3 Mobility

The Mobility Element seeks to enhance walking, bicycling, and public transportation systems options within Carlsbad, and improve mobility through increased connectivity and intelligent transportation management. Increasing transportation options and improving connectivity within the city are core values of the Carlsbad Community Vision and also support other core values of the vision, including sustainability, access to recreation and active, healthy lifestyles, and neighborhood revitalization.

This element provides a short context for Carlsbad's existing mobility system, identifies how that system was developed, and communicates the current vision for the future of mobility within the city. Topics addressed include:

- *Livable Streets*
  - *Multi-Modal Levels of Service*
  - *Walking*
  - *Bicycling*
  - *Transit*
- *Connectivity to Support Mobility*
- *Parking*
- *Transportation Demand Management*
- *Traffic Signal Management*
- *Freight and Goods Movement and*
- *Innovation in Transportation Mobility*

3.1 Introduction

Background and Purpose

Much of Carlsbad's transportation system has developed within the last 30 years, concurrent with the city's physical expansion. The transportation emphasis during this period has been on improving travel by the automobile, within the framework provided by Proposition E (commonly referred to as the Growth Management Plan) passed by Carlsbad voters in 1986. The 1994 General Plan and the Growth Management Plan helped assure that infrastructure was provided in a systematic fashion as the city grew and developed.

The transportation system envisioned in the 1994 General Plan has largely been realized, with the majority of the street infrastructure constructed to its ultimate configuration. As the city looks increasingly to infill development rather than outward expansion, the primary transportation issues relate to protecting and enhancing the community's quality of life, as reflected in the core values of the Carlsbad Community Vision. The community's vision includes better pedestrian and bicycle connections between neighborhoods, destinations, and different parts of the community, and a balanced transportation system rather than a singular focus on automobile movement.

In recent years, the city has been taking steps to support complete and livable streets. In January 2012, the City Council identified complete and livable streets as a top strategic focus area for the city. In February 2013, the city completed a Livable Streets Assessment report that reframes potential challenges into opportunities, based on best practices in other jurisdictions wrestling with similar challenges. In 2011-2013 the city implemented a traffic signal program to better serve and manage motorists and connect traffic signals throughout the city. This element focuses on providing livable streets that improve mobility and connectivity for all users of the transportation system.

Relationship to State Law

California state law (Government Code Section 65032(b)) requires that a general plan include a circulation element that consists of "the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals… and other local public utilities and facilities, all correlated with the land use element of the [general] plan." This Mobility Element includes all information required of circulation elements, except that the location and extent of "other local public utilities and facilities" is addressed in the Public Safety Element.

Additionally, in 2008, the State of California passed Assembly Bill 1358, the California Complete Streets Act. This bill requires that all circulation elements developed after January 1, 2011 include a complete streets approach that balances the needs of all users of the street, including motorists, pedestrians, bicycles,

children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation. This Mobility Element uses the term "livable streets" in place of "complete streets"; providing livable streets throughout the community is the core focus of this element.

Relationship to Community Vision

While the Mobility Element responds to many of the core values of the Carlsbad Community Vision, it most closely furthers:

Core Value 5: Walking, Biking, Public Transportation and Connectivity. Increase travel options through enhanced walking, bicycling and public transportation systems. Enhance mobility through increased connectivity and intelligent transportation management.

Relationship to Other General Plan Elements

The Mobility Element generally focuses on mobility and connectivity of the city's transportation system and is complementary to other elements within the General Plan. This element was developed to support and enhance the Land Use and Community Design Element, which has the strongest relationship to this element.

In addition, the Mobility Element will inform future updates to the city's Bicycle Master Plan, Pedestrian Master Plan, and Americans with Disabilities Act (ADA) Transition Plan, and Trails Master Plan efforts; all of which provide a greater level of detail related to those planning efforts compared to this element. Furthermore, future noise contours in the Noise Element and air quality policies in the Open Space, Conservation and Recreation Element reflect considerations of future traffic generation, as outlined in this element.

3.2 Context: Existing Transportation System

Currently, Carlsbad's transportation system includes streets (travel lanes, bicycle lanes, sidewalks, etc.), trails, transit (bus and train), truck routes, and the airport. The existing transportation system is described below.

Streets

The city accommodates motorists via its system of freeways, regional streets and local streets. North/south facilities include Interstate-5, El Camino Real, Carlsbad Boulevard, College Boulevard, Paseo del Norte, Avenida Encinas, Rancho Santa Fe Road and Melrose Drive. East/west facilities include Carlsbad Village Drive, Chestnut Avenue, Tamarack Avenue, Cannon Road, Faraday Avenue, Palomar Airport Road, Poinsettia Lane, Aviara Parkway, and La Costa Avenue. Many of these streets not only serve Carlsbad, but also provide regional connectivity to the north county area. Although there are numerous east/west streets through the city, major barriers interrupt connectivity – the north/south railroad that parallels Interstate-5 and Carlsbad Boulevard, the Interstate-5 freeway, three lagoons, and the general rolling hill topography of the city. While State Route 78 does not run within the city limits of Carlsbad, it provides a regional east-west freeway just north of Carlsbad that connects with Interstate 15 in Escondido.

Many city-maintained streets provide for pedestrian and bicycle travel on such facilities as parallel bike lanes, trails, and/or sidewalks (excluding along freeways and railroads where pedestrians and bicyclists are prohibited). Walking and bicycling environments are critical to Carlsbad's high quality of life, especially in areas that have a high demand for those services (such as the Village area, along the coast and near the lagoons).

Trails

Trails typically serve pedestrians and, where allowed, bicycles. Automobiles are prohibited on trails. While the city's rolling topography can be challenging, its open space areas, three lagoons, coastline and Mediterranean climate make it an ideal location to provide an extensive trail system.

In April 2013, the city initiated a Trails Master Plan update. This update will include identification of existing and proposed trails within the city that will integrate with other transportation system elements. Additionally, the Trails Master Plan will ensure consistency with the city's recently completed and accepted ADA Transition Plan. The Trails Master Plan will be completed in coordination with the Carlsbad Active Transportation Strategy, also initiated by the city in April 2013. The Comprehensive Active Transportation Strategy will result in a set of strategies to identify and construct livable streets solutions for the city's street system.

Pedestrian-attracting land uses include lagoons (top) and the coastline (bottom).

Transit

Transit in Carlsbad includes bus service, ADA paratransit service, the COASTER commuter rail, and Amtrak rail service; indirectly, transit service is also provided by the Sprinter light rail system and Metrolink commuter rail. These services are described below:

- Bus Service – Bus service is provided by the North County Transit District (NCTD) and is referred to the BREEZE. BREEZE currently operates approximately ten bus routes within the city.
- Paratransit Service – NCTD also offers LIFT, a curb-to-curb service for eligible disabled persons who are unable to utilize the BREEZE.
- COASTER Commuter Rail – This is a north-south commuter rail transit service connecting north San Diego County to the City of San Diego. Carlsbad is served by two COASTER stations, one located north of Poinsettia Lane (just west of Interstate-5) and the other is located in the Carlsbad Village area.
- Sprinter – This is an east-west light rail transit service connecting Oceanside to Escondido and many educational destinations such as Mira Costa College and California State University San Marcos. Although the Sprinter does not run within the city limits, it is just north of Carlsbad and connections to Carlsbad are provided via the COASTER and BREEZE services in addition to bicycle accessibility.
- Amtrak – Amtrak is a national passenger rail service connecting San Diego to San Luis Obispo. Amtrak is currently adding stops in the City of Carlsbad, and they will be updating their service to include these stops once completed.
- Metrolink – Metrolink is a commuter rail service serving Los Angeles, Orange, Riverside, and San Bernardino counties. The Orange County line connects to the COASTER line in Oceanside.

This Mobility Element also recognizes the unique opportunity the city has with its two COASTER stations and Amtrak stations. The city has the ability to service regional commuting in the area via transit without requiring the use of an automobile on north-south corridors in the city. In addition to the special treatment of streets and connectivity in and around the transit stations, this Mobility Element also seeks to connect people with businesses and other destinations by improving the quality of bus service through coordination with NCTD, evaluating transit quality along transit prioritized streets, encouraging the provision of shuttle services, and in other new innovative ways.

Although the basic regional transit backbone infrastructure has been implemented within the city (discussed above), one of the biggest deterrents to transit use is the "first mile/last mile" portion of the transit trip, which refers to the method and ability for transit users to actually connect to their ultimate destination once they get off of the primary transit mode. This concept is also referred to as "door-to-door" transit service, which addresses transit in a more comprehensive manner than "stop-to-stop." This Mobility Element further promotes the improvement of the "first mile/last mile"/"door-to-door" transit service through development incentives that incorporate and encourage shuttles and other connectivity to and from the transit infrastructure system.

Goods Movement

The movement of goods in Carlsbad typically occurs on the rail line, freeway and via designated truck routes within the city. This connectivity assures that goods can be moved safely and efficiently in the city. Many of Carlsbad's businesses and residents rely on goods movement whether for deliveries or importing/exporting product.

Carlsbad Municipal Code Section 10.32.091 enumerates the designated and established truck routes in Carlsbad. The designated truck routes provide access from Interstate-5 and State Route 78 to commercial areas, the Village, business park areas, McClellan Palomar Airport, and points beyond the city limits. Carlsbad streets that are designated truck routes are designed to accommodate large vehicles; however, vehicles may not be the prioritized travel mode on the street (see Section 3.3 for more information on livable streets and prioritized travel modes).

McClellan Palomar Airport

The Federal Aviation Administration classifies the airport as a commercial service airport that mainly serves smaller aircraft with a maximum takeoff weight of 12,000 pounds or less. However, some aircraft larger than 12,500 pounds, but less than 60,000 pounds, do operate at the airport. McClellan-Palomar Airport is the only airport with an instrument landing system between Lindbergh Field and Santa Ana that can accommodate the majority of the business aircraft fleet of over 12,500 pounds. Currently, the airport provides limited commercial passenger service to Los Angeles.

Medevac and transient helicopters also operate at the heliport/helipad located east of the runway. Because of the potential significant adverse impacts that could occur if the airport increased its aircraft and/or ancillary services, the Carlsbad Municipal Code prohibits the City Council from approving any legislative act (such as a zone change or general plan amendment) authorizing the expansion of McClellan-Palomar Airport without voter approval.

3.3 Livable Streets Vision and Strategies

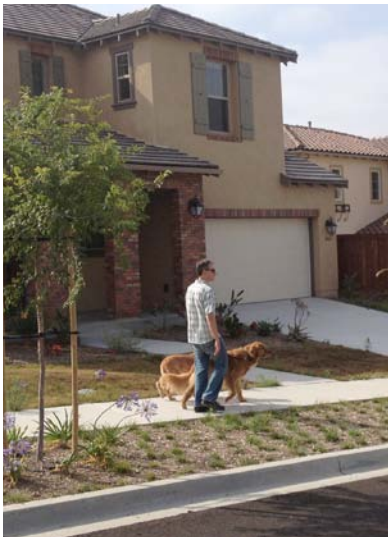
Livable Streets

A livable streets vision is more than implementation of a state-mandated approach during a general plan update process. It is a fundamental shift in how the city will plan and design the street system – recognizing the street as a public space and ensuring that the public space serves all users of the system (elderly, children, bicycles, pedestrians, etc.) within the urban context of that system (e.g. accounting for the adjacent land uses).

The Mobility Element is consistent with and further enhances the state and federal requirements for complete streets by implementing a "livable streets" strategy. Livable streets recognize that each street within the city is unique given its geographic setting, adjacent land uses, and the desired use of that facility. As such, this element identifies a street typology appropriate for the uniqueness of the street and surrounding land uses and identifies which modes of travel (pedestrian, bicycle, vehicles, etc.) should be prioritized on that street.

The following are notable examples of how Carlsbad streets have been, or are planned to be, developed or retrofitted to better accommodate all users of the street system and interface appropriately with adjacent land uses:

- Streets within Bressi Ranch, the Village area, Robertson Ranch, and the Pine Park area;
- The "road diet" along La Costa Avenue to improve safety. A road diet is a process whereby streets are modified from (traditionally) a four-lane facility with no turn lanes or bicycle lanes to a two-lane facility with a two-way left-turn lane and bicycle facilities;
- Installation of the Kelly Drive crosswalk and pedestrian median island at Kelly Elementary School;
- Pedestrian median improvements and rectangular rapid flashing beacons along Carlsbad Boulevard;
- Enhancing, buffering and widening bike lanes during routine street maintenance;
- Planned repurposing of Carlsbad Boulevard across Buena Vista Lagoon – reduce number of vehicle lanes with enhanced pedestrian and bicycle facilities (trail, bike lanes, sidewalk);
- Planned roundabout at the Carlsbad Boulevard and State Street intersection; and
- Planned green lanes on State Street along with sharrows connecting to the Coastal Rail Trail Reach 2 through the Village. Green lanes are travel lanes that are painted green and marked to enhance driver awareness that bicycles share the lane with motorists, and sharrows are special pavement stencils denoting that bicycles may use the lane with motorists.
- Planned traffic calming improvements, such as traffic circles, roundabouts, and median islands, in the Barrio and Village areas.



The City of Carlsbad Livable Streets Assessment (February 2013) is a document that benchmarks the city's position on implementing livable streets. It documents best practices of other jurisdictions and recommends actions the city can take to continue to implement livable streets concepts. The Carlsbad Active Transportation Strategies study will serve as the livable streets implementation plan for the city.

While many transportation projects have historically been vehicle capacity enhancing and traffic control focused, this Mobility Element supports a new paradigm to evaluate each project and explore all potential solutions to enhance the mobility for all users of the street. Many of these projects will involve repurposing existing right-of-way rather than acquiring and constructing new right-of-way.

The city's approach to provide livable streets recognizes that optimum service levels cannot be provided for all travel modes on all streets within the city. This is due to competing interests that arise when different travel modes mix. For example, pedestrian friendly streets typically have slow vehicle travel speeds, short-distance pedestrian crossings, and include some type of buffer between the vehicle travel way and the pedestrian walkway. However, automobile friendly streets typically have wide travel lanes, multiple turn lanes (increasing the pedestrian crossing distance), and high automobile speeds. Therefore, this Mobility Element identifies a mode-prioritization approach to ensure livable streets. This approach identifies preferred travel modes for each street typology and identifies that preferred modes should be prioritized. Non-preferred travel modes are accommodated along the street, but their service is not prioritized (i.e., a lower service level for non-prioritized modes is acceptable to ensure that the service level for prioritized modes is enhanced).

Table 3-1 describes the city's livable street typologies. Figure 3-1 depicts the city's livable street system.

TABLE 3–1: CARLSBAD LIVABLE STREETS GUIDE

STREET TYPOLOGY AND MODE PREFERENCE		
PRIORITIZED MODES	NON-PRIORITIZED MODES	STREET TYPOLOGY DESCRIPTION AND PREFERRED ATTRIBUTES
Freeways		
		• High-speed facilities designed to accommodate vehicles and buses moving through the city and region • Bicycles and pedestrians are prohibited
Arterial Streets		
		• Vehicular and bus efficiency shall be prioritized and managed; pedestrians and bikes are provided for, but not prioritized. • Traffic signals shall be coordinated to prioritize vehicle movements • Bicycle lanes shall be provided and can be further enhanced or complemented by other facilities or off-street pathways • Pedestrian facilities to be provided consistent with ADA requirements • Mid-block crossings should not be provided • Parking should be prohibited along these corridors • Vertical traffic calming techniques (such as speed tables, humps, etc.) should not be considered • Special considerations can be considered on arterials within proximity to schools to enhance Safe Routes to Schools for pedestrians and bicyclists.
Identity Streets		
		• Pedestrians and bicycles are prioritized; buses and vehicles are provided for, but not prioritized • No pedestrian shall cross more than five vehicular travel and/or turn lanes • In addition to ADA compliant ramps and sidewalks, sidewalks should support the adjacent land uses as follows: – Adjacent to retail uses, modified/new sidewalks should be a minimum of 10 feet (12 feet preferred) in width and allow for the land use to utilize the sidewalk with outdoor seating and other activities – Adjacent to residential uses, modified/new sidewalks should be a minimum of six feet in width Elsewhere, modified/new sidewalks should be a minimum of eight feet in width • Where feasible, bicycle lanes should be provided • Vehicle speeds should complement the adjacent land uses; typically 25 MPH or less • Bicycle parking should be provided in retail areas • Bike racks should be readily provided within the public right-of-way and encouraged on private property • Traffic calming devices, such as curb extensions (bulbouts) or enhanced pedestrian crossings should be implemented • Street furniture shall be oriented toward the businesses • Mid-block pedestrian crossings could be provided at appropriate locations (e.g. where sight distance is adequate and speeds are appropriate) • On-street vehicle parking should be provided. In areas with high parking demand, innovative parking management techniques should be implemented / considered • Pedestrians should be "buffered" from vehicle traffic using landscaping or parked vehicles

TABLE 3–1: CARLSBAD LIVABLE STREETS GUIDE

STREET TYPOLOGY AND MODE PREFERENCE		
PRIORITIZED MODES	NON-PRIORITIZED MODES	STREET TYPOLOGY DESCRIPTION AND PREFERRED ATTRIBUTES
Village Streets		
		• Pedestrians and bicycles are prioritized; vehicles and buses are provided for, but not prioritized • Primary purpose is to connect people and different areas and land uses of the city to each other directly or by connecting to/from arterial streets • Bicycle lanes should be provided • Bicycle boulevards can be considered • Pedestrians should be accommodated on sidewalks adjacent to the travel way (minimum 5' wide sidewalk) • Mid-block pedestrian crossings and traffic calming devices should be considered, but only at locations with high pedestrian activity levels or major destinations/attractions • Parking may be provided
Connector Streets		
		• Pedestrians, and bicycles are prioritized; vehicles and buses are provided for, but not prioritized • Primary purpose is to connect people and different areas and land uses of the city to each other directly or by connecting to/from arterial streets • Bicycle lanes should be provided • Bicycle boulevards can be considered • Pedestrians should be accommodated on sidewalks adjacent to the travel way (minimum 5' wide sidewalk) • Mid-block pedestrian crossings and traffic calming devices should be considered, but only at locations with high pedestrian activity levels or major destinations/attractions • Parking may be provided
Coastal Street		
		• Pedestrians and bicycles are prioritized; vehicles and buses are provided for, but not prioritized • Vehicle speeds shall be managed to support uses along the coast (typically 25-35 MPH) • Enhanced bicycle and pedestrian crossings should be provided, including: – High visibility crosswalks – Enhanced pedestrian notifications (e.g. responsive push-button devices) – Enhanced bicycle detection – Bicycle lanes shall be provided and can be further enhanced or complemented by other facilities (such as bicycle lane buffers or off-street pathways) • Pedestrian facilities should be a minimum of five feet and shall strive for six to eight feet in width and shall conform to ADA requirements • Pedestrian crossing distances should be minimized • Trail facilities should be encouraged • Opportunities for mid-block pedestrian crossings should be investigated • Parking should be provided

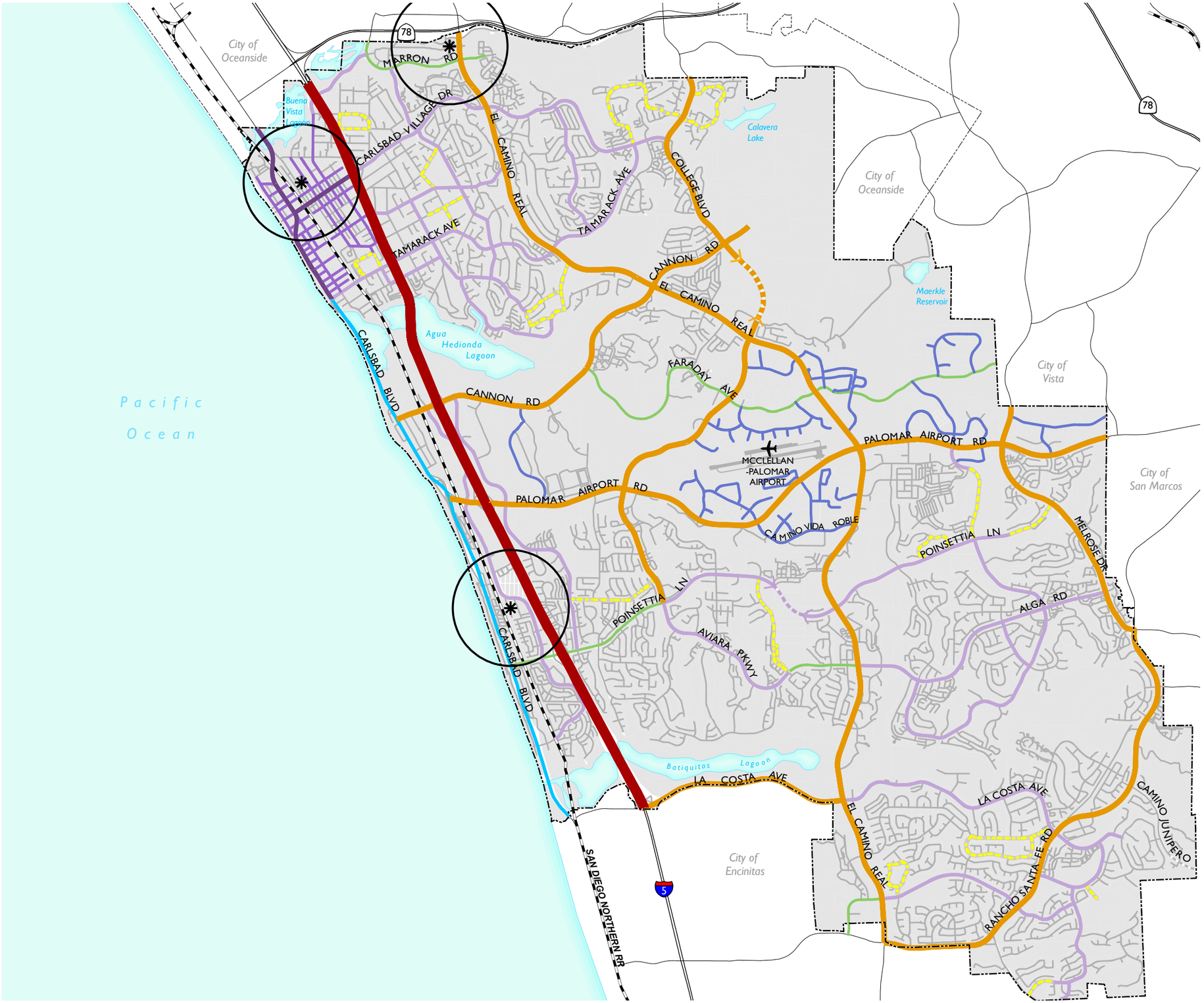
TABLE 3–1: CARLSBAD LIVABLE STREETS GUIDE

STREET TYPOLOGY AND MODE PREFERENCE		
PRIORITIZED MODES	NON-PRIORITIZED MODES	STREET TYPOLOGY DESCRIPTION AND PREFERRED ATTRIBUTES
School Streets		
		• Pedestrians and bicycles are prioritized; vehicles and buses are provided for, but not prioritized • Vehicle speeds shall be managed to support school uses (typically 25 MPH) • Enhanced bicycle and pedestrian crossings should be provided, including: – High visibility crosswalks – Enhanced pedestrian notifications (e.g. responsive push-button devices) – Enhanced bicycle detection – Bicycle lanes shall be provided and can be further enhanced or complemented by other facilities or off-street pathways • Pedestrian facilities should be a minimum of six feet and shall strive for eight feet in width and shall conform to ADA requirements • Pedestrian crossing distances should be minimized • Opportunities for mid-block pedestrian crossings should be investigated • Traffic calming devices that improve service levels for prioritized modes should be considered
Employment Oriented Street		
 		• Bicycles, pedestrians, and buses are prioritized; vehicles are provided for but not prioritized • Direct connections to bus stops should be provided • Enhanced bus stops should be considered that include shelters, benches, and lighting • Bicycle lanes and sidewalks should be provided • Pedestrian crossing distances should be minimized • Parallel on-street parking may be provided
Industrial Street		
		• Vehicles and buses are prioritized; pedestrians and bicycles are provided for, but not prioritized • Serves industrial areas of the city • Traffic calming devices are generally discouraged given the propensity for heavy vehicles in this area • Parking should be provided as long as it does not interfere with the turning radii of heavy vehicles
Local/Neighborhood Street		
		• Pedestrians and bicycles are prioritized; vehicles and buses are provided for, but not prioritized • Pedestrians should be accommodated on a sidewalk or soft surface trail (such as decomposed granite) unless those facilities are inconsistent with the existing desirable neighborhood character • Bicycles can be accommodated with a bicycle lane or route if vehicle volumes and/or speeds necessitate; otherwise bicycles can share the street • Bicycle boulevards can be considered • Traffic calming measures should be considered when supported by the neighborhood or when warranted for safety reasons • On-street parking should be considered

TABLE 3–1: CARLSBAD LIVABLE STREETS GUIDE

STREET TYPOLOGY AND MODE PREFERENCE		
PRIORITIZED MODES	NON-PRIORITIZED MODES	STREET TYPOLOGY DESCRIPTION AND PREFERRED ATTRIBUTES
Bicycle/Pedestrian Pathway		
		• For bicycles and pedestrians only – no vehicular access is permitted • Serves commuters and recreational users
Streets within ½ Mile of a Transit Center		
		• Pedestrians, bicycles and buses are prioritized; vehicles are provided for, but not prioritized • Provides access to the Breeze/COASTER system via enhanced bicycle/pedestrian connectivity or via shuttle service from the stations to the ultimate destination • Could include enhanced transit systems, such as signal priority for transit, dedicated ROW for transit, or queue bypass lanes. • Mid-block pedestrian crossings and traffic calming devices should be considered in these areas • Parking should be provided and managed using innovative parking techniques

Figure 3-1: Street System



- Freeway
- Arterial Streets
- Identity Streets
- Village Streets
- Connector Streets
- Coastal Street
- School Streets
- Employment Oriented Street
- Industrial Street
- Local/Neighborhood Street
- Planned Arterial Streets
- Planned Connector Streets
- Planned Local/Neighborhood Street
- Highways
- Railroad
- Transit Centers
- 1/2 Mile Radius
- City Limits

500 ACRES

100 ACRES

0 0.5 1 2

Miles

Source: City of Carlsbad, 2013; SANDAG, 2013; Fehr & Peers, 2013; Dyett & Bhatia, 2013.

Multi-Modal Levels of Service

Traditionally, transportation systems have been designed to achieve a level of service from the perspective of the driver, not pedestrians or bicyclists. However, cities throughout the country are now designing their transportation systems to achieve levels of service for all travel modes. Some cities, such as Fort Collins, CO, San Francisco, CA, Gainesville, FL, Charlotte, NC, and others, have been doing this for more than a decade; and in 2010, national guidelines were developed by the Transportation Research Board to encourage other cities to establish levels of service for all travel modes.

The California Complete Streets Act (2008) requires cities in California to plan for a balanced, multi-modal transportation system that meets the needs of all travel modes. This Mobility Element establishes a multi-modal level of service (MMLOS) methodology for Carlsbad that evaluates the service levels for pedestrians, bicyclists and transit users. The vehicle level of service is determined by the Highway Capacity Manual.

The city's MMLOS methodology will provide a qualitative "grade" assigned to prioritized travel modes, ranging from a level of service (LOS) A to LOS F. LOS A reflects a high service standard for a travel mode (e.g. outstanding characteristics and experience for that mode) and LOS F would reflect a poor service standard for a travel mode (e.g. congestion for vehicles, no bicycle, pedestrian, or transit facilities, etc.). Thresholds are identified to balance supply and demand to create a sustainable system of public right-of-way, keeping in mind on-going maintenance of the infrastructure and implementation of livable streets. The level of service of the various travel modes are evaluated according to the following factors:

- **Vehicular Level of Service**. Level of service will be determined by the most recent version of the Highway Capacity Manual. This methodology evaluates vehicles based on their freedom to maneuver and overall delay experienced at intersections.
- **Pedestrian Level of Service.** Level of service to be evaluated using the Carlsbad MMLOS method. This method evaluates the *quality* of the pedestrian system (e.g. number of vehicle lanes that need to be crossed and the speed of adjacent traffic) and the *friendliness* of the infrastructure at intersections (e.g. pedestrian countdown heads, dedicated pedestrian phases (e.g. a scramble phase), curb extensions, refuge median).
- **Bicycle Levels of Service**. Level of service to be evaluated using the Carlsbad MMLOS method. This method evaluates the *quality* of the bicycle system (e.g. bicycle route, bicycle lanes, or bicycle pathway; presence of bicycle buffers from the vehicle travel way), the *amenities* of the system (e.g. presence of bicycle parking), and the *friendliness* of the infrastructure (e.g. bicycle detection at intersections, pavement conditions, presence of vehicle parking).

- **Transit Levels of Service.** Level of service to be evaluated using the Carlsbad MMLOS method. This method evaluates the *transit vehicle right-of-way* (e.g. dedicated or shared, signal priority), *hours and frequency of service* (e.g. weekday/weekend hours, peak period headway); *performance* (e.g. on-time or late); *amenities and safety* (e.g. lighting, covered stop, bench, on-board bike/surfboard storage); and *connectivity* (e.g. to other transit routes, employment areas, schools, visitor attractions, and other major destinations).

Future Operations and Street Improvements

Most of the envisioned Carlsbad street system is built out. The remaining planned street improvements are summarized in Table 3-2; these facilities serve the needs of land uses identified in the Land Use and Community Design Element. The planned streets are identified on the Street Network map, Figure 3-1.

In addition to the new street connectivity and capacity expansion described in Table 3-2, the city is also implementing a citywide traffic signal system upgrade effort. This effort includes retiming of traffic signals, upgrading the controller and detection technology, and integration of the traffic control system to a single point traffic management center. This enables the city to monitor, manage, and adjust traffic signal timing along major corridors to improve mobility and manage vehicle flow within the city. Improved traffic signal timing also enhances the safety for drivers, improves air quality by reducing emissions and brake dust, and improves commute times.

TABLE 3–2: PLANNED CITY OF CARLSBAD STREET CAPACITY IMPROVEMENTS

IMPROVEMENT NAME	IMPROVEMENT DESCRIPTION
College Boulevard	Complete improvements between Cannon Road and El Camino Real to arterial street typology standards
Poinsettia Lane	Complete improvements between Cassia Road and El Camino Real to connector street typology standards
Camino Junipero Extension	Extend to the eastern city limit as a local street
Interstate-5 North Coast Project	Includes the widening of Interstate-5 to include high-occupancy vehicle (HOV) (carpool) managed lanes and auxiliary lanes connecting adjacent interchange off-ramps and on-ramps as needed
Interstate-5/State Route-78 Interchange Improvement	While in preliminary design, identifying transportation options will relieve congestion on the freeway as it is a bottleneck that impacts adjacent interchanges, regional streets, and the movement of goods and people. This interchange is not located within the City of Carlsbad but is part of the Caltrans Public Works Plan for the Interstate-5 North Coast Project.

Future Traffic Operations

With build-out of the Land Use and Community Design Element, the completed street network presented in Table 3-1 and on Figure 3-1 will have capacity constraints on arterial streets and on freeways within and adjacent to the city. The analysis of the Land Use and Community Design Element indicated that the following auto-prioritized facilities will operate at LOS E or LOS F in the city at build-out:

- Interstate-5
- State Route-78
- La Costa Avenue between Interstate-5 and El Camino Real
- El Camino Real between Palomar Airport Road and La Costa Avenue
- Palomar Airport Road between Interstate-5 and College Boulevard
- Palomar Airport Road between El Camino Real and Melrose Drive

These facilities would generally be congested during peak periods; however, during most hours of the day, the facility would have sufficient capacity to serve the vehicle demand. The city does not have regulatory authority over Interstate-5 or State Route-78 and has no control over managing traffic on those facilities. When these freeways are beyond capacity, some motorists will use City of Carlsbad arterials rather than the freeways to bypass congestion. Adjacent communities outside of Carlsbad also utilize Carlsbad's regional infrastructure to bypass congestion on freeways.

The four Carlsbad arterial streets listed above would need to be widened beyond their six-lane cross-section to operate at the city's standard for vehicle level of service on those facilities (LOS D or better); however, creating streets wider than six lanes is inconsistent with the goals of this Mobility Element. In addition, widening these streets beyond six lanes creates new challenges for intersection operations, maintenance, and storm water management. Therefore, rather than widening these arterial streets, the city shall implement transportation demand management (e.g. promote travel by modes other than the single-occupant vehicle), transportation system management (e.g. signal timing coordination and improved transit service) and livable streets techniques to better manage the transportation system as a whole.

Bicycling, Walking, and Transit

A balanced transportation system in Carlsbad will provide adequate facilities for people to bicycle, walk, or take transit to their destinations. To achieve this balanced transportation system, bicycle, pedestrian and transit modes have been prioritized on a variety of street typologies, as shown in Table 3-1.

In addition to the streets that have been prioritized for bicycling, walking and transit, the city has a series of off-street trails and pathways that also serve the mobility needs of bicyclist and pedestrians (these facilities are described in more detail in the Open Space, Conservation and Recreation Element). Additionally, transit is provided on dedicated right-of-way within the city, consisting of the COASTER commuter rail line. This Mobility Element integrates and prioritizes modes that complement utilization of transit facilities near the COASTER stations.

Bicycle Facility Classification System

Caltrans has defined three bikeway facility types in Chapter 1000 of the Highway Design Manual. These facility types are described below as well as in the City of Carlsbad Bicycle Master Plan.

Class I Bikeway (bike path) – provides a separated corridor that is not served by streets and highways and is away from the influence of parallel streets. Class I bikeways are for non-vehicle use only with opportunities for direct access and recreational benefits, right-of-way for the exclusive use of bicycles and pedestrians, and cross flow conflicts are minimized.

Class II Bikeway (bike lane) – provides a delineated right-of-way assigned to bicyclists to enable more predictable movements, accommodating bicyclists through corridors where insufficient room exists for side-by-side sharing of existing streets by motorists and bicyclists.

Class III Bikeway (bike route) – shared facility that serves either continuity to other bicycle facilities or designates preferred routes through high demand corridors.

In addition to the three facility types described above, a number of local streets help complete the bicycle network. These streets typically do not have a bikeway designation; however, the entire street systems may be fully adequate for safe and efficient bicycle travel, where signing and pavement marking for bicycle use may be unnecessary. These are most commonly found along local streets where vehicle speeds are relatively low, which enables bicycle travel to be accommodated with vehicle travel.

Proposed Bikeway System

As of 2010, there was an estimated 98 miles of bicycle facilities in Carlsbad. Of these facilities, approximately 92 miles were Class II bicycle lanes located throughout the city on streets such as Carlsbad Boulevard, Carlsbad Village Drive, Tamarack Avenue, Chestnut Avenue, El Camino Real, Palomar Airport Road, Rancho Santa Fe Road, Melrose Drive, College Boulevard, Cannon Road, and La Costa Avenue. These on-street bikeways provide direct routes for experienced cyclists comfortable with riding on relatively high vehicle volume and speed streets. New cyclists may be encouraged to use these on-street bikeways by designing the bikeways to increase the comfort of less experienced riders, narrowing travel lanes to reduce vehicle travel speeds, implementing traffic calming roundabouts and road diets, and by promoting land use patterns that decrease distances between destinations. In addition to incorporating additional routes into the bikeway network, clear directional/way-finding signage and secure bicycle parking at schools, shopping centers, beaches, employment centers and transit stops will encourage more people to ride bicycles and enhance the level of comfort for all.

While the majority of the Mobility Element streets within the city currently include a bicycle facility of some type within the right-of-way, there are several gaps at critical locations. In particular, bicycle lanes are discontinuous along Palomar Airport Road, just east of Carlsbad Boulevard, and within many of the Interstate-5 interchanges and crossings. These gaps and other barriers, such as the railroad and freeway, greatly diminish connectivity to the coastline for cyclists. Caltrans' Interstate-5 North Coast Corridor Public Works Plan – a proposed 40-year program to create a multi-modal system of rail, highway, transit, bicycle and pedestrian improvements that span from La Jolla to Oceanside – proposes additional trail connections across lagoons and along the freeway, and to enhance all interchanges and crossings to better integrate and accommodate bicyclists and pedestrians.

The Carlsbad Bicycle Master Plan identifies the location of bikeways and recommends the enhancement of the existing bicycle network with the implementation of approximately 6.5 miles of new Class I bike paths, 2.8 miles of new Class II bike lanes, and 4.2 miles of new Class III bike routes. The planned bikeways include the Coastal Rail Trail, a Class I bike path on Carlsbad Boulevard at Ponto, two Class II bike lanes – one on Hillside Drive and another on Avenida Encinas, and five Class III bike route projects in the northwest quadrant of the city.

In addition to the planned bikeways and bicycle facilities, the Carlsbad Bicycle Master Plan outlines new educational and promotional programs aimed at bicyclists and motorists. These programs include bicycle parking improvements, multi-modal (transit) support facilities, bicycle safety and education programs for cyclists and motorists, safe routes to schools programs, community and

employer outreach programs, continued development of bikeway network maps, and bike-to-work and school day events, among others.

The Carlsbad Bicycle Master Plan is a comprehensive document that provides detailed information on the city's bicycle network and a bicycle network map depicting existing and planned bikeways and facilities.

Pedestrian Facilities

Pedestrian facilities (i.e., sidewalks, crosswalks, trails) are a key component of a multi-modal transportation system, which should enable people of all age groups and abilities to safely walk to their destinations. Pedestrian facilities connect various land uses, like neighborhoods, schools, shopping, employment, transit stations, community services, and recreation. Areas that are particularly attractive to pedestrians include the coastline, lagoon areas and the Carlsbad Village, which offers a pedestrian friendly environment and concentration of shopping, dining and entertainment uses. In general, pedestrian-attracting land uses are fairly evenly distributed across the city.

Proposed Pedestrian System

Carlsbad has adopted several programs and plans related to improving the walking environment. The city's Pedestrian Master Plan identifies the location of pedestrian facilities and guides the future development and enhancement of pedestrian facilities to ensure that walking becomes an integral mode of transportation in Carlsbad. The Carlsbad Residential Traffic Management Program provides a mechanism for community members to report issues relating to speeding and traffic volumes on residential streets, which assists the city in "calming" traffic in these areas to make them more comfortable for pedestrians.

Physical barriers to pedestrian access include gaps in sidewalks, topography, lagoons, high-volume high-speed streets, incomplete or missing road segments, and regional infrastructure such as freeways and railways. There are four significant concentrations of high pedestrian needs across the city, including the following locations:

- The entire northwest quadrant, especially the Carlsbad Village area, Barrio area and along the coast
- The entire coastal area along Carlsbad Boulevard
- Several locations along El Camino Real, near Camino Vida Roble, Aviara Parkway/Alga Road and La Costa Avenue
- The southeastern portion of the city, stemming from the intersection of La Costa Avenue and Rancho Santa Fe Road

A range of potential improvement projects exist to enhance pedestrian mobility, local connectivity, usage, safety and accessibility. These improvements include

missing sidewalk connectivity, upgrading substandard sidewalks, new connections to pedestrian attracting designations (such as access across the railroad track to the beach at Chestnut Avenue, for example), safe routes to school, enhanced crosswalks, pedestrian countdown signals, improved signage and markings and provision of ADA improvements.

Proposed Transit System

Future transit service in the city will primarily be coordinated by NCTD. However, there are several transit improvements, which are part of San Diego Association of Governments (SANDAG) regional planning efforts, which are reflected in this Mobility Element:

- Coastal rail improvements are proposed for the tracks serving the COASTER and Surfliner trains in San Diego County along the Los Angeles to San Diego rail corridor. These proposed improvements include double tracking, bridge replacements, grade separated pedestrian crossings, safety improvements for at-grade crossings, and station improvements. Improvements to the COASTER service (2020 and 2030) are also proposed and would increase service and reduce headways.
- Route 471 (2020) is a proposed rapid bus providing frequent service between Carlsbad and San Marcos via Palomar Airport Road. This route will operate with 10 minute headways during peak and off-peak hours. In the city, this rapid bus route is envisioned to be accommodated through signal priority at intersections.

The future transit improvements described above will continue to advance transit service in the city. However, one key component to improving transit use is improving the "first mile/last mile" experience for transit users. This typically includes end of trip facilities (bike lockers and racks, showers, changing rooms, etc.) and better connectivity from the transit stop to the ultimate destination via bicycle facilities, pedestrian facilities, local transit circulators, shuttles, etc.

Carlsbad's future transit effectiveness will be dependent on major employers assisting with providing some of these "first mile/last mile" facilities through transportation demand management (TDM) measures. TDM is envisioned to include shuttle circulators from transit stations to major employers and destinations, showers and changing rooms at those locations, and a host of other typical TDM techniques that would support transit usage and the connection to the ultimate destination. This Mobility Element also supports TDM through potential incentives (such as reduced parking standards for TDM implementation) to further support transit access to these destinations.

The final component to improving transit use in the city is working with NCTD to improve the transit experience; particularly along the bus routes. This includes improving bus stops in the city to ensure that they are well lit, have seating, and are covered to protect users from weather.

Connectivity to Support Mobility

Connectivity in the city is critical to achieving the Carlsbad Community Vision. As previously described, there are a number of street improvements that are planned that will complete connections within the city. This Mobility Element also recommends additional connectivity for bicycles and pedestrians, as noted below:

- **Cannon Road connection.** Provide a bicycle/pedestrian facility that would begin at the current eastern terminus of Cannon Road and continue eastward to the city's eastern boundary.
- **Marron Road connection.** Provide a bicycle/pedestrian facility that would begin at the current eastern terminus of Marron Road and extend eastward to the city's eastern boundary.
- **Additional crossings of Interstate-5 and the railroad.** Continue to look for opportunities to add crossings of these two barriers and improve east-west connectivity to and from the coast. Key connections will include a crossing at Chestnut Avenue (bicycle, pedestrian, and vehicular) under the freeway and (bicycle and pedestrian) across the railroad, and a Chinquapin Avenue connection (bicycle, pedestrian, and vehicular) over the freeway and (bicycle and pedestrian) across the railroad. Additionally, Caltrans is designing a number of new pedestrian and bicyclist connections along and across Interstate-5 and near the lagoons as part of the Interstate-5 North Coast Corridor Public Works Plan. The city will continue to coordinate with Caltrans on these improvements.
- Improved accessibility to the lagoons and to the coast are envisioned to improve connectivity to those areas.

Parking

Parking is critical to ensuring the success of any area. Inadequate parking means that businesses and residents suffer. Too much parking underutilizes valuable land; promotes lower density development; discourages using other forms of transportation (such as public transit); spreads out land uses; and creates gaps in store fronts, thereby requiring the use of the automobile. Additionally, too much parking also requires more driveways for accessibility, introducing conflicts between pedestrians and vehicles. Restrictive parking requirements impact the ability to rejuvenate/repurpose older buildings and revitalize activity centers that can be better served and connected by enhancing facilities and amenities for bicyclists and pedestrians. Therefore, it is important to "right size" and manage parking such that there is enough to support the needs generated by the use, but not so much that it wastes land and impairs other ways of getting around.

The city's Zoning Ordinance and adopted master and specific plans provide standards for parking facilities based on development types within the city. To promote "right sizing" of parking facilities, the city will develop flexible parking requirements that may include the following techniques:

- **Shared parking.** Continue to allow uses that have different parking demands at different times of the day to share the same parking facilities. This is an effective way to minimize pavement, allow denser land use, provide for more landscaping, and provide improved walkability within a mixed use area. The best example of shared parking is an office building and an apartment building as office's peak parking demand occurs at 10:00 a.m. and apartment's peak parking demand occurs at 11:00 p.m.
- **Collective parking.** Allow uses in mixed use projects/areas to reduce the standard parking rate to account for shared mixed use on-site parking.
- **Unbundled parking.** Rather than provide free guaranteed parking, "unbundle" the parking from the development and require residents and/or employees to pay for use of a parking space.
- **Park once.** A strategy in destination districts to enable visitors to "park once" and visit a series of destinations. Park once strategies work well in areas like the Village and areas that are well connected by pedestrian and bicycle facilities. The creation of centralized parking areas supports this strategy.
- **In-lieu parking fees.** Continue strategies in appropriate areas that allow developers to contribute fees toward the development of a common parking facility in lieu of providing on-site parking. This works best in concentrated commercial areas, and assists in paying for unified structured parking and provides developers an opportunity to increase density on their parcels.
- **Parking management strategies.** A business district or businesses manage high demand parking locations and destinations through a number of different strategies including demand pricing, time restrictions, valet parking, and other techniques.
- **Public-private partnerships.** The city, business owners, and developers collaborate to provide both private and public parking opportunities. Instances where this works well include parcels owned by the city, where a private entity develops, manages, and enforces parking in these public lots.
- **Parking locater signs**. Electronic monitoring devices that identify the available parking in a given facility and utilize changeable message signs to assist travelers in identifying available parking locations. This may require modifications to the city's Zoning Ordinance to be implemented in some areas of the city.

- **Parking way-finding signs.** Signs identifying where public parking is available, which supports the "park once" concept.
- **Reduced parking standards.** Reduce parking standards in areas that are well served by transit, provide shuttle accessibility to the COASTER station, provide parking cash out programs (employers pay employees to not drive a single occupancy vehicle to work), or provide other programs that will reduce parking demand.
- **Biking equals business program.** Businesses provide bicycle parking or corrals and provide incentives to encourage their patrons and employees to ride rather than drive.
- **Transit equals business program.** Businesses provide their customers and employees incentives to encourage them to use transit rather than drive.
- **Bicycle corrals in-lieu of vehicle parking.** For certain businesses, reduce required onsite parking for vehicles if they provide a bicycle corral that accommodates more people.

Although there are additional parking strategies that are available and may become available in the future, most of the strategies work best in smart growth/mixed use development areas and will be necessary to accomplish the goals and visions identified in the General Plan and this Mobility Element.

Transportation Demand Management and Traffic Signal Management

This Mobility Element also supports and promotes TDM and traffic signal management (TSM) techniques.

TDM consists of programs and policies to reduce the demand for the single occupant automobile. Common techniques include carpool programs, flexible work hours, telecommute provisions, shuttle services to nearby transit stations, employee transit subsidies (e.g. employers will subsidize bus or rail tickets), installation of bicycle facilities (lockers, racks, lanes, showers at employment areas, etc.), or other measures that would reduce the demand to drive. TDM is critical for the city to build-out without expanding the transportation infrastructure beyond what is envisioned in this Mobility Element. Additionally, as previously described, TDM is a major component in improving the effectiveness of transit as it can assist in serving the "first mile/last mile" component of a transit trip.

The city has also implemented a state-of-the-practice TSM system. This system integrates traffic signals in the city to a single access point, allowing city staff to monitor and update signal timings to improve safety and mobility for all users in the city. This Mobility Element supports further implementation of this program and use of other technologies that become available, which have the ability to improve mobility for all users of the city's transportation system.

3.4 Goals and Policies

Goals

3-G.1 Keep Carlsbad moving with livable streets that provide a safe, balanced, cost-effective, multi-modal transportation system, accommodateing the mobility needs of all community members, including children, the elderly and the disabled.

3-G.2 Improve connectivity for residents, visitors and businesses.

3-G.3 Provide inviting streetscapes that encourage walking and promote livable streets.

3-G.4 Manage and "right size" parking to support all modes of transportation and ensure efficient use of land.

3-G.5 Implement transportation demand and traffic signal management techniques to improve mobility.

3-G.6 Protect and enhance the visual, environmental and historical characteristics of Carlsbad through sensitive planning and design of scenic transportation corridors.

3-G.7 Provide for the safe and efficient movement of goods throughout the city.

Implementing Policies

Street Typology and Multimodal Levels of Service

3-P.1 Implement a comprehensive livable streets network. This network, as outlined in Table 3-1 and shown on Figure 3-1, prioritizes transportation modes by street typology and accessibility to users of the system.

3-P.2 Integrate livable streets in all capital improvement projects, where applicable, as well as new development projects.

3-P.3 Apply and update the city's multi-modal level of service (MMLOS) methodology and guidelines that reflect the core values of the Carlsbad Community Vision related to transportation and connectivity. Utilize the MMLOS methodology to evaluate impacts of individual development projects and amendments to the General Plan on the city's transportation system.

3-P.4 Implement the city's MMLOS methodology by evaluating level of service (LOS) for prioritized modes. Maintain LOS D or better only for the prioritized modes of travel by street typology as outlined in Table 3-1 and Figure 3-1.

3-P.5 Require developers to construct or pay their fair share toward improvements for all travel modes consistent with this Mobility Element, the Growth Management Plan, and specific impacts associated with their development.

3-P.6 Utilize transportation demand management strategies, non-automotive enhancements (bicycle, pedestrian, transit, train, trails, and connectivity), and traffic signal management techniques as long-term transportation solutions and traffic mitigation measures to carry out the Carlsbad Community Vision.

3-P.7 Develop and maintain a list of LOS exempt intersections and streets approved by the City Council. For LOS exempt intersections and streets, the city will not implement motor vehicle capacity improvements to maintain the LOS standard outlined in Policy 3-P.4 if such improvements are beyond what is identified as appropriate at build out of the General Plan; however, other non-vehicle capacity-building improvements may be required to improve mobility, to the extent feasible, and/or to implement the livable streets goals and policies of this Mobility Element. To be considered LOS exempt, an intersection or street must be identified as built-out by the City Council because:

a. acquiring the rights of way is not feasible; or

b. the proposed improvements would significantly impact the environment in an unacceptable way and mitigation would not contribute to the nine core values of the Carlsbad Community Vision; or

c. the proposed improvements would result in unacceptable impacts to other community values or General Plan policies; or

d. the proposed improvements would require more than three through travel lanes in each direction.

3-P.8 Allow the following streets to be LOS exempt facilities from the LOS standard identified in Policy 3-P.4, subject to the requirements described in Policy 3-P.7:

- La Costa Avenue between Interstate-5 and El Camino Real
- El Camino Real between Palomar Airport Road and La Costa Avenue
- Palomar Airport Road between Interstate-5 and College Boulevard
- Palomar Airport Road between El Camino Real and Melrose Drive

3-P.9 Require new development that adds traffic to LOS-exempt locations (consistent with 3-P.7) to implement transportation demand management strategies that reduce the reliance on the automobile and assist in achieving the city's livable streets vision.

3-P.10 Update the Citywide Facilities and Improvements Plan to ensure consistency with the General Plan. This includes updating the circulation LOS standards methodologies to reflect a more balanced/multimodal approach.

Street Design and Connectivity

3-P.11 Evaluate implementing a road diet to three lanes or fewer for existing four-lane streets currently carrying or projected to carry 25,000 average daily traffic volumes or less in order to promote biking, walking, safer street crossings, and attractive streetscapes.

3-P.12 Design new streets, and explore funding opportunities for existing streets, to minimize traffic volumes and/or speed, as appropriate, within residential neighborhoods without compromising connectivity for emergency first responders, bicycles, and pedestrians consistent with the city's Carlsbad Active Transportation Strategies. This should be accomplished through management and implementation of livable streets strategies and such programs like the Carlsbad Residential Traffic Management Plan.

3-P.13 Consider innovative design and program solutions to improve the mobility, efficiency, connectivity, and safety of the transportation system. Innovative design solutions include, but are not limited to, traffic calming devices, roundabouts, traffic circles, curb extensions, separated bicycle infrastructure, pedestrian scramble intersections, high visibility pedestrian treatments and infrastructure, and traffic signal coordination. Innovative program solutions include, but are not limited to, webpages with travel demand and traffic signal management information, car and bike share programs, active transportation campaigns, and intergenerational programs around schools to enhance safe routes to schools. Other innovative solutions include bicycle friendly business districts, electric and solar power energy transportation systems, intelligent transportation systems, semi- or full autonomous vehicles, trams, and shuttles.

3-P.14 Encourage and seek partnerships to foster innovations in emerging technology for transportation mobility to support the city's workforce, residents, and tourists. Integration between communication technology, energy, and transportation mobility should be encouraged.

3-P.15 Encourage Caltrans, SANDAG, NCTD, and adjacent cities to improve regional connectivity and service consistent with regional planning efforts. This includes expansion of Interstate-5 with two HOV lanes in each direction and associated enhancements, a Bus Rapid Transit (BRT) route along Palomar Airport Road, shuttle bus services from COASTER stations, and other enhancements to improve services in the area.

3-P.16 Engage Caltrans, the Public Utilities Commission, transit agencies, the Coastal Commission, and railroad agency(s) regarding opportunities for improved connections within the city, including:

- Improved connections across the railroad tracks at Chestnut Avenue and other locations
- Completion and enhancements to the Coastal Rail Trail and/or equivalent trail along the coastline

- Improved connectivity along Carlsbad Boulevard for pedestrians and bicyclists, such as a trail
- Improved access to the beach and coastal recreational opportunities
- Improved crossings for pedestrians across and along Carlsbad Boulevard

3-P.17 Implement connections and improvements identified in this Mobility Element, including those identified in policy 3-P.15, as well as:

- Extension of College Boulevard from Cannon Road to El Camino Real
- Completion of the Poinsettia Lane connection near El Camino Real (Reach E)
- Extension of Camino Junipero to the eastern city boundary
- A bicycle/pedestrian trail/pathway connecting the eastern terminus of Marron Road to the east
- A bicycle/pedestrian trail/pathway connecting the eastern terminus of Cannon Road to the east, and coordination with adjacent agencies to appropriately link to their facilities

3-P.18 Support pedestrian and bicycle facilities at all Interstate-5 and State Route 78 interchanges.

3-P.19 Maintain the city's scenic transportation corridors as identified in the Carlsbad Scenic Corridor Guidelines.

Pedestrian and Bicycle Movement

3-P.20 Update the pedestrian, trails and bicycle master plans, as necessary, to reflect changes in needs, opportunities and priorities.

3-P.21 Implement the projects recommended in the pedestrian, trails and bicycle master plans through the city's capital improvement program, private development conditions and other appropriate mechanisms.

3-P.22 Identify and implement necessary pedestrian improvements on pedestrian-prioritized streets with special emphasis on providing safer access to schools, parks, community and recreation centers, shopping districts, and other appropriate facilities.

3-P.23 Implement the Safe Routes to School and Safe Routes to Transit programs that focus on pedestrian and bicycle safety improvements near local schools and transit stations. Prioritize schools with access from arterial streets for receiving Safe Routes to School projects.

3-P.24 Improve and enhance parking, connectivity, access, and utilization for pedestrians and bicycles to COASTER stations, utility corridors, and open spaces consistent with city planning documents.

3-P.25 Evaluate incorporating pedestrian and bicycle infrastructure within the city as part of any planning or engineering study, private

development, or capital project where bicyclists or pedestrians are a prioritized or non-prioritized mode.

3-P.26 Complete the Carlsbad Active Transportation Strategies to assist in identifying livable street implementation parameters within the city.

3-P.27 Engage the community in the policy setting and planning of street, bicycle, pedestrian, transit, and connectivity studies, plans and programs.

3-P.28 Require developers to improve pedestrian and bicycle connectivity consistent with the city's bicycle and pedestrian master plans and trails master planning efforts. In addition, new residential developments should demonstrate that a safe route to school and transit is provided to nearby schools and transit stations within a half mile walking distance.

3-P.29 Work with existing neighborhoods and businesses to improve pedestrian and bicycle connectivity and safety consistent with the city's pedestrian and bicycle master plans and trails master planning efforts.

3-P.30 Actively pursue grant programs such as SANDAG's Active Transportation Grant Program and Smart Growth Incentive Program to improve non-automotive connectivity throughout the city. The emphasis of grant-funded projects shall be on implementation, which includes planning documents that guide and prioritize implementation, programs that encourage the use of active transportation modes, education for the use of active transportation modes, or physical improvements themselves.

Transit

3-P.31 Partner with other agencies and/or developers to improve transit connectivity within Carlsbad. As part of a comprehensive transportation demand management (TDM) strategy and/or with transit oriented development (TOD), a shuttle system could be established that connects destinations and employment centers like LEGOLAND, hotels, the Village, McClellan-Palomar Airport, business parks, the COASTER and Breeze transit stations, and key destinations along the coast. The system could incorporate shuttle service in adjacent cities to maximize connectivity.

3-P.32 Encourage NCTD, SANDAG and other transit providers to provide accessibility for all modes of travel to the McClellan-Palomar Airport area.

3-P.33 Coordinate with NCTD to improve the quality of bus stop facilities in the city.

Parking and Demand Management

3-P.34 Develop flexible parking requirements to provide the "right amount" of on-site vehicle parking. Such requirements will include implementation of innovative parking techniques, implementing effective TDM programs to reduce parking demand, and consideration of other means to "right size" the parking supply.

3-P.35 Require new employment development to provide secure bicycle parking on-site. Major employers should provide shower and changing rooms for employees as appropriate.

3-P.36 Assist Village businesses to manage parking in the Village area to maximize parking efficiency. Any potential parking-related revenues generated in this area should be reinvested into the Village area for implementing livable streets and other parking, pedestrian, and bicycle enhancements, including way-finding signage and maintenance of associated infrastructure.

3-P.37 Consider supporting new development and existing businesses with various incentives (such as parking standards modifications) for implementing TDM programs that minimize the reliance on single-occupant automotive travel during peak commute hours.

Rail and Truck Movement

3-P.38 Identify and update truck routes within the city that provide sufficient turning radii and other design attributes to support large vehicles on those facilities.

3-P.39 Coordinate with other agencies and private entities to investigate methods of improving service, implementing a quiet zone, and enhancing connectivity and safety along the rail corridor.

Air Movement

3-P.40 Work with San Diego County and other agencies to ensure continued safe and efficient operation of the McClellan Palomar Airport, consistent with the Carlsbad Community Vision and existing city policy.