: MOBILITY HUBS.....	15
	2.8: CAR SHARE	16
3	PEDESTRIANS	17
	3.1: INTRODUCTION.....	17
	3.2: PEDESTRIAN TOOLBOX.....	17
	3.2.1: Pedestrian Facilities.....	17
	3.2.2: Pedestrian Crossings	20
	3.2.3: Wayfinding.....	25
	3.3: EXISTING CONDITIONS	26
	3.3.1: Pedestrian Facilities.....	26
	3.3.2: Crossings	27
	3.3.3: Wayfinding.....	27
	3.3.4: Pedestrian Places & Plazas	27

3.4: PROPOSED PEDESTRIAN PROJECTS	27
3.4.1: Pedestrian Projects	27
3.4.2: Sidewalk Inventory	27
3.4.3: Crosswalk Inventory	27
3.4.4: ADA Transition Plan.....	27

4 BICYCLES.....28

4.1: INTRODUCTION.....	28
4.2: BICYCLE TOOLBOX	29
4.2.1: Bicycle Facilities	29
4.2.2: Bicycle Treatments.....	34
4.3: EXISTING CONDITIONS	38
4.3.1: Existing Bike Parking	39
4.4: PROPOSED BICYCLE PROJECTS	40

5 SAFE ROUTES TO SCHOOL.....44

5.1: INTRODUCTION.....	44
5.2: SCHOOLS	44
5.3: BARRIERS TO WALKING AND BICYCLING	45
5.3.1: Walk & Bike Shed	45
5.3.2: Traffic & Driver Behavior	46
5.3.3: Weather.....	46
5.3.4: Topography & Geography	46
5.3.5: Infrastructure.....	46
5.4: WALK/BICYCLE TO SCHOOL PROGRAM.....	46

6 TRANSPORTATION DEMAND MANAGEMENT47

7 VEHICLE MILES TRAVELED51

7.1: BACKGROUND	52
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8 VISION ZERO54

8.1: VISION ZERO, A GLOBAL MOVEMENT	55
8.1.1: Vision Zero in the United States.....	55
8.2: WHY IS VISION ZERO NEEDED?	56
8.2.1: Monterey Vision Zero Emphasis Areas	56

8.3: HOW VISION ZERO WORKS	57
8.3.1: Consider all Levels of Prevention	57
8.3.2: Focus on Crash Severity	58
8.3.3: Collision Data	60
8.4: IMPLEMENTATION	62
8.4.1: Realizing Vision Zero	62
8.4.2: City Vision	62
9 IMPLEMENTATION.....	64
9.1: FUNDING	64
9.2: IMPLEMENTATION	65

List of Figures

Figure 2.1: Trolley Map	15
Figure 3.1: Vehicles and Curb Radii	21
Figure 3.2: Crosswalk Treatments	25
Figure 4.1: Bicycle Facility Selection Chart	34
Figure 4.2: Bicycle Parking Locations.....	39
Figure 4.3: Map of Proposed BicycleProjects	41
Figure 5.1: Recommended Maximum Walking Distances by Age Group	45
Figure 5.2: Recommended Maximum Bicycling Distances by Age Group	45
Figure 7.1: VMT Flow Chart.....	53
Figure 8.1: Vision Zero Map	55
Figure 8.2: Number of Fatalities per Year in Monterey (2009 - 2019).....	56
Figure 8.3: The Spectrum of Prevention	58
Figure 8.4: Braking Speed Reaction	59
Figure 8.5: Injury Collision Density Map of City of Monterey (2015 - 2019)	60
Figure 8.6: Fatal Collision Density Map of City of Monterey (2015 - 2019).....	60
Figure 8.7: Fatal Traffic Collisions per 30,000 people (2015 - 2019)	61

List of Tables

Table 4.1: Recommended Class I Facility Widths.....	31
Table 6.1: Potential TDM Measures.....	48
Table 8.1: Collision Types.....	59
Table 8.2: Collision Data.....	61
Table 8.3: Design Streets Strategies.....	63
Table 8.4: Strategies for New Development.....	63
Table 9.1: Potential Funding Sources: 2018-2035	64



Monterey, CA - Source: Kimley-Horn

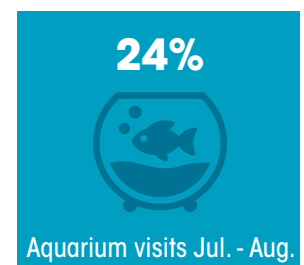
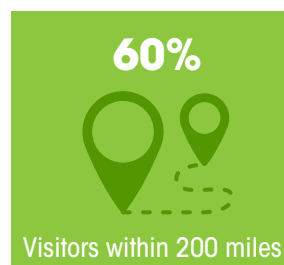
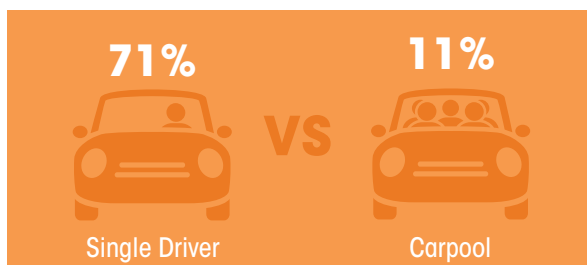
1 INTRODUCTION

The City of Monterey has 28,000 residents but serves between 4 and 5 million visitors each year. Monterey is a prime destination for not only visitors, but also for its resident and workers.

Visitors are an important driver of the local economy. Events bring unique and temporary transportation challenges and opportunities. Monterey can become a leader in promoting active transportation and transit options to visitors while enhancing the experience for residents, employees, students, and visitors alike.

Monterey is a unique and diverse community with a rich history. Just as visitors come from all parts of California, the United State, and beyond our shores, employees who commute to Monterey come from many different locations.

COMMUTERS



Source: City of Monterey Active Transportation/Demand Management Plan - 2020

Solutions for Monterey's unique workforce industries and associated work hours must consider where the labor force lives and what transportation method each person may use (i.e. transit, walk, or bike) to get to work in Monterey. Many service industry employees work more than one job which presents unique transportation needs and barriers. Small employers and their employees often have different transportation challenges than larger employers. Therefore, Monterey is challenged with accommodating seasonal in-city travel as well as large amounts of commute and visitor traffic. Between Memorial Day and Labor Day special events are held every weekend or extended weekends.

Why campuses matter to mobility in the City: academic institutions are unique trip generators made up of large numbers of students, faculty, and staff and frequently host visitors and events. Students entering and exiting higher education are proven to be far more receptive to changing how they get around.

MAJOR CAMPUSES

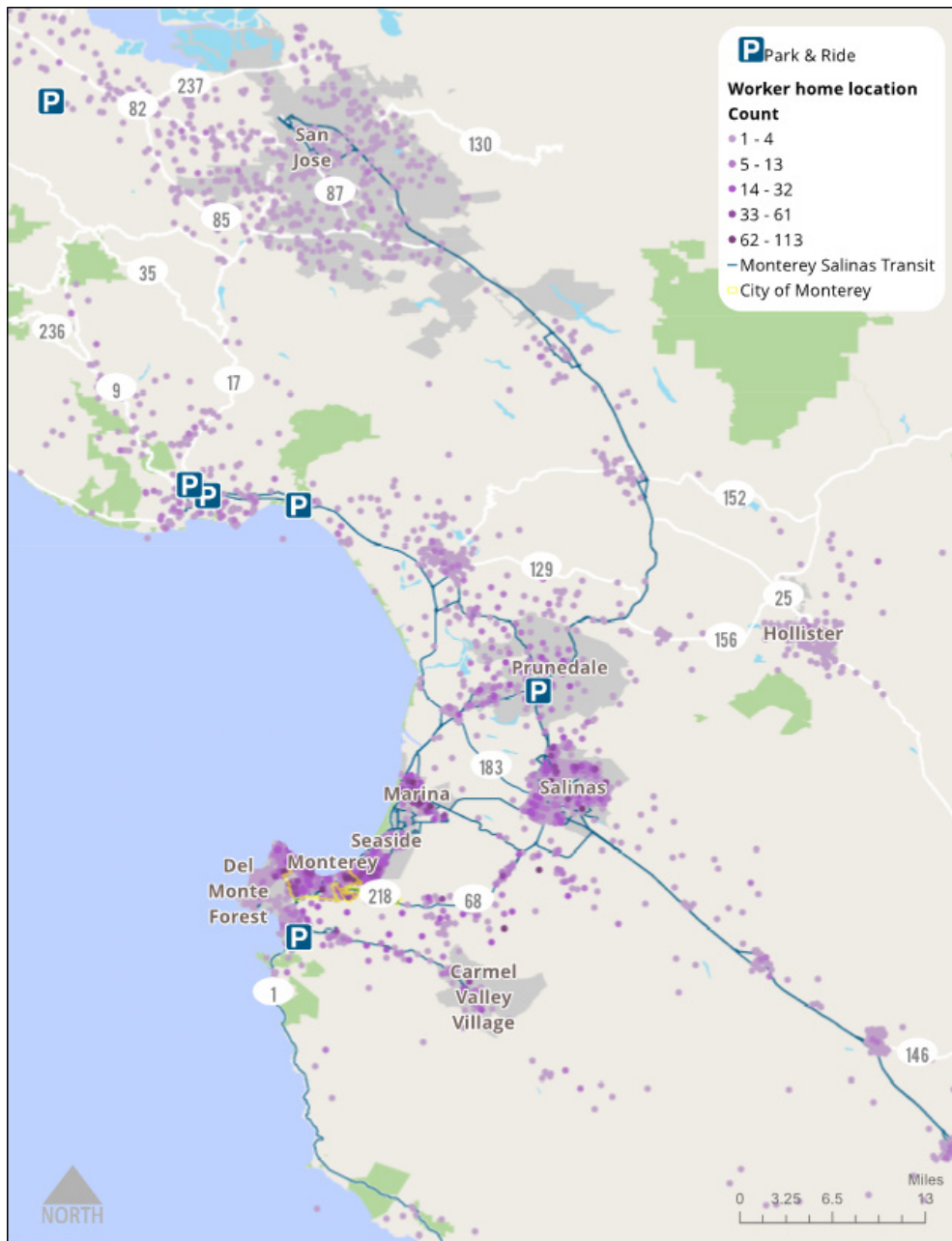


- Defense Language Institute
- Naval Postgraduate School
- Middlebury Institute of International Studies
- Monterey Peninsula College

Event	Location	Visitor Numbers (2015)	Month	2018 Dates
Whalefest	Old Fisherman's Wharf	N/A	January	1/27 - 1/28
AT&T National Pro Am	Pebble Beach	130,000	February	2/5 - 2/11
Pacific Grove Good Old Days	Downtown Pacific Grove	40,000	April	4/14 - 4/15
Sea Otter Classic	Laguna Seca	65,000	April	4/18 - 4/22
Big Sur Marathon	Big Sur to Rio Road	20,000	April	4/29
Spring Classic	Laguna Seca	N/A	May	TBD
California Roots Music and Arts Festival	Monterey County Fairgrounds	N/A	May	5/25 - 5/27
Artichoke Festival	Monterey County Fairgrounds	30,000	June	TBD
California Rodeo Salinas	Salinas Sports Complex	50,000	July	7/19 - 7/22
US Amateur Championships Pebble Beach	Pebble Beach	N/A	August	8/13 - 8/19
Rolex Monterey Historic Automobile Races	Laguna Seca	50,000	August	8/23 - 8/26
Monterey Car Week & Pebble Beach Concours d'Elegance	Monterey Peninsula (various locations)	85,000	August	8/26
Monterey County Fair	Monterey County Fairgrounds	70,000	August/September	TBD
Continental Tire Grand Prix	Laguna Seca		September	9/7 - 9/9
Monterey Jazz Festival	Monterey County Fairgrounds	50,000	September	9/21 - 9/23
Porsche Rennsport Reunion	Laguna Seca	15,000	September	9/27 - 9/30
California International Airshow	Salinas	40,000	September/October	TBD

Source: City of Monterey Active Transportation/Demand Management Plan - 2020

Specific events during the academic year can affect traffic and mobility within Monterey such as move-in/move-out, commencement, homecoming, and conferences. Campuses can serve as a test environment for strategies because they provide a more controlled environment.

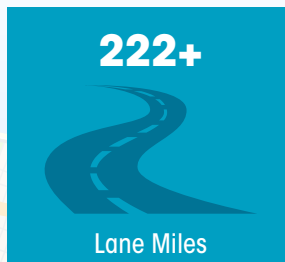
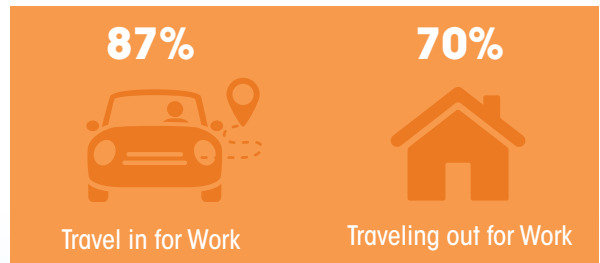
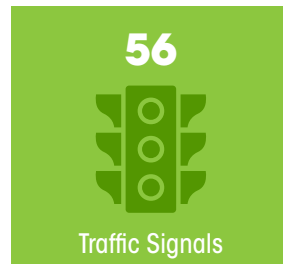
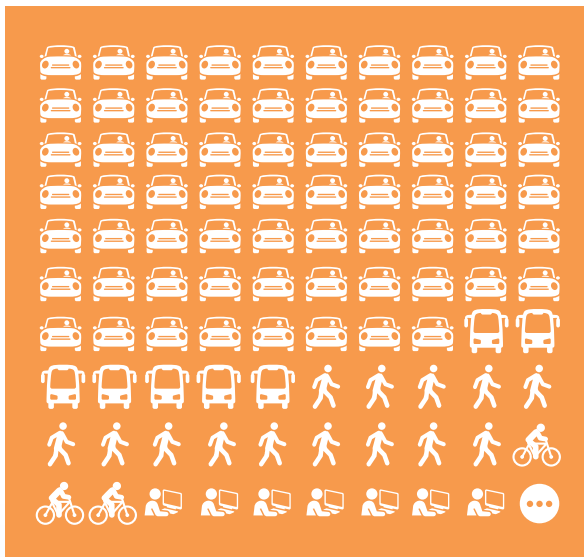


Home locations of employees who work in the City of Monterey - Source: 2014 LEHD Data

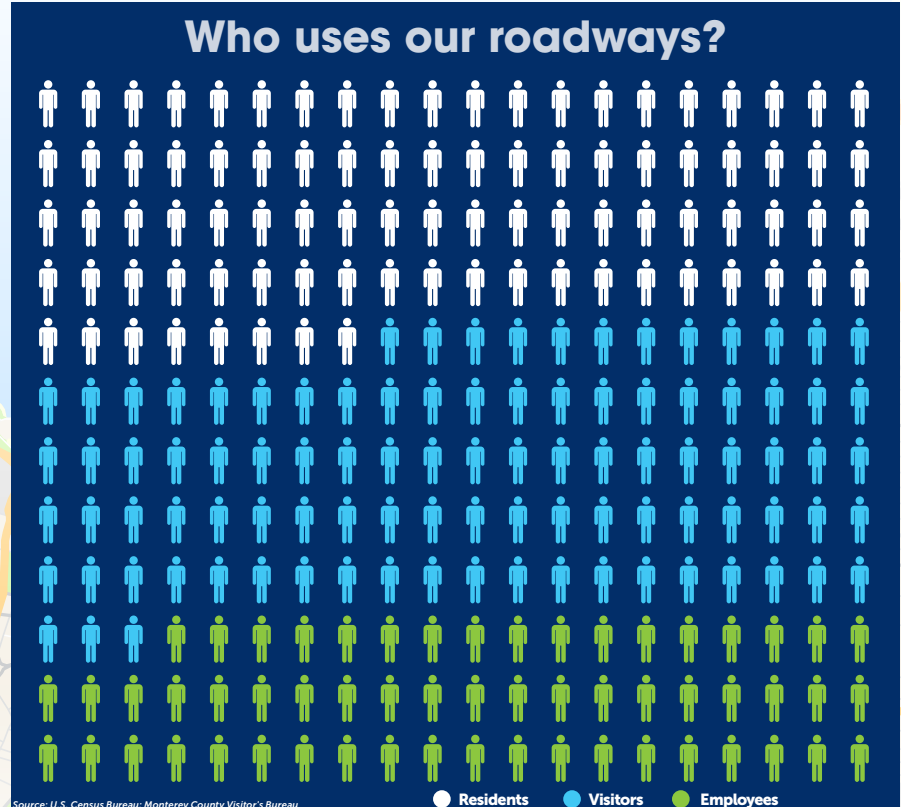
However, Monterey is uniquely positioned to manage as well as reduce traffic in innovative ways. Thanks to funding by Caltrans through the Sustainable Communities Grant, the City was able to update its Move Monterey Plan to include chapters that will help Monterey manage traffic and accommodate a variety of users. New chapters include: Complete Streets, Vehicle Miles Traveled, Vision Zero, and Transportation Demand Management.

1.1: MONTEREY AT A GLANCE

How we traveled to work in 2018



Sources: City of Monterey, US Census Bureau, LEHD, Monterey County Visitors Bureau





North Fremont Bikeway Project, Monterey, CA - Source: Kimley-Horn

2 COMPLETE STREETS

This chapter defines the concept of Complete Streets, introduces the design criteria for select Complete Streets in Monterey, and outlines the tools in each modal toolbox that can be used to achieve more equitable use of City streets for all users.



2.1: DEFINITION

Streets are a vital part of livable, attractive communities. All people should have safe, comfortable, and convenient access whether walking, driving, bicycling, moving actively with assistive devices, or taking public transportation. Traditional roadway functional classification prioritizes moving vehicles at higher speeds over the comfort for any other users of the street or the natural context of the street location.

A Complete Streets approach integrates people and places in the planning, design, construction, operation, and maintenance of our transportation networks. This benefits public safety, all modes of travel, local land use, economic growth, cultural design, and the natural environment.

The City of Monterey supports guidelines and design principles from the National Association of City Transportation Officials (NACTO) Urban Street Design Guide as a best practice for future improvements along public right-of-way. These guidelines serve as a blueprint for the future of Monterey's public environment.

2.2: TOOLS

2.2.1: Complete Streets Tool Examples

Examples of Complete Streets Elements by mode of transportation include:

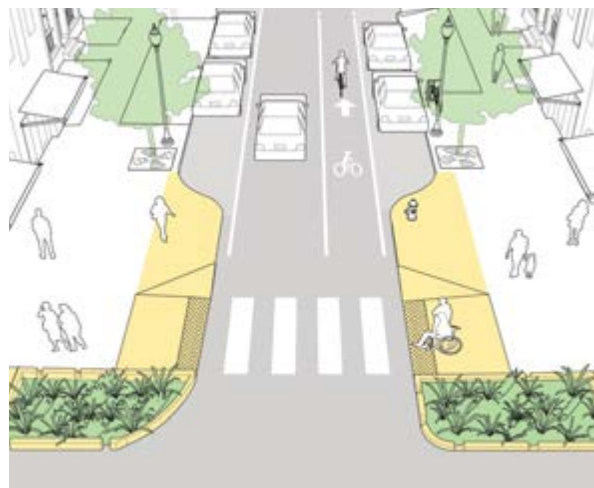
 Pedestrian • Trail Crossings • Wide Sidewalks • Curb Extensions or Bulb-outs • Pedestrian Refuge Islands or Crossing Islands • High Visibility Crosswalks • Pedestrian Facility Gap Closure • Audible Pedestrian Signals • Pedestrian-activated Traffic Control Devices and Yield Lines • Automatic Active Transportation Counters	 Transit • Transit Priority Signals • Transit Queue Jump Lanes • Transit Stop Improvements • Improve Access to Transit Stops (First Mile/Last Mile) • Park and Ride Lots
 Bicycle • Bicycle Parking • Green Colored Pavement for Bikeways • Bicycle Boxes • Bicycle Signals • Bicycle Detection • Class II Bike Lanes and Buffered Bike Lanes • Class I Bike Paths and Class IV Separated Bikeways • Class III Bike Routes	 Streetscape Features • Benches and Shaded Areas for Pedestrians • Green Streets • Landscaped Areas • Intersection Streetlighting
	 Road Space Reallocation Features • Lane Narrowing • Lane Reduction (Road Diet) • Curb Radius Reduction and Eliminating Free Right Turns • Parking Modifications

2.2.2: Pedestrian Tools

This section provides details on the pedestrian-focused Complete Streets tools that can be implemented to create roadways that are safer and more pedestrian friendly.

Trail Crossings provide a continuation of the City's trails across roadways and increase pedestrian and bicyclist safety when crossing a roadway. This increased safety results in increased pedestrian and bicycle activity.

Wider Sidewalks can increase pedestrian safety, provide additional accessibility, enhance public health, and maximize social capital. Increasing sidewalk widths allows for additional features along the sidewalk, resulting in increased pedestrian activity by making walking more attractive. Wider sidewalks allow for the addition of benches, planters, outdoor dining, and bicycle parking.



Sources: Urban Street Design Guide. National Association of City Transportation Officials (NACTO). October 2013.



Franklin Street & Larkin Street - Source: Kimley-Horn



Casa Verde Way & Helvic Ave/Portola Ave - Source: City of Monterey



Example of Audible Pedestrian Push Button- Source: Kimley-Horn



City Hall, Madison Street & Dutra Street - Source: City of Monterey

Curb Extensions or Bulb-outs are an extension of the sidewalk into the roadway which provides queuing space, increases pedestrian visibility, and shortens crossing distances. It can also provide an added benefit of lowering vehicle speeds as drivers perceive the narrowing of the roadway. These can be used when on-street parking is present and should be used when feasible.

Pedestrian Refuge Islands or Crossing Islands are areas within the median for pedestrian refuge from exposure to traffic while crossing the roadway. Crossing islands allow pedestrians to cross fewer lanes and directions of traffic at a time and shortens crossing distances, allowing for two-stage crosses.

High Visibility Crosswalks are markings along roadways that consist of diagonal or longitudinal lines parallel to traffic flow. Additional treatment, such as brick pavers, can also be used to increase visibility. These can be paired with all of the preceding tools to further increase the visibility of pedestrians.

Audible Pedestrian Signals provide audible and/or vibrotactile information coinciding with visual pedestrian signals to let visually impaired pedestrians know when the WALK interval begins for each direction of crossing.

Pedestrian-activated Traffic Control Devices enable pedestrians to cross at uncontrolled crosswalks, at intersections or between intersections (mid-block), to provide pedestrians a safer way to cross a roadway. Generally, these are an LED rapid-flash system such as Rectangular Rapid-Flashing Beacons (RRFBs) that are combined with high-visibility crosswalks. Installation of these devices increases driver awareness of potential pedestrian conflicts at locations with high pedestrian demand. These can also be combined with pedestrian refuge islands along wider roadways.



San Francisco, CA - Source: Kimley-Horn

Automatic Active Transportation Counters are physical structures that are used to collect bicyclist and pedestrian volumes on a specific corridor. These are intended to remain in place permanently and collect data 24 hours per day, consistent with vehicle counters along roadways. These counters can provide the City with information about pedestrian and bicyclist activity along corridors of interest.

Pedestrian Facility Gap Closure involves constructing pedestrian facilities in between two or more existing separate pedestrian facilities. This increases safety for pedestrians and makes walking more attractive.

2.2.3: Bicyclist Tools

This section provides details on the bicycle-focused Complete Streets tools that can be implemented to create roadways that are safer and more bicyclist friendly.



Example of Bicycle Parking - Source: Kimley-Horn

Bicycle Parking provides a secure, safe, and convenient space to store a bicycle when accessing a wide variety of destinations. Providing bicycle parking in a well-lit, plain view area that supports the whole bike and not just a wheel encourages cycling as an alternate mode of transportation. Bicycle parking should be out of the way of pedestrians and motor vehicles for the safety of all users. The City works with local businesses and the Transportation Agency for Monterey County (TAMC) through their Bicycle Secure Program to bring bike parking to areas which desire it.



North Fremont Street & Casa Verde Way - Source: Kimley-Horn

Green Colored Pavement for Bikeways can be used on Class II and Class IV bikeways to increase the visibility of the bicycle facility. This increases bicyclist comfort and motorist yielding behavior, leading to increased safety on the roadway. The green colored pavement identifies and mitigates potential conflict areas such as right turn pockets, driveways, intersections, and the beginning of a bike lane.



San Luis Obispo, CA - Source: Kimley-Horn

Bicycle Boxes are a striped area at an intersection approach that designates an area for bicyclists ahead of automobile traffic. This increases the visibility of bicyclists, reduces conflicts between bicyclists and turning vehicles, and can facilitate left turn positions during a red signal indication.



Example of Bicycle Signals- Source: Kimley-Horn

Bicycle Signals are used at intersections to separate bicycle movements from conflicting vehicles such as cars, buses, and trolleys. These signals can increase safety and reduce bicyclist and vehicle conflicts.



Example of Buffered Bike Lanes - Source: Kimley-Horn

Class II Bike Lanes and Buffered Bike Lanes provide an exclusive lane for bicycle access within the roadway to separate bicyclists from travel lanes and/or parking lanes. Buffered bike lanes provide additional space to Class II bike lanes (a minimum of 18 inches) to further separate cyclists from automobiles.



North Fremont, Monterey, CA - Source: Kimley-Horn

Class I Bike Paths and Class IV Separated Bikeways are bidirectional paths immediately adjacent and parallel to a roadway. While Class I bike paths are more suited for rural areas, Class IV separated bikeways can be found even in urban areas. Class IV separated bikeways do not replace sidewalks and commonly separate cyclists from both pedestrians and vehicles. The primary benefit is the reduction in cyclist conflicts with both vehicles and pedestrians. Class IV separated bikeways can be separated by flexible posts, inflexible physical barriers, curbs, and other methods.



Example of Sharrows - Source: Kimley-Horn

Class III Bike Routes occur along a road that designates preferred usage for bicyclists using a combination of signing, striping, or volume management. Class III bike routes are primarily denoted by shared-lane markings, or “Sharrows,” that are used to delineate the preferred path of bicycle travel in a lane shared with automobiles. Class III bike routes do not provide any physical separation but can help provide cyclists with the City’s desired route and help close any bicycle facility gaps.

2.2.4: Transit Tools

This section provides details on the transit-focused Complete Streets tools, the tools shown in this Complete Streets chapter show items that the City can do to support transit access. Monterey-Salinas Transit, the region’s transit authority has more details for new facilities, shown in MST’s “Designing for Transit, A Guide for Supporting Public Transit Through Complete Streets.” Transit, pedestrians, and bicyclists are dependent on each other, access to first mile/last mile improvements (pedestrian and bicycle improvements) make transit more attractive, the City works toward securing better first mile/last mile improvements as MST expands and improves its services.



Monterey, CA - Source: Wikimedia Commons

Transit Priority Signals are signals that have had their timing or phasing modified to prioritize the through movement of transit vehicles approaching an intersection. Transit priority is recommended for traffic signals at which transit vehicles can experience delays. This leads to improved transit travel reliability and on-time performance, increasing the attractiveness of using transit instead of driving.



Fremont Street & Camino Aguajito - Source: Kimley-Horn



Example of MST Bus with Bike Rack - Source: Kimley-Horn



San Francisco, CA - Source: SFMTA

Transit Queue Jump Lanes combine short dedicated transit facilities with either a leading bus interval or active signal priority to allow buses to easily enter traffic flow in a priority position. Queue jumps can reduce delay considerably, resulting in run-time savings and increases reliability. These are primarily provided by reducing parking ahead of an intersection to provide a bus-only zone for buses to “jump” the vehicles queued at an intersection.

Improve Access to Transit Stops include elements that improve access to transit operations. This may include closing sidewalk gaps, adding bike lanes, or providing bike parking.

Transit-only Lanes are primarily provided for Bus Rapid Transit (BRT) or Light Rail Transit (LRT) systems but can be provided for typical buses as well. Transit-only lanes are designated by signing and striping for the preferential or exclusive use of transit vehicles. These lanes are typically not physically separated from other traffic but can still accommodate high transit vehicle volumes and improve both reliability and travel times on congested roadways. These improvements can be done when feasible and potentially in combination with a road reallocation project.

Park and Ride Lots are a parking facility that allow users to take transit even if their home is not within walking distance of a transit facility. Park and ride lots should be able to accommodate all modes of travel and can be enhanced with electric vehicle charging stations.

2.2.5: Streetscape Features

This section provides details on the streetscape-focused Complete Streets tools that can be implemented to create spaces that are safer and more friendly to all users. It should be noted that due to staffing constraints, any green infrastructure elements which would be maintained by the City Parks Division needs prior review and approval by the Parks Division prior to implementation. In addition, any green infrastructure implemented should be reviewed by the City's Public Works staff for compliance of local and state stormwater regulations.



Source: Kimley-Horn

Benches and Shaded Areas for Pedestrians can provide pedestrians with areas to rest and reduce the effect of heat to increase pedestrian comfort. Structures can also be made to be visually pleasing or artistic to increase the attractiveness of walking while also providing benefits to users.

Green Streets are areas along sidewalks or medians that are planted with vegetation and designed to capture, treat, slow, and infiltrate storm water runoff while meeting Central Coast requirements. They can also act as a traffic calming measures when installed in bulb-outs and improve the aesthetics of an area.

Landscaped Areas provide sustainability and livability benefits along roadways. Landscaped areas can encourage bicycling, walking, and transit use by providing shade and improving the quality of the public space by reducing traveler stress.

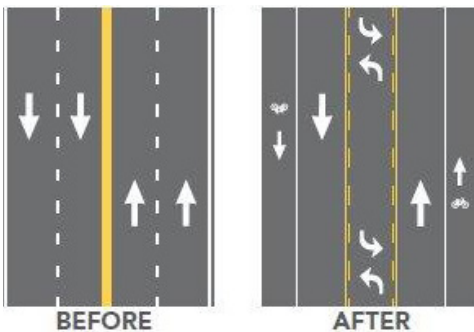


Monterey Conference Center - Source: Kimley-Horn

Intersection Streetlighting along bicycle and pedestrian facilities can increase visibility, security, safety, and awareness for all users. Streetlighting provides well-lit facilities to increase the visibility of pedestrians and cyclists during the night and during bad weather.

2.2.6: Road Space Reallocation Features

This section provides details on the road space reallocation-focused Complete Streets tools that can be implemented to create roadways that are safer and more friendly to non-motorized users.



Example of Road Diet - Source: FHWA Safety, Department of Transportation

Lane Narrowing involves reducing lane widths down from 12 feet or 11 feet to 11 feet or 10 feet to accommodate other needs such as parking, transit, bicycle, and/or pedestrian facilities. Narrowing travel lanes can reduce vehicle speeds, which increases safety along with providing space for non-automobile facilities.

Lane Reduction (Road Diet) typically involves converting a four lane undivided roadway segment into a two lane roadway with a raised median or two-way left turn lane and bicycle lanes. This can reduce speeds and vehicle conflicts with pedestrians and cyclists to increase safety along the roadway. This can also help activate the roadway and make it more attractive to walk along the roadway.



North Fremont Street - Source: Kimley-Horn

Curb Radius Reduction and Eliminating Free Right Turns create more compact intersections which reduce vehicle turning speeds and pedestrian crossing distances leading to increased safety. Eliminating free right turns is especially beneficial to pedestrians by removing a conflict point with vehicles, at times traveling at high speeds.

Parking Modifications can provide additional road space for pedestrian facilities, parklets, bicycle facilities or transit space. Reducing parking near intersections increases the visibility of pedestrians at crosswalks, leading to increased safety.

2.3: TYPES OF STREETS

There are diverse needs for the public right-of way, these needs have been classified into the following categories to meet the local needs and context of Monterey streets.

2.3.1: Residential District

Residential streets are low-volume and low speed roadways that contain underutilized on-street parking. Residential streets are often underutilized as spaces for play and leisure and have higher interactions of pedestrians, cyclists, and vehicles. These streets should provide safe and inviting places to walk with direct access to local stores and schools. Design for local streets can combine stormwater management features, curb extensions, vertical speed control elements, and bicycle facilities that encourage safe speeds and meter through traffic.



Fisherman Flats - Source: San Vito Circle, Monterey

Residential districts include New Monterey, Fisherman Flats, Old Town, Monterey Vista, Skyline Ridge, Skyline Forest, Alta Mesa, Glenwood, Oak Grove, Del Monte Beach, Del Monte Grove- Laguna Grande, Villa del Monte, Casanova Oak Knoll, Deer Flats, and Aguajito Oaks.

Recommendations for roadways in the Residential District include:

- Accommodate narrower lanes
- Shared roadways with bicyclists
- Curb extensions
- Speed reduction techniques
- Reduce cut-through traffic
- Pedestrian improvements



Source: Urban Street Design Guide. National Association of City Transportation Officials (NACTO). October 2013.

2.3.2: Commercial District

Roadways in the Commercial District are a nexus of neighborhood and City life, with higher pedestrian volumes, frequent parking turnover, transit routes, bicyclists, and other curbside demands such as deliveries, drop offs and pick-ups, all interacting simultaneously. Commonly, these roadways have medium traffic volumes and high pedestrian activity, but the street has significant potential for regeneration as a retail district.

Commercial Districts include, but are not limited to, the following roadways:

- Cannery Row
- Alvarado Street
- Lighthouse Avenue
- Abrego Street
- North Fremont Street



Seattle - Source: Seattle Bike Blog

To improve these roadways and increase the safety for all users, several improvements are recommended. These recommendations include:

- Consideration of a road diet for roadways that have fewer than 25,000 vehicles per day
- Buffered bike lanes
- Bike boxes to assist bicyclists making right or left turns
- Parklets
- Dedicated loading zones to limit double parking and the obstruction of bike lanes

2.3.3: Garden Road

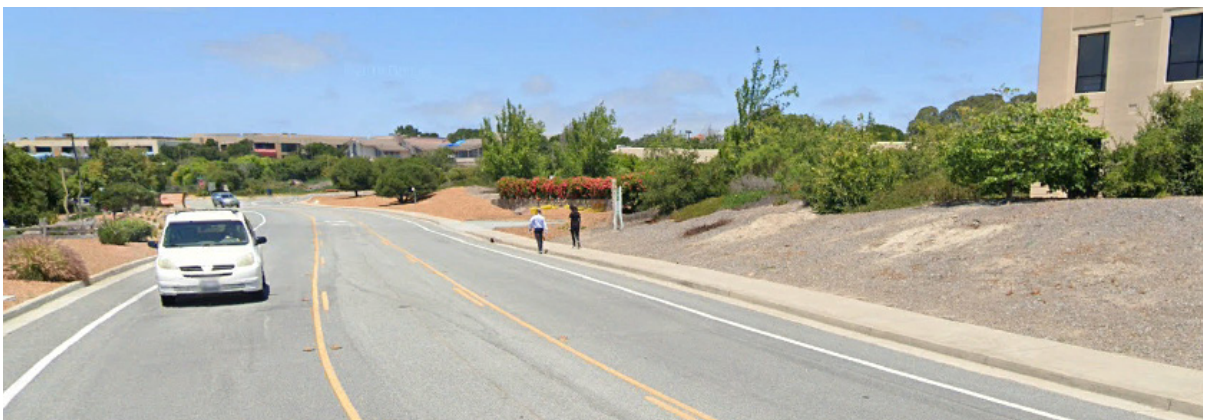
Roadways around the Monterey Regional Airport District, specifically Garden Road, primarily convey traffic to light industrial buildings and business park users. Heavy vehicles are a larger portion of the roadway users compared to the rest of the City. Future plans contain a mix of residential and light industrial land uses. Given this future diversity of land uses, Garden Road could be seen as an opportunity corridor for Pedestrian and Bicycle Gap Closure improvements connecting it to the North Fremont Corridor and the rest of the City.



Garden Road - Source: Google Map Images

2.3.4: Ryan Ranch

Roadways in Ryan Ranch primarily convey traffic to business park users. Traffic volumes tend to be condensed during commute times and are much lighter during the remaining portion of the day. There are very limited pedestrian and bicycle facilities to access the Ryan Ranch Area which could lead to Ryan Ranch being identified as an opportunity corridor. TAMC's Fort Ord Recreational Trail and Greenway (FORTAG) project will support connecting Ryan Ranch to the greater Monterey Region via biking and walking.

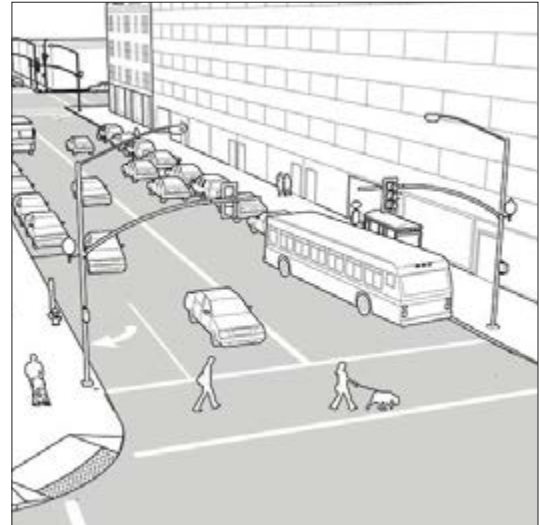


Lower Ragsdale Drive - Source: Google Map Images

2.3.5: Mobility Corridor

Mobility Corridors include roadways that convey a significant number of person trips but can be retrofitted using Complete Street improvements. Many of these streets suffer from heavy turn volumes and intersection congestion. They can also feature significant bicycle and pedestrian activity at crossings, leading to opportunities for bicyclist and pedestrian improvements. Improvements which could be considered for these corridors, in future planning exercises with consideration community priorities:

- Transit only lanes
- Buffered bike lanes or Class IV separated bikeways
- Pedestrian crossing islands
- Bicycle signals
- Transit boarding islands
- Narrowing lanes to reduce speeds



Source: Urban Street Design Guide. National Association of City Transportation Officials (NACTO). October 2013.

While not all of the tools listed above, will be feasible within the City. Streets that fall into the Mobility Corridor category include Munras Avenue, Fremont Street, and Del Monte Avenue.

2.3.6: Pedestrian Oriented Space

Roadways in Pedestrian Oriented Spaces are generally low-volume residential streets. Many of these roadways operate as de facto shared spaces, in which children play, people walk, and bicyclists ride. Roadways in Pedestrian Oriented Spaces tend to have very low speeds and can operate as one-way or two-way streets.

Depending on the street's volume and role in the traffic network, these streets have the potential to be redesigned and enhanced as shared streets. Shared streets can meet the desires of adjacent residents or students and function foremost as a public space for recreation, socializing, and leisure. Enhancements that can be made to better define these roadways as shared spaces include:

- Installing bollards, benches, planters, and bicycle parking
- Resurfacing pathways with textured or pervious pavements
- Signage at entrances of the travel ways/trails to indicate shared roadways



Polk Street Plaza - Source: Downtown Specific Plan

2.4: TRANSPORTATION EQUITY

The City of Monterey strives to ensure affordable, safe, and equitable transportation within Monterey regardless of:

- Age
- Ancestry
- Color
- Gender
- Expression
- Gender Identity
- Genetic Information
- Marital Status
- Medical Conditions
- Mental Disability
- Military or Veteran Status
- National Origin
- Physical Disability
- Sex (includes pregnancy, childbirth, breastfeeding and/or medical conditions)
- Sexual Orientation

2.5: TOURISM AND TRANSPORTATION

The City of Monterey acknowledges the increased demand that a healthy tourist economy adds to its transportation network. Many of the programs, goals and policy's in the following chapters are discussed as solutions to manage this very high demand on our transportation network during peak tourism periods. Tourists travel differently than residents though Monterey relying on ride services, signs and wayfinding, short walkable trips, and transit more than someone living in and familiar with the area. In addition, tourist trips typically have different demand patterns with respect to day of the week and time of the day. These patterns must be considered when setting goals and policies for the city.

2.6: TRANSIT

Transit within the city is provided and managed by Monterey-Salinas Transit (MST). While the City collaborates and coordinates with MST, decisions regarding transit are ultimately made by MST. The MST Trolley is an example of a tourist serving transit line which promotes the City's "Park Once" program encouraging visitors to park once and reduce high demand to the transportation network.

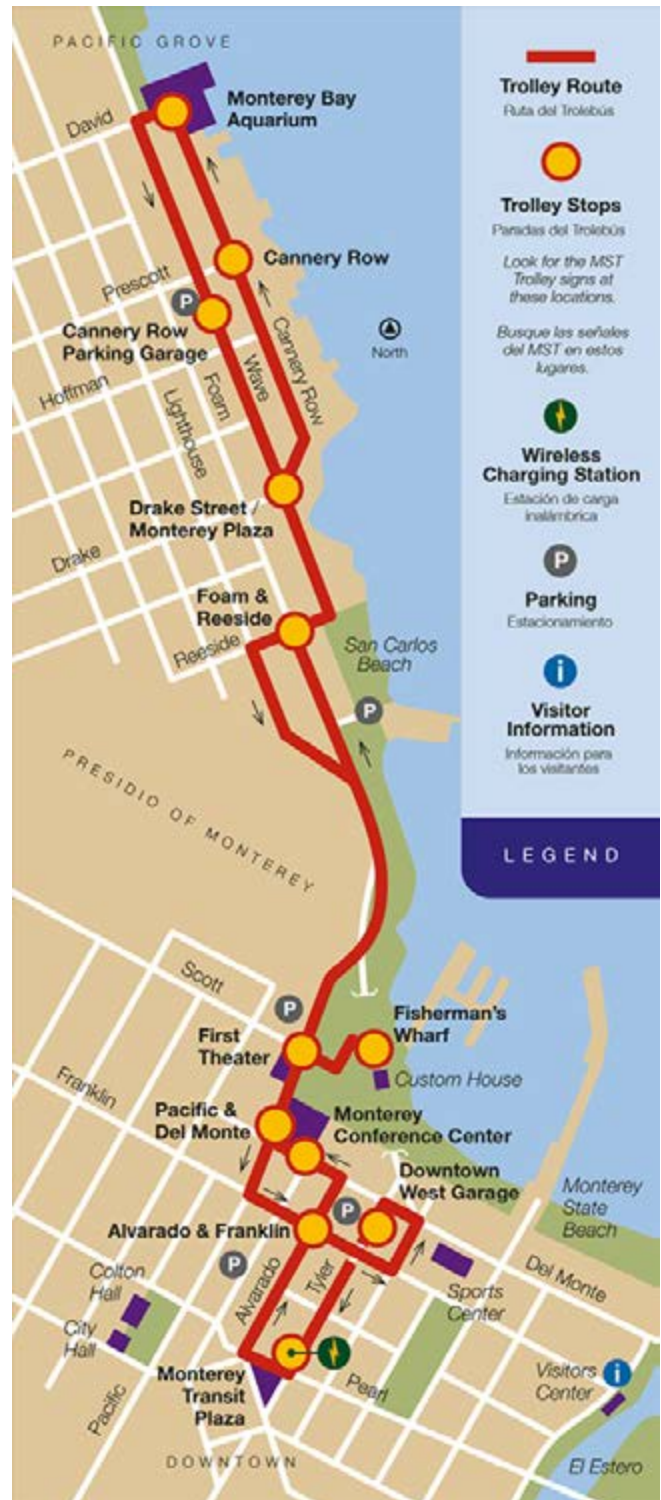
2.7: MOBILITY HUBS

Monterey plans to manage their transportation system in ways that make it more efficient while also offering feasible alternatives to driving alone. Mobility hubs establish locations where different modes of travel, such as walking, biking, transit, and other shared mobility options can come together at the hub to help people make connections quickly and get to where they need to go.

Mobility hub features include various improvements such as waiting areas with landscaping and lighting, complimentary Wi-Fi and real-time travel information; sidewalks, pedestrian lighting and trees for shade, bike facilities, dedicated bus lanes and supporting signal improvements; service facilities for shared cars, as well as electric bikes and automobiles; smart parking technology; and more. Each feature can be tailored to the unique needs of the Monterey community and visitors.

The mobility choices that Monterey residents and visitors have are constantly evolving as their needs and preferences change.

Figure 2.1: Trolley Map



Source: Monterey-Salinas Transit

Mobility hubs are places where people can make seamless connection between public transit and other travel options. The mobility hubs will make it easier for residents, visitors, and employees to use transit to travel from home to work and a wide variety of destination in-between. A mobility hub area includes services and destinations that are accessible within a 5-minute walk, bike ride, or drive to or from high-frequency transit.

2.8: CAR SHARE

Car sharing allows people to rent shared vehicles for short periods of time, typically by the hour or minute. While users in traditional station-based car sharing systems, such as Zipcar, are expected to return the car to the same location, other systems such as one-to-many systems allow users to return the vehicle to any location within the service area, facilitating one-way trips that better support first-last mile trips to public transportation. Further providing flexibility, peer-to-peer systems have been developed more recently to offer a way for individuals to “rent” their car to other individuals.

Local examples of Car share programs include Zipcar (available at Cal State Monterey Bay) and Go831 Ride Share program, hosted by TAMC.

Go831 is a one-stop source for commuting in the Monterey Bay Region (and a little beyond). Go831 also hosts competitions encouraging Monterey residents to walk, bike or carpool.



Source: City of Monterey



Monterey, CA- Source: City of Monterey

3 PEDESTRIANS

3.1: INTRODUCTION

A community that is designed to support walking is livable and attractive. Monterey has a climate that is conducive to walking all-year long and this chapter presents existing and future opportunities to walk throughout Monterey year-round.

This chapter discusses types of facilities and treatments to be used by the City to improve the pedestrian transportation network. This chapter also discusses the existing conditions of pedestrian infrastructure and potential future projects.

According to the California Vehicle Code (CVC), the driver of a vehicle shall yield the right-of-way to a pedestrian crossing the roadway within any marked crosswalk or within any unmarked crosswalk at an intersection. Every pedestrian upon a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway so near as to constitute an immediate hazard.



Did You Know?

During the 2018 Labor Day Holiday, over 1,400 pedestrians used Recreation Trail Crossing at the Municipal Wharf Parking Lot and Washington Street in one day!

Source: City of Monterey

3.2: PEDESTRIAN TOOLBOX

The following is a list of pedestrian facilities and crossings, which could be used in the City:

It should be noted that all pedestrian facilities will meet ADA guidelines when improved.

3.2.1: Pedestrian Facilities

Sidewalks, a Class I bike path, and other pathways are the cornerstone of the pedestrian network, the following section discusses design considerations for pedestrian facilities.

3.2.1.1: Sidewalks

Sidewalks are available in most of the City's neighborhoods, with gaps in some of the residential neighborhoods that can be major barriers to pedestrian mobility. When sidewalks are installed, the sidewalks should be as wide as possible, keeping in mind the use. The preferred sidewalk width is six feet or wider if needed for higher pedestrian volumes. A width of six feet can easily accommodate two people passing each other.

The minimum recommended sidewalk width is five feet, which can comfortably accommodate two people walking side by side, but pedestrians would need to adjust to pass each other. The absolute minimum allowable sidewalk width is four feet excluding the curb, per ADA guidelines. However, if a four foot sidewalk width is implemented, passing areas of five feet or wider are needed every 200 feet.

Another consideration for sidewalks is their interaction with driveways. Careful consideration should be given to the installation of sidewalks so that they do not detrimentally impact pedestrian access and safety, including visibility of pedestrians from driveways and width of driveways, which impacts pedestrian safety.



Sidewalk in Cannery Row, Monterey, CA - Source: Google Maps

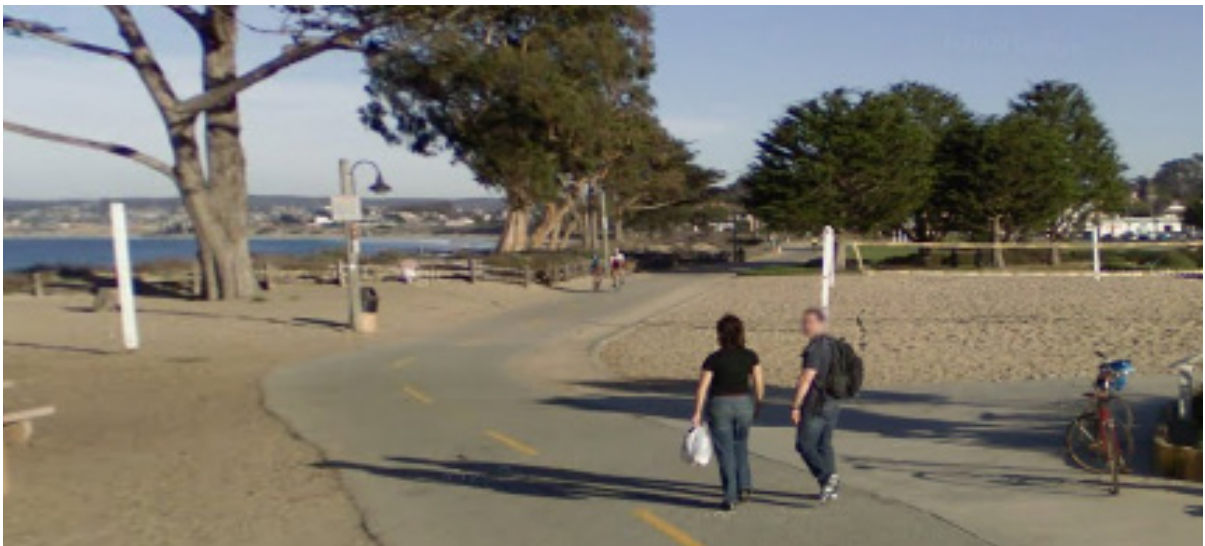
Pre-existing utility poles, fire hydrants and sub-surface vaults may be prohibitively expensive to move and may remain in place. However, they should be relocated as funding and opportunities allow.

3.2.1.2: Class I Bike Path/Multiuse Path

As mentioned previously in bicycles chapter, a class I bicycle path is paved path that is physically separated from motorized traffic. These paved paths, sometimes referred to as multiuse paths. Bicycle paths are best suited along corridors with few interruptions from cross-traffic. Class I facilities often serve as recreation opportunities and commute corridors.



Class I Shared Use Path along Munras Avenue - Source: Google Maps



Class I Shared Use Path at Monterey Rec Trail - Source: Google Maps

3.2.1.3: Decomposed Granite Paths

Decomposed granite paths are acceptable for recreational and hiking purposes, under certain conditions. Whenever possible, paved, and stable paths are preferred as they provided greater stability for walkers.

3.2.2: Pedestrian Crossings

Pedestrian facilities are the primary portion of the pedestrian route, however at some point in a pedestrian route, most pedestrians need to cross the roadway. Crossings are the point in a journey where a pedestrian is most exposed to motor vehicle and bicycle traffic.

The following section lists pedestrian crossing treatments, which could be used in the City:

3.2.2.1: Curb Ramps

The City is working towards upgrading curb ramps to be in compliance with ADA guidelines as part of the ADA transition plan. All curb ramps should be designed with ADA standard, CAMUTCD, Caltrans Highway Design Manual, and City Standard Plans in mind.

Where curb ramps are located, including intersection corners and midblock crossings, should be kept clear of obstructions, including on-street parking. Drivers and pedestrians should have clear views of each other.

Street amenities should not be clustered adjacent to corners or near the curb ramps. Curb ramps should include ramps and detectable warning surfaces per accessibility standards. Pre-existing utility poles and sub-surface vaults may be too expensive to move and can remain in place, until such time that funding can be procured. However, they should be relocated whenever feasible or economical.

3.2.2.2: Bulb-Outs

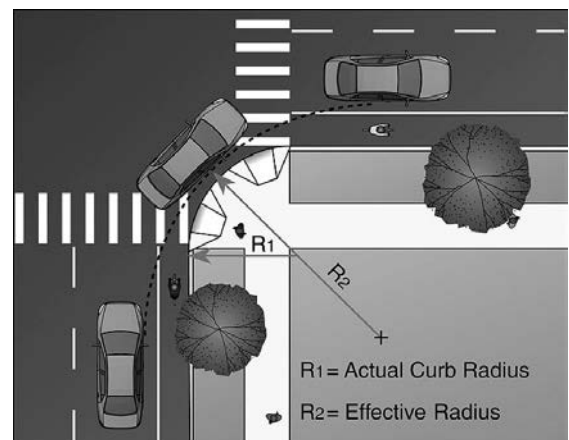
Bulb-outs are used to shorten crossing distance and to place waiting pedestrian in a location where they are more visible to drivers. They extend the curb to narrow the roadway and increase space for street furniture, benches, and landscaping. This also results in the tightening of curb radii, which encourages slower turning speeds. When placed at bus stops, bulb-outs can improve travel times by reducing the amount of time a bus takes to merge with traffic after boarding.

Curb Radii Guidance

The NACTO's Urban Street Design Guide recommends that curb radii be minimized in order to decrease turning speed. Turning speeds should be limited to 15 mph or less for pedestrian safety. For roadway design, the ability of vehicles to negotiate a turn is determined by the effective turn radius which accounts for the presence of the design vehicle, parking, bike lanes, or other features. This factor is used to determine the actual curb radius to accommodate the chosen design vehicle. The figure below illustrates the difference between effective radius and curb radius. There are several ways to minimize the effective turning radius: selecting a smaller design vehicle, accommodating trucks and buses on designated truck and bus routes, and restricting right turns on red.

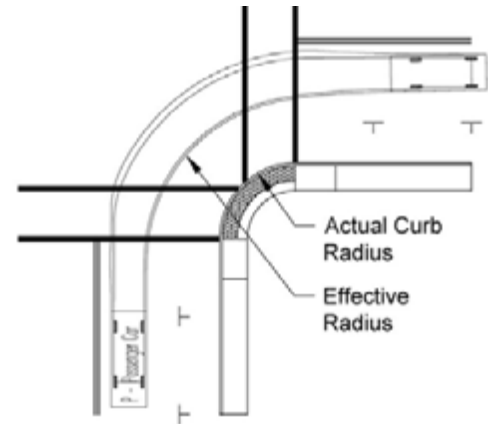


Decomposed Granite Path on Herrmann Drive
- Source: City of Monterey



Curb Radii Example - Source: AASHTO Geometric Design of Highways and Streets, 2018 7th Edition, Figure 9-20 Effective Corner Radius

The physical curb return radius is usually tighter than the effective turn radius and the dimension varies based on the roadway type, average daily traffic, and design vehicle as summarized in the table below. Note that the actual curb radius should be verified with a turn template since curb radius design is sensitive to a range of variables and the guidelines shown cannot replace professional judgement and technical analysis. Each project should consider the particular characteristics of the site (i.e. grade, intersection skew, design vehicle) and adjust the design as necessary. Table 3.1 indicates typical design vehicles and curb radii to accommodate these vehicle types.



Curb Radii Example - Source: Kimley-Horn

Figure 3.1 Vehicle and Curb Radii

Roadway Type / Average Daily Traffic ¹	Design Vehicle ²	Design Vehicle Minimum Effective Radius ³	Typical Curb Radius Range ⁴	Accommodation Vehicle ⁵
Greater than 6,300 ADT	Single Unit Truck (SU-30)	28 feet inner 43 feet outer	10 to 25 feet	Intermediate Semi Trailer (WB-40)
1,100 – 6,300 ADT	Passenger Car (P)	15 feet inner 26 feet outer	5 to 15 feet	Single Unit Truck (SU-30)
Truck Route	Intermediate Semi Trailer (WB-40)	19 feet inner 41 feet outer	15 to 30 feet	Large Semi Trailer Truck (WB-50)
Fire Route	Single Unit Truck (SU-40)	36 feet inner 53 feet outer	10 to 25 feet	Intermediate Semi Trailer (WB-40)

Sources:

- <https://www.sfbetterstreets.org/find-project-types/pedestrian-safety-and-traffic-calming/traffic-calming-overview/curb-radius-changes/>
- https://sfplanning.org/sites/default/files/archives/BetterStreets/docs/Better-Streets-Plan_Final-Adopted-10-7-2010.pdf
- https://monterey.org/Portals/0/Policies-Procedures/Planning/GeneralPlan/16_0323-General-Plan.pdf
- <https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/corner-radii/#:~:text=While%20standard%20curb%20radii%20are,feet%20should%20be%20the%20exception.>
- http://pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=28
- <https://dot.ca.gov/-/media/dot-media/programs/design/documents/chp0400-a11y.pdf>
- https://www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/section03.cfm
- AASHTO Green Book (2018 7th Edition)
- CA Highway Design Manual (2020)

¹ Average daily traffic based on FHWA VMT and Mileage Guidelines Classification

² Design Vehicle = Selected vehicle type used to determine the appropriate turn radius at an intersection. The design vehicle should be able to complete a turn fully within its designated travel lane.

³ Effective Radius = Available radius for the design vehicle to make the turn accounting for the presence of parking, bike lanes, medians, or other features. This factor is used to determine the actual curb radius to accommodate the chosen design vehicle. Ranges shown are based on AASHTO Green Book vehicle turn templates (2018 7th Edition).

⁴ Curb Radius = Corner radius of the curb at an intersection. Note that this dimension should be verified with a turn template based on the design vehicle's effective radius, intersection geometry, and other features. Ranges shown are typical radii per roadway type.

⁵ Accommodation Vehicle = Selected vehicle type that allows a complete turn with latitude to use adjacent or opposing lanes on the origin or destination street.

3.2.2.3: Crosswalks



Brick Crosswalk at Cannery Row - Source: Google Maps

Pedestrian crossings can exist at marked or unmarked crosswalks, when crosswalks are marked the City of Monterey typically uses a standard or ladder crosswalk. Crosswalks with textured pavement or decorative motifs are permitted, if they are designed in accordance to the California Manual of Uniform Traffic Control Devices (CAMUTCD).

The Federal Highway Administration's Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations recommends the use of high visibility crosswalk for areas of high pedestrians use and at all established midblock pedestrian crossings.

3.2.2.4: Removal of Free Right Turn Slip Lanes



Crosswalk at Del Monte Avenue - Source: Google Maps

To improve pedestrian safety, it is recommended to remove free right turn slip lanes or "pork chops". Vehicles typically only have to yield at these locations and do not always notice pedestrians. A tighter turn will slow vehicles down and the cone of vision for the driver will include observation of pedestrians on the sidewalk. This is also Caltrans best practice at their facilities.

In addition to the various markings that crosswalks may contain, crosswalks can be "controlled" or "uncontrolled". When a crosswalk is "controlled" it means that a traffic control device such as a signal, stop sign or yield sign is in place in advance of the crosswalk. An example of this case is the

intersection of Del Monte Avenue and Figueroa Street, which is signal controlled and has marked ladder crosswalks as shown in the example above. An uncontrolled crosswalk does not have a traffic control device in advance of a crossing and requires the driver to see and yield to the pedestrian. Although the pedestrian may have the right-of-way, drivers do not always yield to pedestrians.

The City has developed a series of characteristics which are evaluated to determine if a crosswalk is warranted and what type of improvements could be needed to implement a crosswalk. These considerations include characteristics such as:

- Proximity to Nearest Crosswalks
- Reported Pedestrian Collision History
- Proximity to a Pedestrian Activity Center, such as a school, park or bus stop
- Pedestrian, Bicycle, and Vehicle Volumes
- Visibility/Sight Distance
- Lighting
- Requests by Community
- Vehicle Speed
- Location, midblock or intersection
- Potential Implementation timeline
- Roadway Geometry (number of lanes, medians, width)
- Existing Facilities (existing curb ramps and sidewalks)

The City has the authority to remove a crosswalk if there are safety concerns. Crosswalks and crosswalk locations are of great interest to the community, and safety of pedestrians is the highest priority.

3.2.2.5: Pedestrian Signals

Pedestrian signals exist at most signalized intersections in the City. The City is in the process of updating pedestrian signals to countdown pedestrian signals. The City is also installing audible pedestrian signals at intersections to improve accessibility for visually disabled pedestrians. The City is also piloting the use of touchless, wave-activated pedestrian push buttons. If the pilot is successful, the City is considering expanding the use of these buttons to more high pedestrian use intersections. The benefit of touchless, wave-activated pedestrian buttons is that they provide additional benefits for pedestrians with physical limitations. They also reduce the need to touch high use contact surfaces.



Signals at North Fremont Street - Source: Kimley-Horn

3.2.2.6: Pedestrian Hybrid Beacon

A pedestrian hybrid beacon, commonly referred to as High-Intensity Activated Crosswalk (HAWK) Beacon, is a traffic control device similar which can be used to stop traffic so pedestrians can cross.

A pedestrian hybrid beacon must be activated by a pedestrian. When activated a vehicle signal head flashes yellow to warn vehicles they are required to stop. The signal head then turns to solid yellow, indicating drivers should slow and stop, if able. The vehicle signal head then turns red, indicating vehicles must stop and when the vehicle signal head begins to flash red, the vehicles must yield to pedestrians but may proceed when the crosswalk is clear. In addition to a vehicle signal head, a standard pedestrian signal is installed and indicated to pedestrian when they may cross.

Pedestrian hybrid beacons are uncommon traffic control devices, currently there are none of these traffic control devices in the City of Monterey. Per the CAMUTCD, Pedestrian hybrid beacons require a warrant to install. This warrant is often difficult to meet as it requires high pedestrian volumes and high vehicle volumes in which a typical traffic signal could also be considered appropriate.



Pedestrian Hybrid Beacon in San Luis Obispo, CA - Source: SLO Chambers

3.2.2.7: Rectangular Rapid Flashing Beacons (RRFB)

Rectangular Rapid Flashing Beacons, more commonly referred to as RRFBs, can enhance safety at pedestrian crossing by increasing driver awareness of potential pedestrian conflicts. RRFBs utilize an amber-colored irregular flash pattern under a pedestrian crossing warning sign to draw drivers' attention. The flash pattern can be activated by pedestrians before utilizing the crossing.



Rectangular Rapid Flashing Beacon Outside Monterey City Hall - Source: City of Monterey

The use of RRFBs are for uncontrolled or midblock crossings. The City often installs RRFBs, in combination with curb extensions/bulb-outs and a marked ladder crosswalk.

In summary, there are several improvements that can increase pedestrian safety and improve mobility. Figure 4.1 below categorizes the pedestrian improvements that can be installed by whether the improvement is a basic improvement, an enhanced improvement, or a specialty improvement and what issue the improvement addresses.

Figure 3.2: Crosswalk Treatments

		Safety Issue Addressed						
		Conflicts of Crossing Locations	High Vehicle Speeds	Nearby School or Senior Center	High Pedestrian Volumes	Long Pedestrian Crossing Distance	Motorist Yield Compliance	Inadequate Conspicuity / Limited Sight Distance
LEVEL 1: BASIC IMPROVEMENTS	High-Visibility Crosswalk Striping and Signage	X	X	X	X		X	X
	Advanced Yield Lines and Yield Signage	X		X	X		X	X
	In-Street Pedestrian Crossing Signs	X	X	X	X		X	X
	On-Street Parking Restriction on Crosswalk Approach	X					X	X
LEVEL 2: ENHANCED IMPROVEMENTS	Curb Extensions (Bulb-Outs)	X	X	X	X	X		X
	Tighten Curb Radius	X	X	X	X	X		
	Raised Median Pedestrian Refuge Island	X	X	X	X	X	X	
	Street Lighting	X		X				X
	Rectangular Rapid Flashing Beacon (RRFB)	X		X	X	X	X	X
LEVEL 3: SPECIALTY IMPROVEMENTS	High Intensity Activated Crosswalk (HAWK)	X	X	X	X	X	X	X
	Pedestrian Traffic Signal	X	X	X	X	X	X	X

3.2.3: Wayfinding

The City is implementing a Citywide Wayfinding sign program which includes wayfinding signs for pedestrians (and bicycles) and located at strategic locations to direct travelers to popular destinations. This will be done in multiple phases; the first phase is expected to be completed in late-summer 2020.

The Transportation Agency for Monterey County (TAMC) is in the process of implementing a Countywide wayfinding sign program to connect regional pedestrian routes. Two regional routes, with signage recommended by TAMC are the Monterey Peninsula Loop Route which is along the Monterey Peninsula Recreational Trail and the Carmel-Monterey Route. The Carmel-Monterey Route would be along Viejo Road to Soledad Avenue then to Munras Avenue/Abrego Street and to Washington Street.

3.3: EXISTING CONDITIONS

Monterey has several types of infrastructure that forms the pedestrian network, it can be divided into four categories: pedestrian facilities, crossings, wayfinding, and places and plazas.



Wayfinding Sign in Monterey, CA - Source: City of Monterey



Wayfinding Sign in Monterey, CA - Source: City of Monterey

3.3.1: Pedestrian Facilities

The following is a description of the different pedestrian facility options for pedestrians in Monterey, currently.

3.3.1.1: Sidewalks

Sidewalks exist throughout most of the City however there are some neighborhoods with gaps in sidewalk. No comprehensive inventory of sidewalks exists. Sidewalks are typically composed of concrete and have a vertical or rolled curb. Vertical curbs are superior to rolled curb as they create a more defined barrier between the pedestrian right-of-way and vehicle right-of-way. Cars can easily mount sidewalks with rolled curbs. When parked, side mirrors and doors can encroach on and even block the pedestrian path of travel. Most sidewalks in Monterey have a vertical curb, but some rolled curb can be found in residential neighborhoods. All new sidewalks should have vertical curb to preserve the pedestrian right-of-way.

Sidewalk maintenance is key to providing safe pedestrian facilities throughout the city, especially for seniors who are more susceptible to tripping.

Residents may also call the Code Compliance Officer to report sidewalk maintenance issues including overgrown brush encroaching on the walkway. The Code Compliance officer coordinates and oversees repairs made by private property owners.

3.3.1.2: Class I Bicycle Path

Several Class I Facilities exist in the City, including the Monterey Peninsula Recreational Trail (MPRT), commonly referred to as the Rec Trail, is the most popular multi-use trail in Monterey.

Another Class I facility is the Munras Avenue Path, which runs from El Dorado Street to the Del Monte Shopping Center provides an important pedestrian connection between major commercial areas and schools and provides access to the State Historic Park.

3.3.1.3: Decomposed Granite Paths

Decomposed Granite (DG) Paths are located in several places in Monterey, including in City Parks, an example of this is El Estero Park Path. The El Estero path circles Lake El Estero and provides opportunities for recreational activities and access to open space and parks.

3.3.2: Crossings

There are several features to pedestrian crossings, including but not limited to curb ramps, crosswalks markings, pedestrian signals, RRFBs, and signage. The City does not have updated inventory of crossings. However, as part of the ADA transition plan process the City has identified a list of the curb ramps and if they comply with ADA guidelines.

3.3.3: Wayfinding

In addition to the Citywide Wayfinding Sign Program, there are some other pedestrian wayfinding signs in the downtown area. For example, the Path of History is a type of wayfinding that directs residents and visitors to attractions of cultural and historic importance.

3.3.4: Pedestrian Places & Plazas

A key feature of successful pedestrian environments is a place or plaza where people can gather, sit, observe, and play. Portola Plaza is currently a pedestrian-only facility that is used for seasonal events like the annual car show and ice-skating. Every Tuesday afternoon/ evening Alvarado Street is closed to vehicular traffic for the Downtown Farmers Market. This weekly event is very popular and has raised interest in the community to provide more permanent pedestrian-only streets in other parts of the city. The Downtown Specific Plan identifies improvements to Simoneau Plaza, Portola Plaza, and Custom House Plaza to increase their use as popular gathering places.

3.4: PROPOSED PEDESTRIAN PROJECTS

The following is a list of proposed sidewalk projects and programs:

3.4.1: Pedestrian Projects

This section describes projects that have been identified to serve as projects which will implement the goals, policies and vision of the General Plan vision.

Appendix A lists proposed projects that are not necessarily funded as of the adoption of the General Plan, and projects with concept drawings (shown in Appendix A) that do not constitute a final design.

3.4.2: Sidewalk Inventory

When the opportunity arises, given staffing restraints, the City would like to develop a comprehensive inventory of existing sidewalks and sidewalk gaps, which includes information such as approximate length and width of sidewalk.

3.4.3: Crosswalk Inventory

In addition to a sidewalk inventory, the City would like to develop a comprehensive inventory of existing marked crosswalks and features, which includes:

- Marked crosswalks
- Signalized/unsignalized crosswalks
- If unsignalized, rectangular rapid flashing beacons (RRFB)

3.4.4: ADA Transition Plan

The City of Monterey has created an ADA Transition Plan in order to identify City programs, services and activities and provide recommendations on improvements including curb ramp improvements. For more information, please visit our City website: <https://monterey.org/About-Monterey/Accessibility>

As of May 2020, the City is working on ADA Improvements through Measure P/S, funding the reconstruction of over 131 curb ramps and the design of an additional 125 curb ramps.



Monterey, CA- Source: Google Earth

4 BICYCLES

4.1: INTRODUCTION

The popularity of bicycling has revived due to many factors including its cost effectiveness, health benefits, and sustainability impacts. This active mode of transportation transcends economic classes and is a viable option for any within the community to utilize for commuting and recreational purposes. A well-connected network of bicycle facilities (Class I – IV) allows for all user-types (from the interested but concerned to the strong and fearless) to enjoy the benefits of active transportation.

This chapter discusses types of facilities and treatments to be used by the City to improve the bicycle transportation network. This chapter also discusses the existing conditions of bicycle infrastructure and potential future projects.

The City supports bicycling programs and projects. The City strives to increase the number of bicycle trips.



**The Monterey Peninsula
Recreational Trail
is so popular,
200+ bicyclists
used it during the
lunch time hour¹.**

1. Between 11AM – 12PM on March 30, 2018



Did You Know?

Bicyclists hold a unique position in when it comes to the rules of the road. A bicyclist can be both a driver of a vehicle and pedestrian depending on the circumstances. It is important to know when and where the rules apply.

When riding on the streets the California Vehicle Code (CVC) requires that bicyclists act and are treated as a vehicle. As soon as a bicyclist dismounts, they instantly become a pedestrian and are treated as such.

CVC 21200

4.2: BICYCLE TOOLBOX

Treatments found in the bicycle toolbox come from a variety of sources including the following sources:

- California Manual on Uniform Traffic Control Devices (CAMUTCD)
- California Department of Transportation (Caltrans)
- Federal Highway Administration (FHWA)
- American Association of State Highway Transportation Officials (AASHTO)
- National Association of City Transportation Officials (NACTO)
- Institute of Transportation Engineers (ITE)
- Best practices from Cities, Counties, and other States.

4.2.1: Bicycle Facilities

The following is a list of typical bicycle facilities,:



Class 1: Bike Path (Monterey Rec Trail) - Source: Google Maps



Class II: Bicycle Lane with a travel lane buffer and a parking lane buffer - Source: Kimley-Horn



Class II: Bicycle Lane on Camino Aguajito - Source: Google Maps



Class III: Bicycle Boulevards and Shared Roadway/Sharrows on Glenwood CirCircle - Source: City of Monterey



Class IV: Protected Bicycle Lanes/ Cycle Track adjacent to the roadway - Source: Seattle Bike Blog



Class IV: Protected Bicycle Lanes, Pennsylvania Ave, Washington DC - Source: Adobe Stock

4.2.1.1: Class I Facilities: Bike Path/Multi-Use Path

A class I bicycle path is paved path that is physically separated from motorized traffic. Bicycle paths are best suited along corridors with few interruptions from cross-traffic. Class I facilities often serve as recreation opportunities and bicycle commute corridors.

An example of a Class I facility in the City is the Monterey Peninsula Recreational Trail, which runs along the Monterey Coastline from Pacific Grove to Castroville. Many Class I facilities serve a dual purpose of a multi-use trail and are shared by bicyclists and pedestrians.



Monterey Rec Trail along Cannery Row Businesses - Source: Google Maps



Monterey Rec Trail (looking towards the U.S. Coast Guard Pier) - Source: Google Maps

According to the Caltrans Highway Design Manual (HDM), the minimum paved width of travel way for a two-way bike path shall be 8 feet, 10-foot preferred, with a 2-foot wide shoulder composed of the same pavement material as the bike path. The minimum horizontal clearance is 2 feet from the paved edge of the bike path and the vertical clearance is 10 feet. To ensure proper drainage, the shoulder shall slope away from the traveled way at 2 to 5 percent to reduce ponding and minimize debris from blowing onto the bike path. Since Class I facilities serve both bicyclists and pedestrians, they must meet accessibility requirements, unless it is adjacent to an adequate pedestrian facility.

The minimum recommended width for a shared use path is ten (10) feet. However, the City of Monterey has many high use corridors along the existing Monterey Peninsula Recreational Trail (MPRT), which may necessitate a wider path whenever possible. Wider paths are also recommended in corridors with high pedestrian use. The following table has recommended widths based on volume and percentage of pedestrian in the shared path volumes.

Table 4.1: Recommended Class I Facility Widths

Volume Conditions (ped/bike per hour)	Pedestrian Proportion of the Shared Path Volume	Recommended minimum width
Less than 50 ped/bike per hour during the peak hour	--	10 feet
Between 50 and 75 ped/bike per hour during the peak hour	Less than 30%	12 feet
	More than 30%	14 feet
Between 75 and 100 ped/bike per hour during the peak hour	Less than 30%	14 feet
	More than 30%	18 feet
More than 100 ped/bike per hour during the peak hour	Less than 30%	18 feet*
	More than 30%	20 feet*

**Consider separation of bicycle and pedestrians. Note: This width does not include the shoulder width
Recommendations incorporate guidance from 2012 AASHTO Guide for the development of Bicycle Facilities, 4th Edition.*

4.2.1.2: Class II Bicycle Lane

A class II bicycle lane is an on-street facility marked by a striped line on the pavement, symbols, and lettering. The preferred width of bicycle lanes along collector and arterial streets is six feet, however a minimum width of five feet is acceptable if the site is constrained.

Class II facilities also include buffered bicycle lanes, or bicycle lanes with a “buffer” of at least one to two feet in painted striping. It is not recommended that bicycle lanes be wider than eight (8 feet) unless a physical barrier is implemented to deter vehicles from using the space by driving or parking in a bicycle lane.

According to the California Manual on Uniform Traffic Control Devices (CAMUTCD), longitudinal pavement marking shall be used to define bicycle lanes. A through bicycle lane shall not be positioned to the right of a right turn only lane or to the left of a left turn lane. A Class II facility is recommended on roads with moderate speeds (less than 30 miles per hour), and less than 10,000 vehicles per day. They are not recommended on circular roadways of a roundabout.

4.2.1.3: Class III Bikeway Facility: Bicycle Boulevards & Shared Roadway/Sharrows

A Class III facility is established by placing bike route signs along roadways and/or the placement of “Sharrows”. Sharrows are used to indicate to bicyclist's proper placement on the street (outside of the “door-zone” where there may be on-street parking) and remind drivers to watch for and share the road with bicyclists.

Bicycle boulevards are a series of connected Class III facilities that prioritize bicycle transportation and provide alternative routes for bicyclists away from high speeds and traffic. When possible, bicyclists are given right-of way at most intersections along the route to increase convenience and ease of travel. Bicycle boulevards and Sharrows are particularly useful on narrow streets where there may not be room for a class II bicycle lane.

Bicycle boulevards provide an alternative route on streets with low traffic volumes and travel speeds, which is typically more comfortable for less experienced bicyclists. Bicycle boulevards provide important connections between residential areas and popular destinations. Bicycle boulevards are recommended for streets that have speed limits of 25 miles per hour or less, when a bicycle lane is not a feasible alternative. Class III facilities are recommended for streets with less than 4,000 vehicles per day.



Source: Sacramento Area Bicycle Advocates



Source: bikingbis.com

4.2.1.4: Class IV Facilities: Protected Bicycle Lanes/Cycle tracks

Class IV Facilities are bicycle lanes with have some form of physical separation from the roadway and vehicles. This separation can be achieved by vertically by raising the bicycle lanes from roadway or horizontally by items such as, delineators, railings, or planters. An example of Class IV facility is the North Fremont median bicycle lanes.

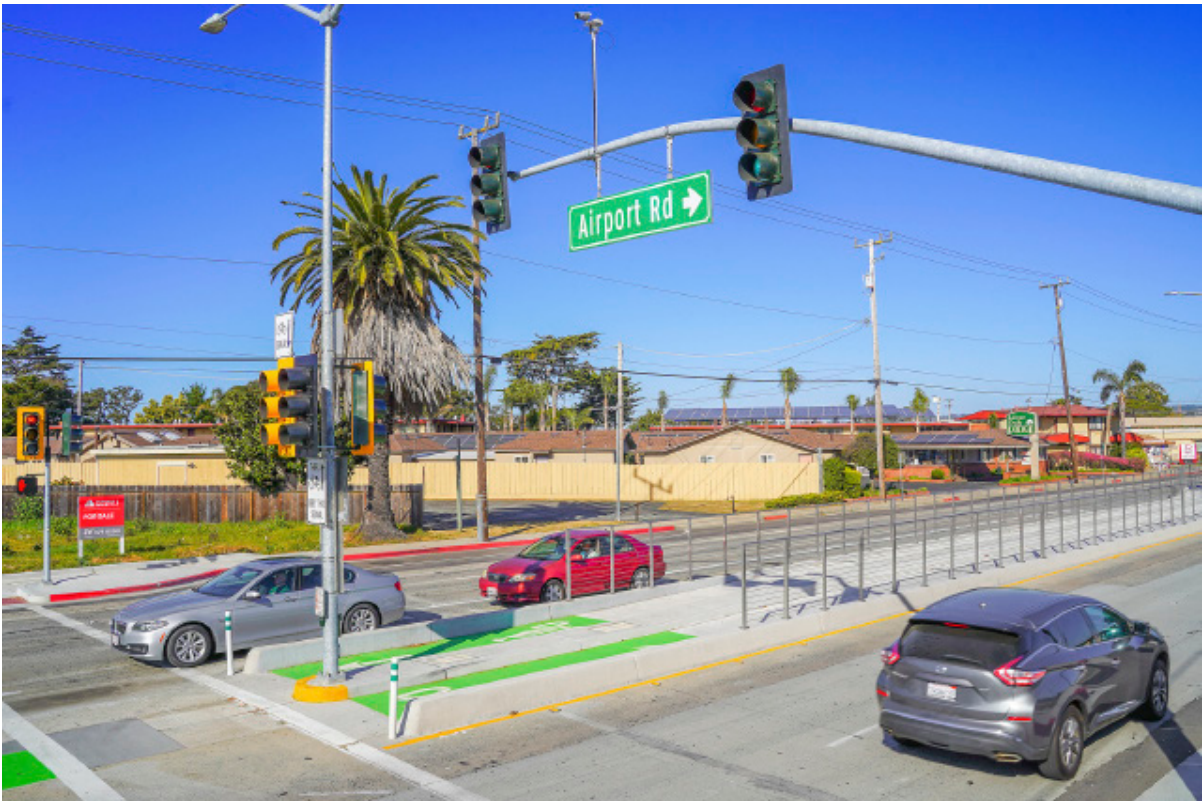
Class IV facilities are often referred to as protected bicycle lanes or “Cycle tracks” and have several design variations. They can vary by:

- Elevation - some Class IV facilities can be raised above the main roadway.
- Barrier Type - barriers can include items such as delineators, railings, planter, curbs, and bollards (see examples below)

- Location - facilities may be placed on the right side of the road (typical) or left side of the road, or in a median.
- Direction - facilities may have a single lane in one direction (in the direction of flow or opposite the direction of flow, i.e. contraflow) or two lanes in both directions, (Contraflow lanes for bikes include bike lanes with a travel direction opposite to that of vehicles as indicted in the photo below.) Parking - facilities may be placed on either side of the parking lane.



San Francisco - Source: SFMTA



Protected Bicycle Lane in Median on North Fremont Street - Source: Kimley-Horn

Other design considerations for Class IV facilities include:

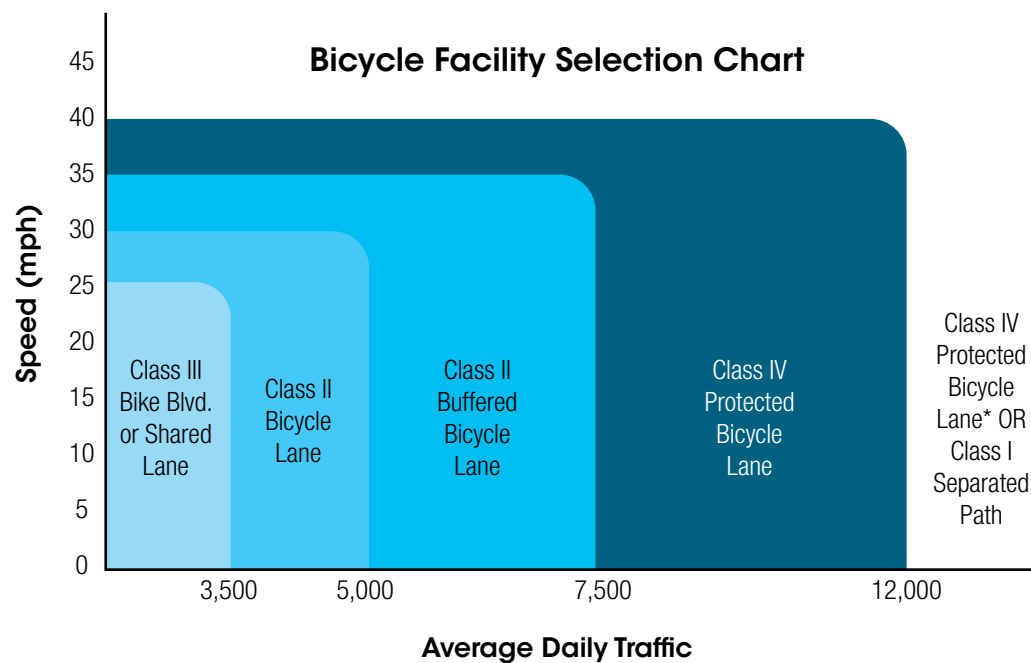
- Maintenance,
- Narrow bike lanes for sweeping machines, and
- Stormwater

Class IV facilities are preferred, whenever feasible, and are recommended on roads with higher speeds, volumes and/or multiple conflict points. While Class IV facilities provide additional protection for bicyclists compared to Class II and Class III facilities, Class II and Class III facilities are recommended where Class IV facilities are infeasible.

4.2.1.5: Bicycle Facility Selection

The following graphic provides general guidance on when each a bicycle facility would be recommended to implement.

Figure 4.1: Bicycle Facility Selection Chart



This graphic is general in nature and does not consider constraints such as right-of-way or cost. In addition, many existing bicycle facilities were implemented prior to this guidance, suggesting that facility upgrades may need to be considered.

4.2.2: Bicycle Treatments

The following bikeway design treatments are intended to enhance the safety and usability of bikeways. They will be used in accordance with the CAMUTCD and other relevant existing laws and regulations. Treatments that are not currently in the Manual on Uniform Traffic Control Devices, such as colored lane markings and bicycle route wayfinding signs, are considered "experimental" and will require Federal Highway Administration Experimental Project Approval before implementing. A summary of proposed locations for bikeway design treatments is provided in Table 8.

4.2.2.1: Crossbikes

"Crossbikes", or crosswalks for bikes which can be located at intersections, trail crossings, or mid-block crossings. The striping of a cross bike is similar to a typical crosswalk, with the use of green rectangular boxes in place of white to denote use by bicycles. Crossbikes help with the separation of with pedestrians and bicyclists at busy intersections. Crossbikes can be used as an independent tool box item, used in combination with Bike Signals or as a component of a Protected Intersection.



Crossbike on North Fremont Street - Source: Kimley-Horn

4.2.2.2: Protected Intersection

A protected intersection, sometimes referred to as a Dutch Intersection, is an intersection designed to accommodate bicyclists circulating counterclockwise around the intersection instead of entering travel lanes to make left turns. This intersection is characterized by Crossbikes, corner islands, and separated bicycle facilities. Crossbikes can be used as an independent tool box item, used in combination with Bike Signals or as a component of a Protected Intersection. Corner Islands work similarly to the the BulboutToolkit Item, by reducing the curb radii vehicles to improve pedestrian safety, Section 3.2.2.2 has further detail on design considerations. It can include bicycle signals and bicycle detection. The North Fremont Pedestrian and Bike Project includes many of these features.



Protected Intersection in Berkeley, CA - Source: Kimley-Horn



Protected Intersection in Fremont, CA - Source: StreetsBlog SF

Protected intersections can be beneficial to pedestrians and bicyclists, tighter turn radii reduce vehicle turning speed, better visibility of pedestrians and bicycles, reduced conflict points between bicycles and vehicles.

This design can have a large footprint to accommodate all the design features and maintain roadway capacity and may not be appropriate everywhere. Other challenges in the design of Protected Intersection, include truck turning requirements for freight movement, bicyclist deflection at corner islands, bicycle pedestrian interaction, and considerations for pedestrians with disabilities.

If bicycle phasing is incorporated, additional challenges include intersection capacity reduction from added bicycle phases and unique signalization schemes, such as the leading bicycle interval. Because North Fremont bike lanes were placed in the median, the bike phase runs concurrently with the through vehicle phase. As a result, there was no loss in intersection capacity. The MUTCD, and the CAMUTCD, is lagging on the bicycle signal standards and bicycle signal phasing standards. However, NACTO has provided best practice guidance on signalized and bike facilities in the interim.

4.2.2.3: Wayfinding and Signs

Bicycle mileage markers and wayfinding signs indicate the distance and direction to popular destinations. These are similar to mileage markers used on roadways for cars. They provide a resource for cyclists to estimate travel time to destinations, they also benefit athletic riders who use the markers for training.

The City is implementing a Citywide Wayfinding sign program which includes wayfinding signs for pedestrians (and bikes) and located at strategic locations to direct travelers to popular destinations. This will be done in multiple phases; the first phase was completed in Summer 2020, with more phases to follow as funding permits.

The Transportation Agency for Monterey County (TAMC) is in the process of implementing a Countywide wayfinding sign program to connect regional bicycle routes. Two regional routes, with signage recommended by TAMC are the Monterey Peninsula Loop Route which is along the Monterey Peninsula Recreational Trail and the Carmel-Monterey Route. The Carmel-Monterey Route would be along Viejo Road to Soledad Avenue then to Munras Avenue/Abrego Street and to Washington Street. The City of Monterey is coordinating with TAMC on the implementation of this Regional Wayfinding Sign Program.



Wayfinding Sign in Monterey, CA - Source: City of Monterey

4.2.2.4: Bicycle Detection

Bicycle Detection at signalized intersections along bicycle routes increase convenience and encourage correct placement of bicyclists at the intersection. Bicycle detection technologies sense bicycles in a travel lane and trigger the green phase at a signalized intersection. Currently, the City uses modified "E" loops (inductive) and video detection.

"E" Loops are installed below the pavement and are modified to be more sensitive to bicyclists. Inductive loop sensors are the least expensive to install typically but are not easy to maintain or repair and may not detect bicycles that are made mostly of carbon fiber.

Video detection for bicycles was installed, specifically for the median bike lanes, in the North Fremont Bicycle & Pedestrian Improvement project. Video detection can distinguish between bicycles and other vehicles and can monitor multiple lanes. Anywhere that the City has implemented video detection, bicycles are detected as well. Video detection can also detect bicyclists who use bicycle lights in the evenings.



Bicycle Detection Loop in Long Beach, CA - Source: City of Long Beach

4.2.2.5: Bicycle Boxes

The bicycle box provides bicyclists a protected space in front of queued motor vehicles at traffic signals, giving them a head start and extra visibility when the light turns green. This treatment is particularly helpful for bicyclists trying to turn left at a busy intersection.

Bicycle boxes are not recommended for every location, bicycle boxes should be complemented by not permitting right turn on red. There can also be confusion with multiple lanes and left turning bicyclists. Additionally, vehicles may not observe the striping and idle in the bicycle box.



Bicycle Box in National City, CA - Source: San Diego Bicycle Coalition

4.2.2.6: Bicycle Parking

Bicycle parking is an important investment when seeking to increase bicycle ridership. Parking is critical to providing reassurance for bicyclists when they leave their bikes to work or shop and providing a designated space also prevents the nuisance of bicyclists locking their bikes to various poles and benches. Bicycle parking should be in a well-lit, plain view area that supports the whole bike, not just a wheel, and out of the way of pedestrians and motor vehicles for the safety of all users.

Bicycle parking design is also important, things that should be considered when installing bicycle parking:

- Location (proximity to destinations, visibility)
- Ability to secure bicycle (theft prevention, weather protection)
- Durability
- Sheltering
- Lighting
- Supply
- Aesthetics

Bicycle parking or corrals that do not involve a loss of on-street parking may be installed at the discretion of the City Traffic Engineer. Bicycle parking which replaces automobile parking should be done after discussion with stakeholders.

Bicycle valet service could be offered at public events if resources are available. Bicycle valets provide a secure area for bicyclists to park for the duration of an event. Local bicycle clubs and community groups offer bicycle valet services for interested venues.

4.2.2.7: Private Bicycle Rentals and Bicycle Sharing

Private developments are encouraged to provide private bicycle rentals and bicycle sharing for their constituents. For example, hotels, visitor centers, hospitals, and other large employers may provide bicycle rentals to their employees as an incidental part of their business operations.

4.3: EXISTING CONDITIONS

The following is a summary of the bicycle facilities in Monterey.



5.8 miles of Class I Facilities, Bike Path

Aguajito Rd: 0.25 mi ■ Munras Ave: 0.8 mi ■ Monterey Peninsula Recreational Trail: 4.75 mi

15.9 miles of Class II Facilities, Bike Path

Aguajito Rd: 3 mi ■ Camino Aguajito: 0.8 mi ■ Casa Verde Way: 0.14 mi ■ English Ave: 0.15mi
 Figueroa Ave: 0.21 mi ■ Fremont St: 0.21 mi ■ Garden Rd: 2.6 mi ■ Glenwood Cir: 0.48
 Harris Ct: 0.29 mi ■ Lower Ragsdale Dr: 1.32 mi ■ Mark Thomas Dr: 1.33 mi
 Monhillan Rd/Olmstead Rd: 1.24 mi ■ Pearl St: 0.58 mi ■ Ragsdale Dr: 0.58 mi
 Rancho Saucito Dr: 0.09 mi ■ Sloat Ave: 1.0 mi ■ Upper Ragsdale Dr: 1.58 mi ■ Wilson Rd: 0.3 mi

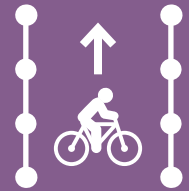


0.95 miles of Class III Facilities, Bike Path

Glenwood Cir: 0.95 mi ■ Pacific St: 0.47 mi

1.1 miles of Class IV Facilities, Protected Bike Lanes

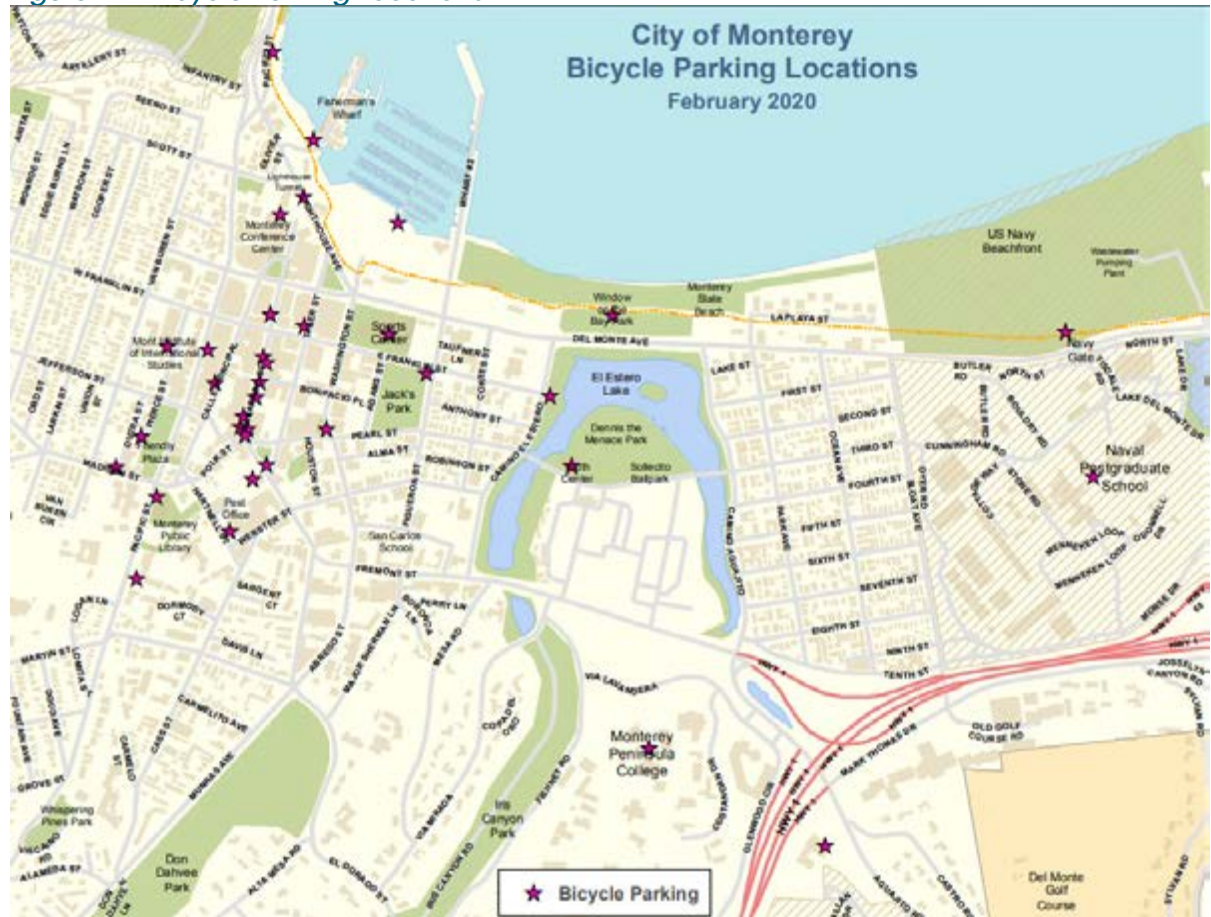
N. Fremont St: 1.06 mi



4.3.1: Existing Bike Parking

As of February 2020, the City has 31 bicycle parking locations, the parking facilities include both public and private parking (available to public or employees/customers).

Figure 4.2: Bicycle Parking Locations



City of Monterey Bicycling Parking Locations - Source: City of Monterey



Bicycle Rack at Monterey Bay Aquarium - Source: Google Maps



Bicycle Locker in San Jose, CA - Source: San Jose Public Library

The City also has bicycle Lockers which are available to rent at two City Parking Garages. These lots include the Cannery Row Garage (601 Wave St) and Downtown East Garage (Washington and Del Monte)

4.3.1.1: Community Action Team

Because multi-use trails such as the Recreation Trail are shared by several different modes, the City adopted rules of conduct to mitigate user conflict. When the rules are followed, the facility operates smoothly. The Monterey Police Department's Community Action Team includes bicycle patrol on the Recreation Trail and the Old Monterey Business District day and night. These officers have the same responsibilities as officers inside a patrol car. In addition, the Community Action Team officers educate the public on proper bicycle safety laws. These safety laws include riding with a helmet for youth under 18 years of age and proper equipment function (such as breaks or lights). They also educate motorists on sharing the road with bicyclists and the rules of the road.

Community Action Team's goal is to provide the community and its visitors with a police presence in areas that are not easily accessible by patrol car.

4.3.1.2: Bicycle Rodeos

The Community Action Team works closely with the Monterey Police Department School Resource Officer to educate students on bicycle safety and laws. Previous efforts by the Monterey Police Department and the Traffic Engineering Department, include a Bicycle rodeo for elementary school students and a BMX bicycle show, which reviewed safe bicycling techniques.

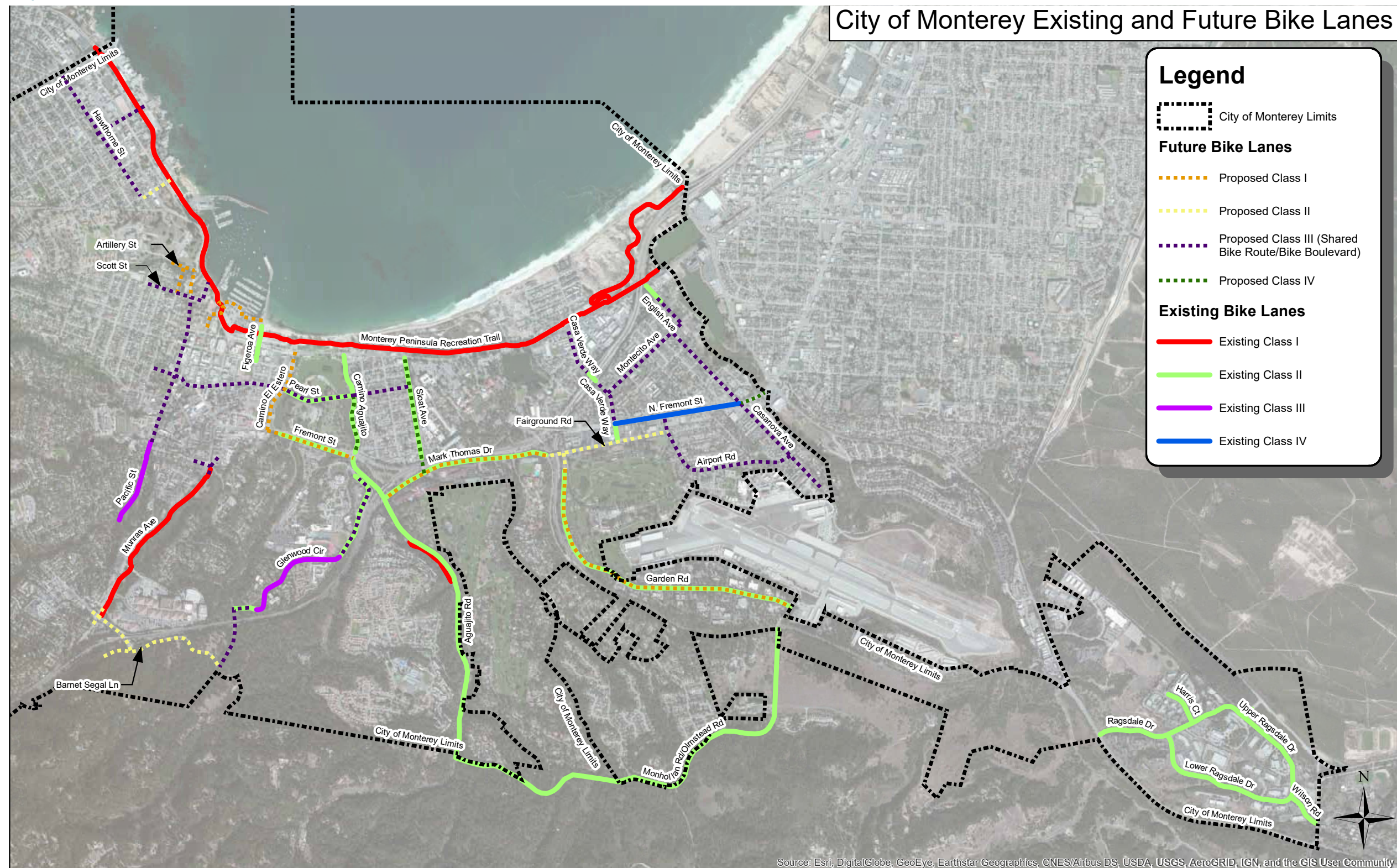
4.4: PROPOSED BICYCLE PROJECTS

This section expands upon potential bicycle related projects. These projects have been identified to serve as projects which will implement the goals, policies, and vision of the General Plan vision.

The bicycle projects (bikeways, bicycle parking and other end of use facilities) are illustrated in **Figure 4.3**. New bikeways will connect to the existing bicycle network and accommodate current and future ridership patterns, consistent with future growth patterns described in the General Plan.

Appendix A lists proposed projects these projects are not necessarily funded as of the adoption of the Plan.

Figure 4.3: Map of Proposed Bicycle Projects



Source: Kimley-Horn



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4.4.1.1: Bicycle Parking

Additional bicycle parking in and around the City could provide amenities to encourage increased bicycle ridership. As bicycle ridership increases, demand for bicycle parking will be greater.



Bicycle Rack in Downtown Monterey - Source: Bicycling Monterey



Bicycle Rack in Morgan Hill, CA - Source: Morgan Hill Downtown Association

Ideal locations for additional parking include, implementing bike parking works best in partnership with local businesses to ensure that bike parking is placed where it is in demand:

- Cannery Row/Aquarium Area
- Downtown Monterey
- Waterfront Area
- Fairgrounds Area
- Community Centers
- Parks/ beaches
- Parking Garages
- Schools



Monterey, CA- Source: City of Monterey

5 SAFE ROUTES TO SCHOOL

5.1: INTRODUCTION

Safe Routes to School is an international effort to encourage students (K-12) to walk or bicycle to school. The City has participated in Safe Routes to School efforts in collaboration with the Monterey Peninsula School District and several local Charter and Private Schools.

Safe Routes to School programs have several community benefits:

- Increase in walking and bicycling to school
- Lower transportation costs
- Reduced student absences and tardiness
- Reduced traffic congestion
- Healthier students
- Improved academic performance
- Cleaner air, fewer asthma attacks

Children make up a special group of pedestrians whose needs are different than those of adults. Additional safety considerations must be made when planning pedestrian and bicycle infrastructure for youth as they do not necessarily know to use peripheral vision or listen for oncoming vehicles, are smaller and therefore more difficult for motorists to see, and do not yet understand driver behavior.

5.2: SCHOOLS

There are twelve K–12 schools in Monterey (see below). Many Monterey Schools serve multiple neighborhoods, such as Monterey High School which serves all of Monterey and parts of Seaside. Many students live further than the recommended walking or bicycling distances for students respective age groups. Distance and topography are two of the greatest barriers to walking to these schools in Monterey.



**Nearly 80% of
K-12 Students
in Monterey attend
Public Schools**

The following is a list of schools in Monterey:

• **Public/Charter Schools**

- » Bay View Elementary – Lower School (K–4)
- » Bay View Elementary – Upper School (5–8)
- » Big Sur Charter School

- » Foothill Elementary
- » Hilltop Elementary School
- » La Mesa Elementary
- » Monte Vista Elementary
- » Monterey High School
- » Walter Colton Middle School

• **Private Schools**

- » San Carlos School(K–8)
- » Santa Catalina (Pre–K–12)
- » Trinity Christian High School

5.3: BARRIERS TO WALKING AND BICYCLING

5.3.1: Walk & Bike Shed

A walk or bike shed is the approximate range a student should travel for school, these distances vary by age group. Whether a student is accompanied by an adult or older sibling is a parental prerogative, however it is typically recommended by safe routes to school programs that kids, age 10 or younger, be accompanied by an adult or older sibling to cross the street.

The following graphic illustrates recommended walk shed for student age groups, it should be noted these are average distances, and these distances do not take into account the existing infrastructure, individual student capabilities or topography which could make this distance too far for a student.

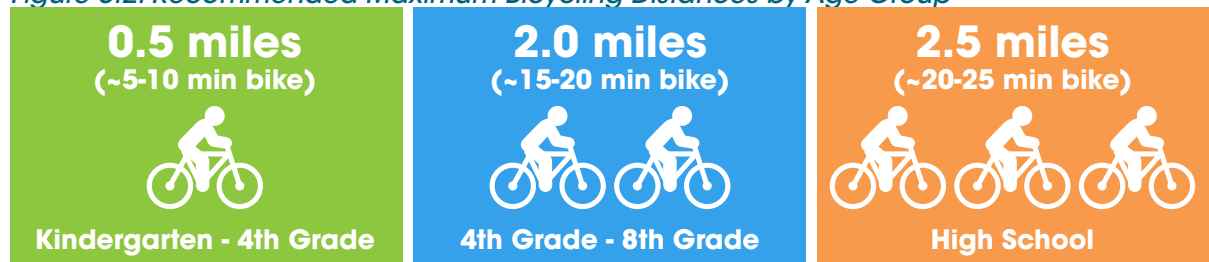
Figure 5.1: Recommended Maximum Walking Distances by Age Group¹



Note: Estimated time based on a walking speed of 3.5 – 4.5 feet per second.

The following graphic illustrates recommended bike shed for student age groups, it should be noted as with the walk shed these are average distances, and these distances do not take into account the existing infrastructure, individual student capabilities or topography which could make this distance too far for a student

Figure 5.2: Recommended Maximum Bicycling Distances by Age Group^{2,3}



Note: Estimated time based on a bicycling speed of 11.5 feet per second, based on research from FHWA's Evaluation of Safety, Design and Operation of Shared-Use Path.

1. <https://www.saferoutespartnership.org/blog/too-far-walk>

2. Nelson, Norah M et al. "Active commuting to school: how far is too far?" *The international journal of behavioral nutrition and physical activity* vol. 5 1. 8 Jan. 2008, doi:10.1186/1479-5868-5-1

3. <https://www.saferoutespartnership.org/sites/default/files/031918-srs-biketrain-toolkit-final.pdf>.

As part of the City's Active Transportation/Demand Management Plan, the City has prepared suggested routes to school for students at several Monterey Schools. At the maps were developed for the plan, Big Sur Charter School had not yet moved to their Monterey Location.

5.3.2: Traffic & Driver Behavior

Following distance, perceived "Traffic related danger" has been cited as the second highest barrier to parents allowing their children to walk or bicycle to school, according to the US Centers for Disease Control (CDC). Perceived "Traffic related danger" can be high volumes or congestion, driver behavior, such as speeding, failing to yield to pedestrians and bicyclists, running stop signs, double parking, or many other poor behaviors.

Although traffic and perceived "traffic related danger" is often cited as a reason for not allowing students to walk to school 20-25 percent of morning rush hour traffic is attributable to parents driving their children to school.^{4,5}

5.3.3: Weather

As a coastal community Monterey has a cool, moderate climate ideal for active transportation to school. There are still periods of poor weather, particularly rain, which can hinder a student's journey. This can be addressed by use of umbrellas, rain gear, and adding additional time for their journey.

5.3.4: Topography & Geography

There are many natural or political barriers for students attempting to walk or bicycle to school. New Monterey is separated by the Presidio of Monterey, an active military base, and there are only a few connections which may add significant distance to a route. These routes can be heavily trafficked by motor vehicles, which can be intimidating to travel on or next to. Another similar barrier exists with the Naval Post Graduate School in the western part of Monterey.

In regard to topography, Monterey does have some areas with steep slopes, including the Monterey Vista neighborhood, home to Monte Vista Elementary, Walter Colton Middle School and Monterey High School. This can make the journey more difficult or time consuming for students.

5.3.5: Infrastructure

Gaps in pedestrian and bicycle infrastructure do exist, and there are opportunities to improve existing infrastructure. Barriers to improving infrastructure are funding, the City relies heavily on grant funding and Neighborhood and Community Improvement Program (NCIP) funds for active transportation projects and Safe Routes to School Related projects often require school involvement and support.

This list is preliminary and subject to change, as different projects identified by the Bicycle and Pedestrian Chapters are built or revised and new projects are proposed.

5.4: WALK/BICYCLE TO SCHOOL PROGRAM

It is important for the City to collaborate with MPUSD and Monterey Police Department's School Resources Officer, on on-going Safe Routes to School education programs to encourage walking and bicycling to school. Currently most students arrive at school by school bus, MST bus, or by car. Some of the barriers to walking and bicycling to schools in the City are the steep topography, distance, insufficient pedestrian infrastructure surrounding the school and lack of adult supervision. To address all barriers, it is necessary to both improve bicycle and pedestrian infrastructure surrounding schools and support the development of traffic safety programs by MPUSD and Monterey Police Department.

4. National Highway Transportation Administration cited in Safe Routes to School: Pledging Safe Communities for our Children. 2003. Accessed January 17, 2006.

5. Department for Environment, Transport and the Regions, England: Greater Vancouver Regional District: Morning Peak Trip by Purpose.



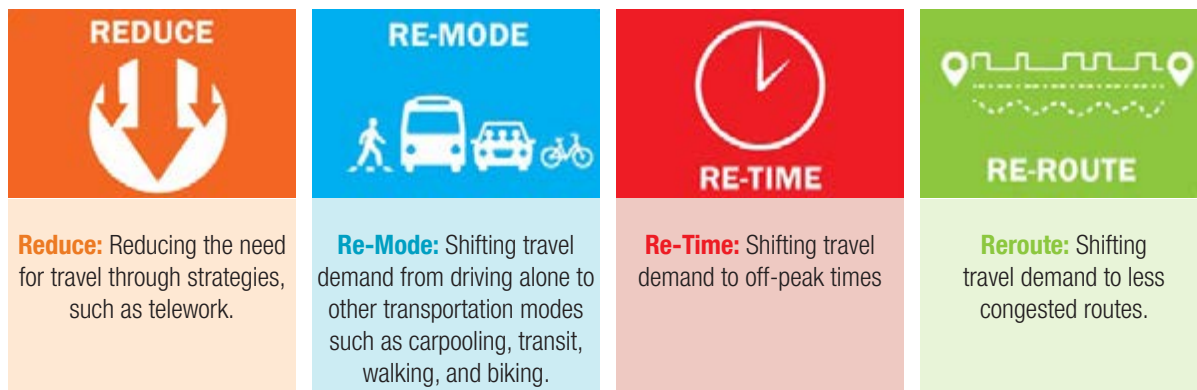
Monterey, CA- Source: WikiMedia Commons

6 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a method of managing the demand on the transportation network by motor vehicles (SOV). The City is implementing a TDM program, this could help the City by:

- Reducing dependence on fossil fuels and energy consumption,
- Reducing Greenhouse Gas Emissions,
- Reducing traffic congestion,
- Reducing car maintenance, parking cost, and need for car ownership,
- Reducing the need to expand roads and for expensive vehicle-centered regional infrastructure,
- Reducing health care costs (in the long term),
- Attracting individuals that value a multi-modal environment,
- Enhancing overall access, convenience, and connectivity,
- Improving quality of life in communities with transportation options, and
- Improving health through active transportation

In order to address the methods of managing demand, these programs can be categorized into the following four (4) categories:



The City has created a mobility tool by creating a website titled movemonterey.com this tool provides organizations with tools and options to implement TDM programs. The tool does consider organization size and type of organization. The tool awards a mobility score based on some existing conditions and existing TDM practices. The tool then asks an organization's priorities and concerns to provide suggested TDM measures. In 2020, as a result of the COVID-19 Pandemic, the City of Monterey and many other industries deployed many of these techniques, such as telework (both remote work and working from home), to great success. Although telework is not a feasible TDM measure for all industries, deploying telework where suitable can benefit all roadway users. As we recover from the COVID-19 Pandemic, TDM strategies such as telework, can aid our transition from to a more sustainable form of travel, while reducing vehicle miles traveled.

The mobility tool has 42 potential options, which could be suggested based on user's input. Each option is categorized based on which of the 4 "R's" it utilizes, a point value to add to the mobility score, and a relative cost scale (\$, \$\$, \$\$\$). The potential TDM measures list impacts and benefits, implementation considerations, resources, and case studies, if available. These potential TDM measures are sent electronically to users as a preliminary TDM Plan, which provides options for organizations to start with.

The following is a list of the 42 potential TDM measures.

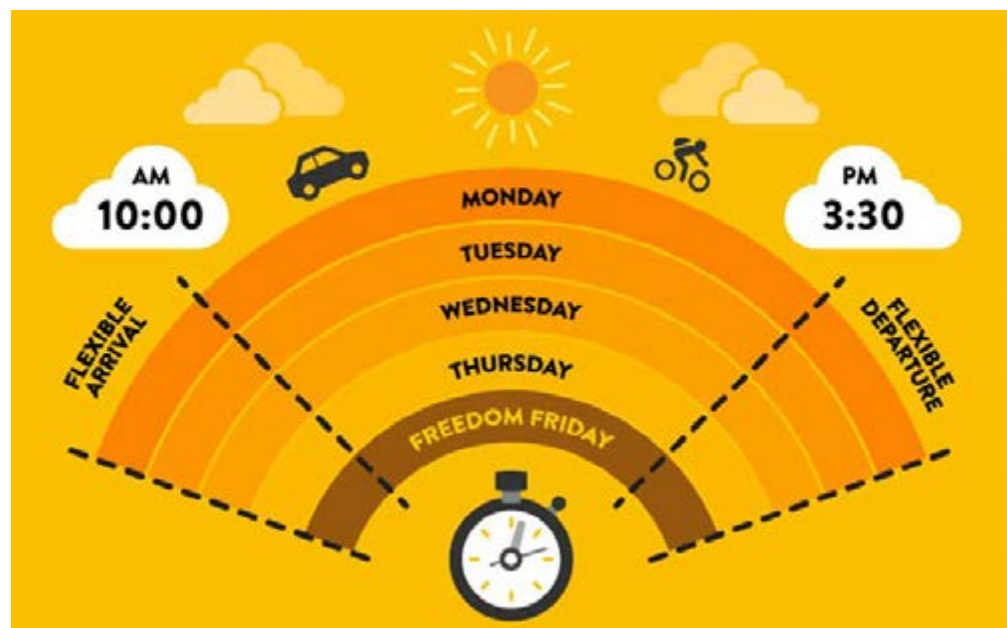
Table 6.1: Potential TDM Measures

	reTIME	reDUCE	reMODE	reROUTE
Earn-a-Bike Program				
Emergency Ride Home (ERH)				
Financial Carpool Incentives				
Flexible/Alternative Work Schedule				
Formal Telework Policy				
Free Event Transit Passes				
Information Kiosk/Display				
Mobile App				
New Employee/Student Transportation Kits				
Off-peak Incentives				
Parking Cash-Out				
Reduction of Parking Supply				
Park Once and Explore Car-Free Campaign				

	reTIME	reDUCE	reMODE	reROUTE
Passenger Pick-up/Drop-off Areas				
Permit Parking				
Pre-Arrival Transportation Information				
Preferential Carpool/Vanpool Parking				
Program Branding and Messaging				
Promotional Events/Fairs/Challenges				
Public Bike Racks				
Ridematching, Trip Planning, Trip Reporting				
Secure Bike Parking				
Shared Walk/Bike Amenities				
Share Event Traffic Management with Key Transportation Routing Platforms				
Shift Start/End Coordination with Nearby Employers to Encourage Carpooling				
Shop Local Campaigns/ Partnerships				
Showers, Lockers, and Changing Facilities				
Shuttle Service				
Special Event Parking and TDM Plans				
Special Event Transit Service				
Student Transit Pass Subsidy				
TNC/ Taxi Discounts				
Transit Subsidies and Allowances				
Transportation Coordinator/ Champion				

	reTIME	reDUCE	reMODE	reROUTE
Transportation/ Commute Surveys				
Use of Local Suppliers for Events				
Valet Bike Parking				
Vanpool Program				
Vanpool Start-up Subsidy				
Visitor Discounts to Avoid Peak Period Arrivals and Departures				
Wayfinding				
Website				

Source: City of Monterey Active Transportation/Demand Management Plan - 2020



Source: City of Monterey Active Transportation/Demand Management Plan - 2020

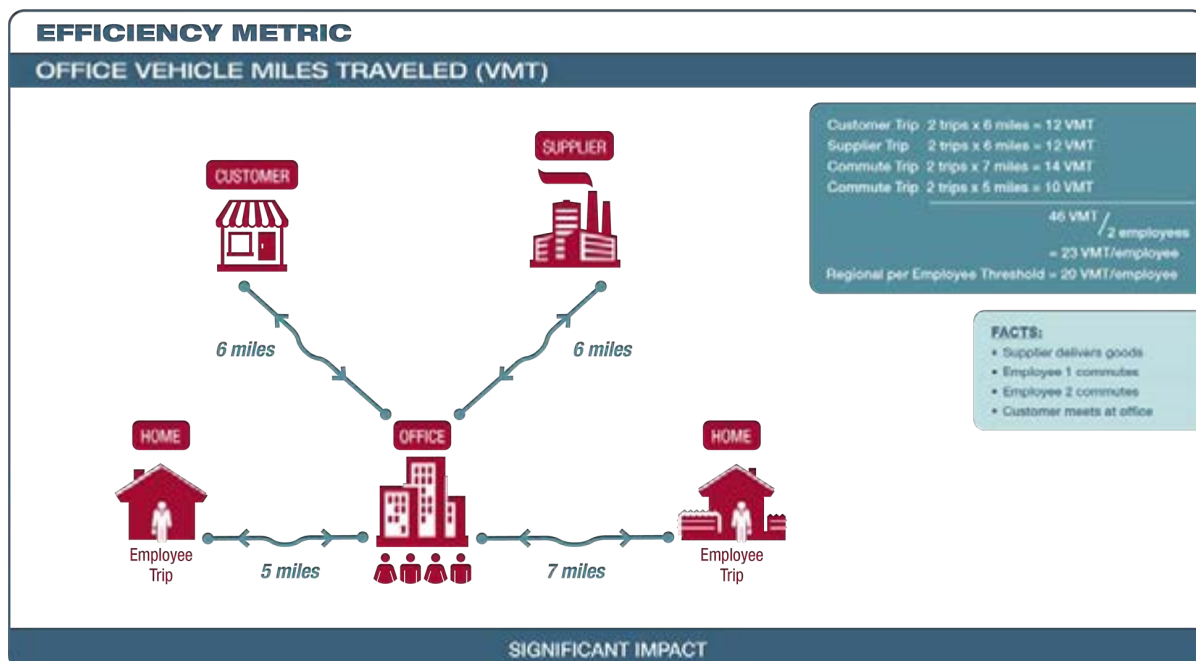


Monterey, CA - Source: Google Earth

7 VEHICLE MILES TRAVELED

In accordance with Senate Bill (SB) 743, the City of Monterey is transitioning from Level of Service (LOS) to Vehicle Miles Traveled (VMT) for the determination of California Environmental Quality Act (CEQA) impacts.

VMT is the new recommended criteria for assessing environmental impacts to transportation. VMT was recommended in place of Level of Service (LOS) due to the fact VMT better promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.



7.1: BACKGROUND

In 2013, SB 743 was signed into law by California Governor Jerry Brown with a goal of reducing Greenhouse Gas (GHG) emissions, promoting the development of infill land use projects and multimodal transportation networks, and to promote a diversity of land uses within developments. One significant outcome resulting from this statute is the removal of automobile delay and congestion, commonly known as level of service (LOS), as a basis for determining significant transportation impacts under the California Environmental Quality Act (CEQA).

The Governor's Office of Planning and Research (OPR) selected Vehicle Miles Traveled (VMT) as the principal measure to replace LOS for determining significant transportation impacts. VMT is a measure of total vehicular travel that accounts for the number of vehicle trips and the length of those trips. OPR selected VMT, in part, because jurisdictions are already familiar with this metric. VMT is already used in CEQA to study other potential impacts such as GHG, air quality, and energy impacts and is used in planning for regional Sustainable Communities Strategies (SCS).

VMT also allows for an analysis of a project's impact throughout the jurisdiction rather than only in the vicinity of the proposed project allowing for a better understanding of the full extent of a project's transportation-related impact. It should be noted that SB 743 does not disallow City of Monterey to use LOS for other planning purposes outside the scope of CEQA. Figure 8-1 provides a graphical representation of this analysis process. As required by CEQA, the City of Monterey will require ongoing mitigation monitoring and reporting. Specifics of the monitoring program will be developed on a project basis.

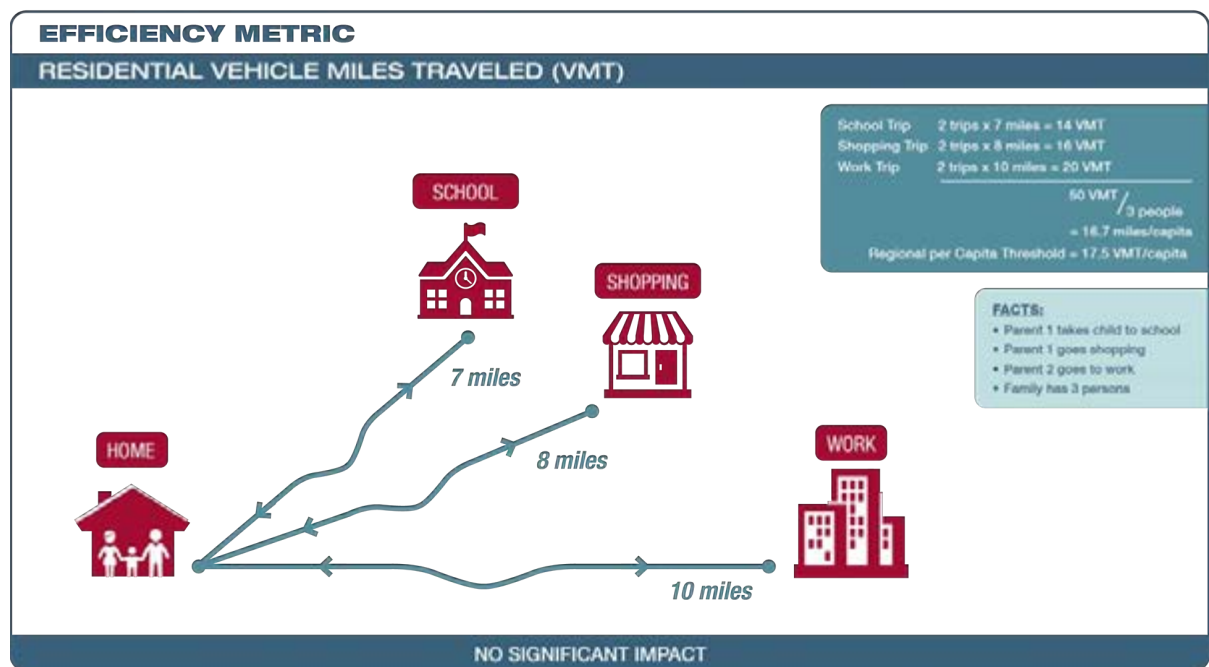
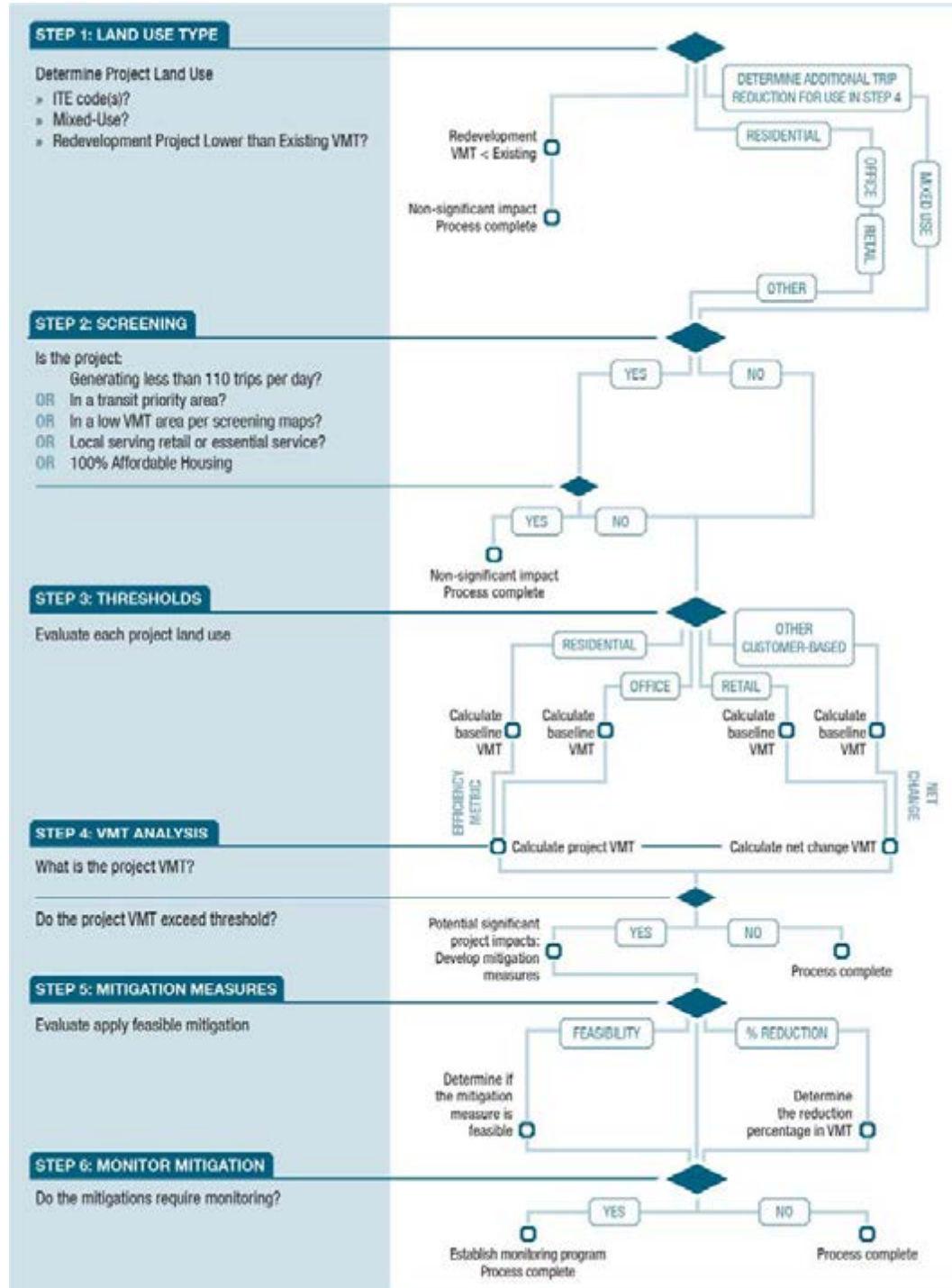


Figure 7.1: VMT Flow Chart





Monterey, CA- Source: Kimley-Horn

8 VISION ZERO

Vision Zero is an international road safety movement rooted in the philosophy that no loss of life due to road crashes is acceptable or inevitable. A core principle of Vision Zero is that people should not be killed or severely injured due to mobility. Crashes are not accidents; that is, they are entirely preventable with if the transportation system is designed to minimize the consequences of human errors and mistakes. Vision Zero sets the goal of reducing traffic-related fatalities and severe injuries to zero - the only acceptable number.

While zero crashes may sound unrealistic, the objective is to set this as a goal rather than an expectation. The expectation of zero crashes may be unattainable, but the goal to prevent fatal and severe crashes can always be strived for. A number of different initiatives already exist which aim to promote the objectives of Vision Zero. Vision Zero provides a goal to unify these different initiatives (infrastructure design, safety education, behavior enforcement, evaluation). This is a commitment and cooperation between all city departments and the community.

Vision Zero is...

- No loss of life is acceptable
- Reduce fatalities and severe injuries to zero
- Acknowledgement that fatalities and serious injuries are preventable
- Prioritize human health and safety over all other interests
- Acknowledgment that human error is inevitable
- Everyone's responsibility, all road users and City departments
- Systemic safety improvements
- Reducing vehicle speed is a priority in mitigating crash severity

Vision Zero is not...

- Something "new"
- Going to "look" the same everywhere
- Only for engineers
- Eliminating road fatalities entirely

The City of Monterey became a Vision Zero City in July 2017, when the Monterey City Council passed a resolution endorsing Vision Zero. In November 2017, the City adopted its first ever Vision Zero Action Plan. As part of the current effort to update the Multimodal Plan, Vision Zero as well as several other City Transportation efforts have been integrated into the City's Multi Modal Plan. This move integrates Vision Zero into the City's primary policy and implementation document regarding transportation in the City of Monterey.

Between 2015 and 2019, 4 people were killed in traffic crashes in Monterey and 38 were severely injured. On average, approximately more than 40,000 people lose their lives on U.S. roads each year. Of these, about 18% are people walking and riding bicycles, our most vulnerable road users. Source: SWITRS

8.1: VISION ZERO, A GLOBAL MOVEMENT

Vision Zero originated in Sweden. In 1997, the Swedish Parliament approved a Vision Zero bill establishing the Vision Zero philosophy and requiring the reduction of fatalities and severe injuries to zero by 2020. The bill has been updated to half fatalities and severe injuries by 2020 and bring them to zero by 2050. Vision Zero has proven to be effective in Sweden.

Although traffic volume and fatalities are partly related to changes in gross domestic product (GDP), road deaths in Sweden have continued to decrease despite a steady growth in traffic. Although Sweden has not reached zero, it has one of the lowest annual rates of road deaths in the world (3 out of 100,000 compared to 12.3 in the United States). Countries around the globe have since adopted Vision Zero.



Figueroa St, Monterey, CA- Source: Google Earth

8.1.1: Vision Zero in the United States.

Vision Zero is gaining momentum across the United States. As of February 2019, more than 40 U.S. cities or counties have adopted Vision Zero goals, with the state of California as a main champion. Large cities (New York, San Francisco, Los Angeles) were early-on adopters, followed by middle-sized cities (Fort Lauderdale, Long Beach) and now joined by small-sized cities (Santa Monica, San Luis Obispo).

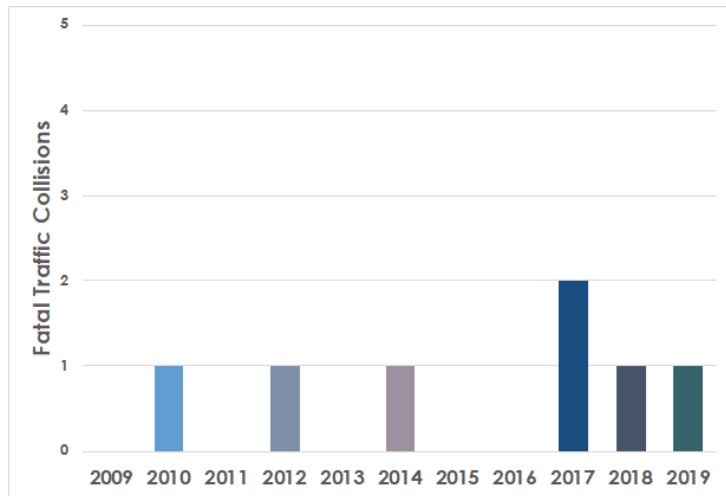
Figure 8.1: Vision Zero Map



8.2: WHY IS VISION ZERO NEEDED?

Human error is unavoidable, but the loss of life due to motor vehicle crashes can be preventable. According to the National Highway Traffic Safety Administration (NHTSA), 94-percent of serious crashes are due to dangerous choices or human error.

Figure 8.2: Number of Fatalities per Year in Monterey, 2009 - 2019



Source: TIMS

While pedestrians and bicyclists make up a small portion of roadway users, they are involved in 42-percent of all severe collisions. Monterey's population is expected to increase by approximately 10-percent by 2040 and therefore, it is important that the City integrate Vision Zero goals into this Multimodal Plan.

8.2.1: Monterey Vision Zero Emphasis Areas

8.2.1.1: Safe Streets for Everyone

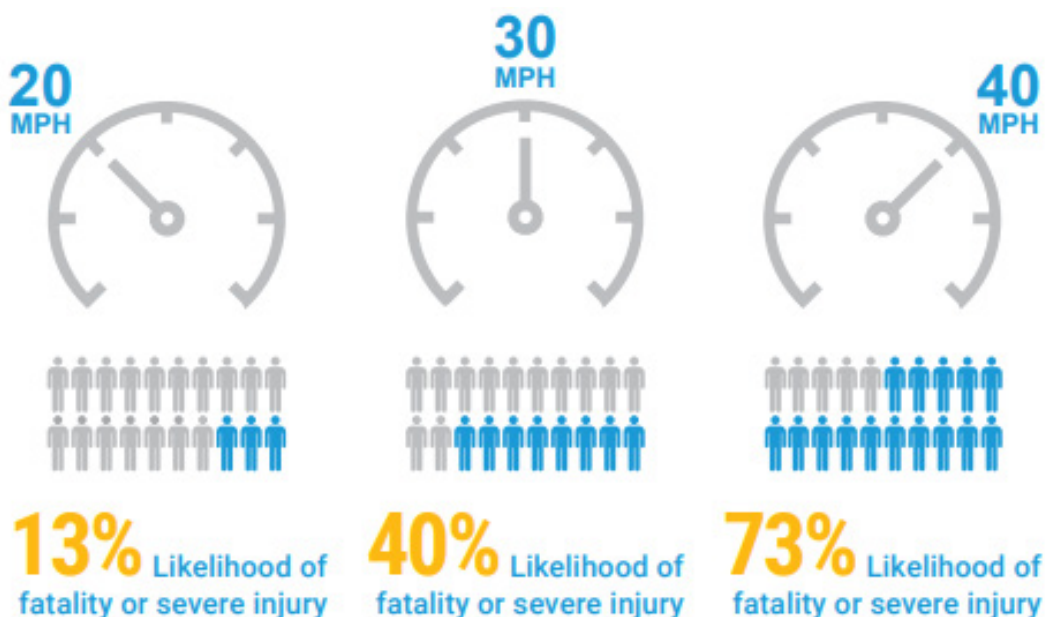
By incorporating Complete Streets design elements as discussed in Chapter 6, roadways can become safer and oriented more towards pedestrians and bicyclists. Features such as Crossbikes and bicycle boxes create refuges for bicyclists to safely cross the intersection and be clearly visible to drivers from all directions. Pedestrian related treatments include curb ramps, wider sidewalks, bulb-outs, and high-visibility crosswalks.

8.2.1.2: Mitigate Speeding

Speed plays a critical role in the likelihood of injury during a traffic collision. Therefore, any speed reducing measures can be very effective in decreasing pedestrian and bicyclist fatalities.

It is important to highlight the national movement "20 is Plenty", which is movement to reduce speed limits in residential and high use pedestrian/bike areas. As a California City, our speed limits have strictly defined by law. There is little to no flexibility in setting lower speed limits on City Streets. Additionally, other States utilize automated speed-enforcement cameras, which are not currently allowed for all jurisdictions in California, in part to our strict laws regarding the setting and enforcement of speed limits.

When utilizing speed feedback signs, targeted enforcement, lane narrowing, and smaller curb radii, drivers tend to go at slower speeds which greatly reduces the effect of the collision impact.



Source: Tefft, Brian C. *Impact speed and a pedestrian's risk of severe injury or death. Accident Analysis & Prevention*. 50. 2013.

8.2.1.3: Education

Street safety education and public outreach are important to help people safely navigate roadways by walking, biking, or driving. By implementing programs and creating resources to provide street safety education, it creates a shared sense of expectations for all users of the roadway and makes information easily accessible to all member of the community.

8.3: HOW VISION ZERO WORKS

Vision Zero strategies: enforcement, engineering, education, encouragement, evaluation and using a data-driven approach. Data is crucial for Vision Zero. Data provides valuable information to best allocate limited resources, identify priorities and gain insight otherwise unavailable. Data can also inform coordinated actions across city departments to influence public commitment to Vision Zero.

For example, the collection and analysis of crash data by the City of Los Angeles revealed that 65% of all deaths and severe injuries involving people walking occur on just 6% of their streets. It's important to break down data because it provides a much more specific picture. Each City's Vision Zero efforts will be shaped by their specific crash data. As such, efforts to implement Vision Zero vary from city to city.

8.3.1: Consider all Levels of Prevention

Vision Zero works to instill a new way of thinking about road crashes, challenging traditional thinking to lessen crash severity. Traditionally, road safety efforts were restricted to the bottom levels of prevention. Vision Zero efforts consider all levels of prevention, particularly those at the top:

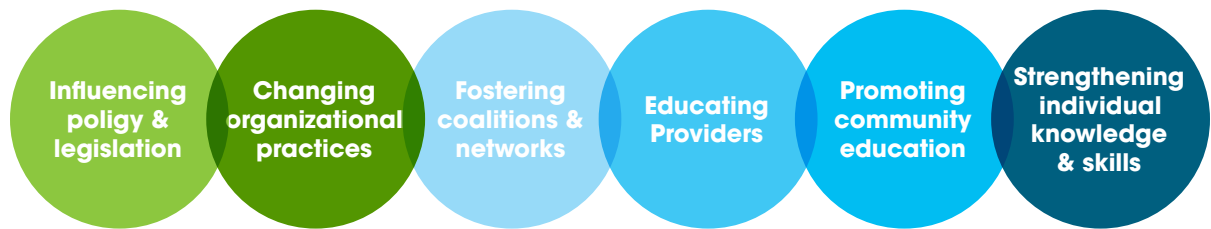
- Incorporate safety measures and strategies in policies, plans and practices.
- Adopt organizational practices that facilitate coordination to improve safety.
- Bring together all city departments and the community to increase safety efforts
- Commit all levels of the city to keep learning, refining our skills, and expanding our toolbox with the best available strategies, policies, and actions.

8.3.2: Focus on Crash Severity

Vision Zero is not about eliminating all road crashes, that would not be feasible. The issue at hand is crash severity: how can we lessen the severity of road crashes?

The Vision Zero approach is composed of several elements, each of which affect crash severity. These include ethics, responsibility, safe systems approach, human tolerance to speed, human error, and scientific facts/data.

Figure 8.3: The Spectrum of Prevention



Content: The Prevention Institute/Source: Vision Zero Network

8.3.2.1: Ethics

Ethics are at the core of Vision Zero's philosophy and goal. The only acceptable goal is to reduce fatalities and severe injuries to zero.

8.3.2.2: Responsibility

Who is responsible for safety on our streets? We all are! Road users who live, work, or visit Monterey are responsible for following the rules of the transportation system. All city departments are responsible for the safe operation and use of the transportation system. This is why Vision Zero follows a "safe systems approach."

8.3.2.3: Safe Systems Approach

A crash that results in severe injury means that personal behavior or components in the road transportation system were not performing well together. It is the responsibility of the community and all city departments to integrate all the components of the system.

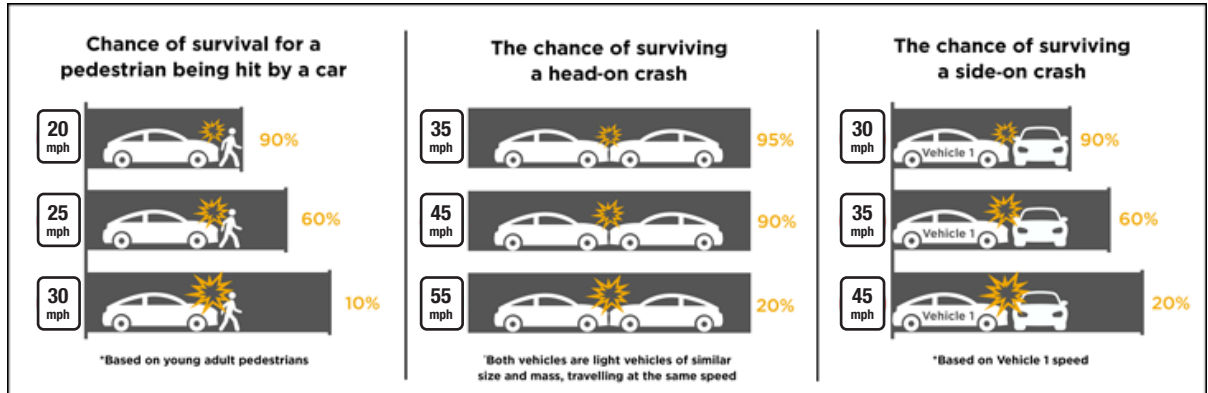
8.3.2.4: Human Limits: Error and Speed.

As humans we make mistakes, but these should not lead to loss of life on the road. This is why human limitations are an important basis upon which to design and use the road transportation system.

The human body can only withstand certain amounts of force in a car crash. Even the impact force of a car traveling at 20-mph is enough to be fatal (there's a 10% risk of fatality for pedestrians struck). If we double the car's speed to 40-mph, the risk of fatality skyrockets to 80-percent. Increases in speed lead to decreases in our field of vision so it becomes more difficult to spot a person crossing the street.



Figure 8.4: Braking Speed Reaction



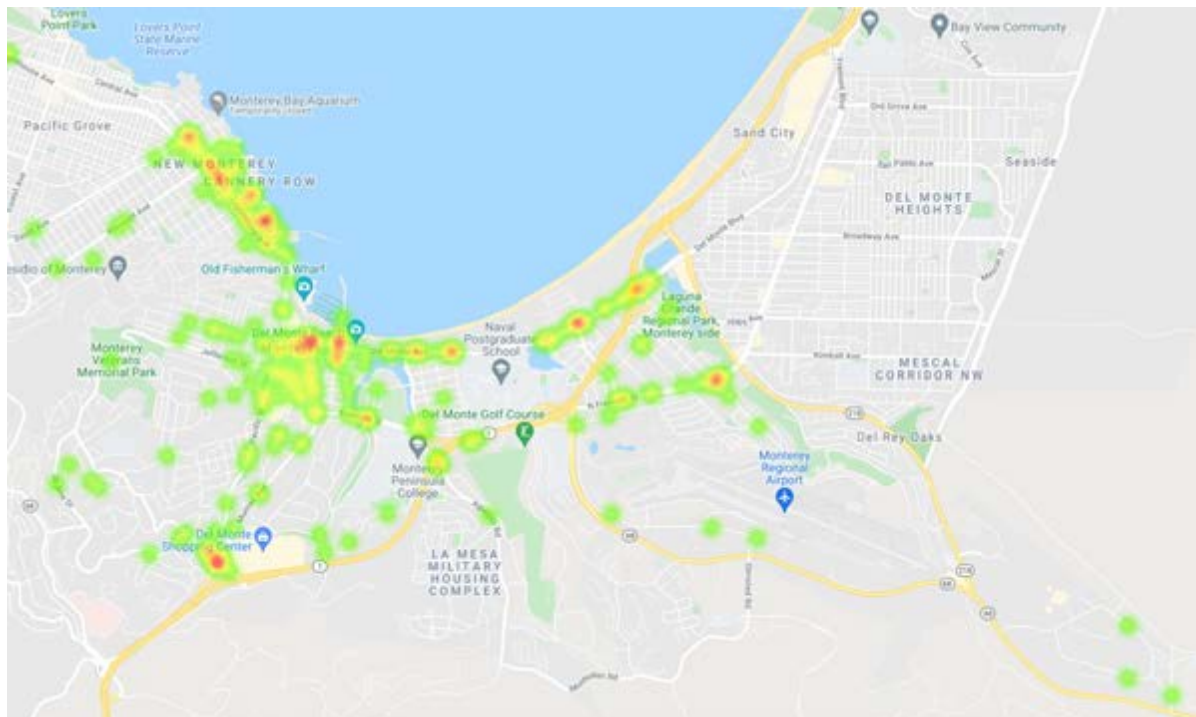
Source: National Road Safety Strategy AU

Table 8.1: Collision Types

Contributing Collision Factor	Typical Causes	Principal Strategy	Supporting Strategies
User Inexperience	New/beginning driver; driver/user in novel traffic situation; user traveling by a means in which they are inexperienced; children using the streets as pedestrians or bicyclists.	Education	Enforcement, Engineering, Planning
Street Design and Operations	Lack of access control, unclear as to who has the right of way; limited visibility; faded striping/signage; lack of ped or bike facilities.	Engineering	Enforcement, Education, Planning
Inadvertent Distraction	Driving when tired; driver lulled by roadway conditions; sudden surprise from unanticipated distractions; medical causes.	Education	Enforcement, Engineering, Planning
Intentional Disregard of Safety, High-Risk Behavior	Speeding; unsafe turning speeds; driver under the influence; texting; phone use by driver, pedestrians, and bicyclists.	Enforcement	Engineering, Education

8.3.3: Collision Data

Figure 8.5: Injury Collision Density Map of City of Monterey, 2015 - 2019:



Source: TIMS – Note that the graphic indicates relative accident occurrence by approximate location only for all visible or serious injury collisions.

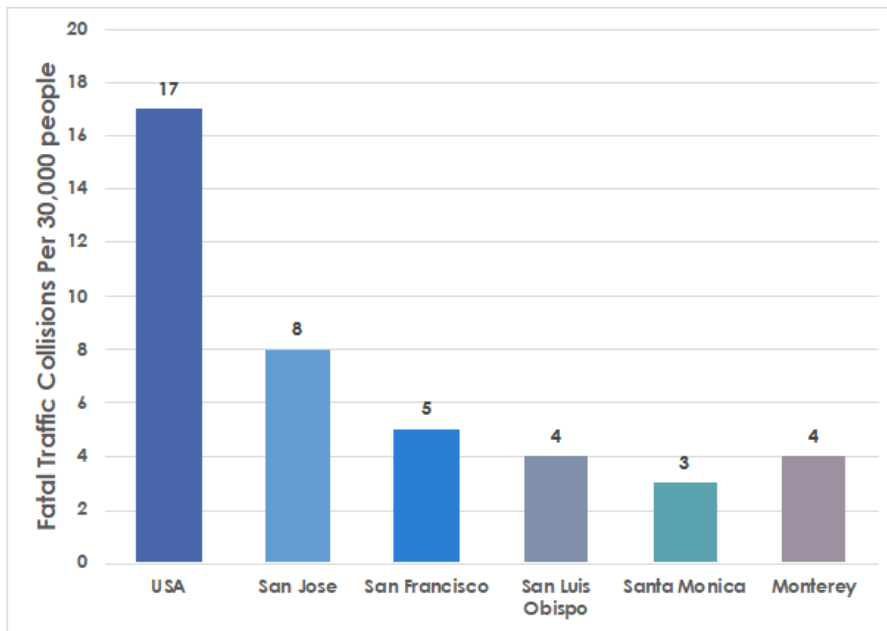
Figure 8.6: Fatal Collision Density Map of City of Monterey, 2015 - 2019:



Source: TIMS – Note that the graphic indicates relative accident occurrence by approximate location only for all fatal collisions.

For comparison purposes, the City of Monterey's fatal collisions per 30,000 people is shown on the graph below in comparison to the United States, San Francisco, San Jose, San Luis Obispo and Santa Monica. A comparison was created base on 30,000 people, rather than the often used 100,000 people, is that 30,000 is a close approximate to the City of Monterey's Population.

Figure 8.7: Fatal Traffic Collisions per 30,000 people, 2015 - 2019:



Source: US Census Bureau, FARS, TIMS, 2015-2019

Table 8.2: Collision Data

Data Category	New Data	
Fatal and Severe Injury Collision Summary	4 fatal collisions 38 severe injury collisions	
Collisions involving people walking	1/1/2015 – 12/31/2019 1 fatal collision	8 severe injury collisions 39 collisions with visible injury
Collisions involving people biking	1/1/2015 – 12/31/2019 - no fatal collisions	8 severe injury collisions 51 collisions with visible injury
Severe Injury Collisions	1/1/2015 – 12/31/2019 38 total collisions	- Collision Types » 22 vehicle collisions » 8 pedestrian collisions » 8 bicycle collisions
Fatal Collisions	1/1/2015 – 12/31/2019 4 Total collisions - Collision Types » 3 vehicle collisions » 1 pedestrian collisions » 0 bicycle collisions	- Primary Collision Factors for the fatal collisions include: » 1 DUI, » 1 Improper Turning, » 1 Pedestrian Right of Way, and » 1 Unsafe Speed related collision

Source: TIMS

8.4: IMPLEMENTATION

The Monterey City Council passed a resolution endorsing Vision Zero on July 2017. A Vision Zero task force was set up to engage all city departments in drafting a Vision Zero Action Plan.

The 2017 Action Plan set up a Vision Zero strategy consisting of the 5 E's: Enforcement, Education, Encouragement, Engineering, and Evaluation.

8.4.1: Realizing Vision Zero

Vision Zero establishes a coordinated commitment, approach, and effort toward safety from all city departments. Everyone who lives, works, or visits Monterey has the responsibility to improve safety because no loss of life due to road crashes is acceptable or inevitable.

Design Streets for Everyone

Pursue projects to address safety issues, enhance safety measures, and use innovative safety designs for all road users. Complete Streets principles are incorporated during the planning stage of development.

Teach to Travel Together

Road users are responsible for following the rules of the road. Education is proactive and can have long-lasting changes that save lives and ensure mobility for all.

Enforce Safe Behavior

Enforcement plays a significant role in encouraging good behaviors through consistent enforcement of safety laws. Enforcement is a necessary tool to prevent high-risk roadway behaviors and remind us that these rules are not optional, but mandatory and very necessary.

Evaluation

Collect and analyze collision data to monitor the impact of the multiple strategies and overall progress towards the Vision Zero goal.

8.4.2: City Vision

8.4.2.1: Strategy

- Establish a coordinated commitment to safety from all city departments.
- Use a data-driven approach for all safety efforts.
- Facilitate interaction between city departments and avoid duplicating efforts by using shared communications, evaluation, and data collection protocols.
- Seek opportunities to coordinate safety improvements and programs across departments.
- Acknowledge the majority of road crashes can be prevented.
- Promote self-enforcing conditions/solutions.
- All city departments promote existing safety events, projects, programs, and success stories and look for as many outreach opportunities as possible with available resources.
- Collaborate with Monterey Peninsula Unified School District (MPUSD) regularly to encourage safe walking and biking.
- Participate in regional Safe Routes to School Task Force.
- Look for opportunities for a regional Vision Zero strategy.
- Research and procure funding to sustain safety programs.

Vision Zero Task Force

City Departments

City Manager's Office

Communications & Outreach Office

Fire

Police

Public Works

Planning

Recreation

Source: Fort Lauderdale Vision Zero Quick Guide

8.4.2.2: Design Streets for Everyone

Table 8.3: Design Streets Strategies

Strategy	Supporting Departments
Evaluate high severity, high incidence location and collision factors. Collaborate to address safety issues through enforcement and/or safety measures.	• Police • Public Works
Review projects and plans for safety and access. Look for opportunities to enhance safety.	• Public Works • Police • Fire • Planning
Incorporate “Complete Streets” principles in projects.	• Public Works • Planning
Use existing tools but also draw upon worldwide best practices in roadway improvement and enforcement strategies.	• Police • Public Works
Use street resurfacing as an opportunity to implement low cost changes and increase road safety through striping.	• Public Works • Planning
Implement safety projects under the Neighborhood and Community Improvement Program (NCIP).	• Public Works • Planning
Implement Safe Routes to School (SRTS) safety projects, programs, and participate in SRTS Countywide Task Force.	• Public Works • Police • Planning
Adopt crosswalk guidelines to upgrade and/or eliminate crosswalks based on safety.	• Public Works • Planning • CAO

Table 8.4: Strategies for New Development

Strategies for New Development	Supporting Departments
Integrate land use and circulation elements in Specific Plans to support walkable, bikeable, transit-oriented neighborhoods (high-density, mixed-use, active transportation).	• Planning
Include Vision Zero goal in near term and long-term planning documents.	• Planning
Examine development projects to determine impact on safety and access for pedestrians and bicyclists.	• Public Works • Planning
Look for opportunities to incorporate safety and access improvements for pedestrian and bicyclists in development projects.	• Police • Public Works • Police • Fire
Update plans and guidelines for bike and pedestrian circulation as new technology and standards become available.	• Public Works • Planning



Monterey, CA- Source: Kimley-Horn

9 IMPLEMENTATION

9.1: FUNDING

The following is a table of potential funding sources for the complete streets, multimodal and safety projects included in the City CIP and this document.

Table 9.1: Potential Funding Sources: 2018-2035

FUNDING SOURCES	Roadway Improvements	Intersection Improvements	Education and Enforcement
LOCAL SOURCES			
Non-Profit, Member Fees, Private Donations			\$
Measure X Transportation Safety & Investment Plan	\$	\$	\$
Measure P/S (Road Repair, ADA Improvements, Sidewalk Repairs)	\$	\$	
AB2766 (Competitive)		\$	
SB1 Road Maintenance and Rehabilitation Account- Local Gas Tax (Formula)	\$	\$	
Regional Surface Transportation Program	\$	\$	

FUNDING SOURCES	Roadway Improvements	Intersection Improvements	Education and Enforcement
STATE SOURCES			
State Transportation Improvement Program (Formula)	\$	\$	
SB 1 Gas Tax	\$	\$	
SB1 Local Partnership Program (Formula)	\$	\$	
SB1 Local Partnership Program (Competitive)	\$	\$	
SB1 Solutions for Congested Corridors (Competitive)	\$		
Active Transportation Program			\$
Public Utilities Commission	\$	\$	
Future State Discretionary Programs	\$	\$	\$
SB1 Trade Corridor Enhancement Program (Competitive)	\$		
Highway Safety Improvement Program (Competitive)	\$	\$	
FEDERAL SOURCES			
Surface Transportation Block Grant (Formula)	\$	\$	
BUILD (Competitive)	\$	\$	
Urbanized Area Formula Program	\$	\$	
Nonurbanized Area Formula Program	\$	\$	
Elderly & Person with Disabilities Formula Program			\$
Section 5337 - State of Good Repair	\$	\$	

9.2: IMPLEMENTATION

The City has developed a project list, shown in **Appendix A**, for potential future projects as referenced in the Bicycles and Pedestrians Chapter. These projects were identified through public input throughout the years, prior multimodal plans, Specific Plans, other transportation planning documents, and proposed Neighborhood and Community Improvement Program (NCIP) projects.

Appendix A: City of Monterey MultiModal Plan Project List.

Projects	Bicycle Projects											Pedestrian Projects								Safe Routes to School
	Bicycle Facilities				Intersection Improvements	Bicycle Features/Amenities						Pedestrian Facilities		Pedestrian Crossings						
	Class I	Class II	Class III	Class IV		ContraFlow Lanes	CrossBikes	Protected Intersection	Wayfinding	Bicycle Detection	Bicycle Boxes	Sidewalks	DG Path	Curb Ramp, Curb Extension, & Crosswalk Improvements	Pedestrian Signals	Pedestrian Hybrid Beacon	Rectangular Rapid Flashing Beacons	Wayfinding		
Laine St Bicycle Boulevard			X						X											X
Hoffman Ave Bicycle Boulevard			X						X											
Reeside Ave Bicycle Facilities		X	X		X															
Wave St Bicycle Boulevard			X						X											
Hawthorne Class III and Wayfinding			X						X											
Private Bolio & Lighthouse Bicycle and Pedestrian Intersection Improvements					X		X					X		X						
Del Monte Ave/Washington St Bicycle & Pedestrian Improvement					X		X				X									
Downtown Bicycle Boulevard (Third St – Pearl St – Jefferson St)			X	X	X	X			X		X									
Alvarado Mall Bicycle & Pedestrian Improvements	X																			
Pacific St Bicycle Route			X		X				X											
Bicycle & Pedestrian Plaza along Wharf I to Wharf II	X																			
Van Buren St/ Artillery St Bicycle & Pedestrian Connection	X																			
Figueroa St Bicycle Lanes		X			X						X									
El Dorado St Intersection Improvement					X															
Casa Verde Way/ Del Monte Avenue Recreational Trail & Intersection Improvement					X									X						X
Casanova Ave Bicycle Boulevard			X																	
Airport Rd Bicycle Boulevard			X																	
Casa Verde Way Bicycle Facilities		X	X																	X
English Ave Bicycle Boulevard			X																	
Glenwood Cir Bicycle Boulevard			X						X											
Iris Canyon Rd Bicycle Boulevard			X						X											
Soledad Dr Bicycle Lanes		X			X		X		X		X									
Barnet Segal Ln Bicycle Lanes		X							X											
Viejo Rd Bicycle Lanes	X	X			X															
Mark Thomas Dr/ Fairground Rd Bicycle Lanes	X	X			X		X		X											
Garden Rd Bicycle Lanes				X	X				X		X									
North Fremont Gap Closure Project	X																			
Citywide ADA Curb Ramps														X	X					X
Traffic System, Pedestrian and Bike Upgrades Citywide										X					X					X
Citywide Wayfinding Sign Program, Phase II									X										X	
Recreational Trail Crossing Improvements <i>(English Ave, Sloat Ave, Park Ave, Camino Aguajito, Camino El Estero, Figueroa Ave, David Ave, Prescott Ave, Hoffman Ave, Wave St, Drake Ave, Reeside Ave, Cannery Row)</i>					X									X						

*Note: Class I facilities are both Pedestrian and Bicycle Facilities