



III. Circulation



Introduction and Purpose

Huntington Beach is an active, lively community that recognizes its circulation system is something more than just roads and the cars that drive on them. The city's multimodal system includes bikeways, equestrian trails, sidewalks and jogging paths, and waterways. Public transit services transport people within the planning area and to more distant destinations, using regional services provided by the Orange County Transportation Authority (OCTA).

Ensuring that mobility options in Huntington Beach remain diverse and efficient is both a fundamental goal and a necessity as concerns about air quality, greenhouse gas emissions, and the accessibility of transportation options to all members of the community grow. The Circulation Element describes and directs how people, goods, and services move within and through Huntington Beach. Through goals and policies contained in this element, the City guides how the circulation system will be shaped to respond to the needs and desires of the community. These needs and desires include reducing and preventing traffic congestion, providing for safe active transportation, and planning for new transit opportunities. Huntington Beach is a dynamic city, and the Circulation Element provides the means for the circulation system to adapt to dynamic conditions.





Accomplishing these objectives requires effective land use planning, roadway monitoring and improvement, transportation system and demand management, regional coordination, and commitment of significant personnel resources. The policies and programs in this element emphasize a balanced, multimodal transportation system that responds to the demands of current and planned land uses identified in the Land Use Element.

Scope and Content

The Circulation Element is a mandatory component of the General Plan. Pursuant to California Government Code Section 65302(b), the City must address major thoroughfares, transportation routes and various means of travel, terminals, and other local public utilities and facilities, all correlated with the Land Use Element. Huntington Beach has chosen to address utilities within the Public Services and Infrastructure Element.

In addition, Assembly Bill (AB) 1358, the Complete Streets Act of 2008, requires that cities and counties identify how they will provide for the routine accommodation of all users of roadways, including motorists, pedestrians, bicyclists, individuals with disabilities, seniors, and users of public transportation. Planning and building Complete Streets is one way cities and counties can meet this requirement. A complete street is a transportation facility that is planned, designed, operated, and maintained to enable access for all roadway users.

The Circulation Element consists of this *Introduction and Purpose* identifying the intent of the element, how it relates to other documents, and metrics commonly used to measure traffic flow; a *Circulation Plan* designating locations and standards for roadways and non-motorized circulation facilities, and stating the community's desired level of transportation service; and *Issues, Goals, and Policies*, which provide strategies to maintain and enhance Huntington Beach's dynamic circulation system.

The element addresses the physical circulation system consisting of streets, highways, bicycle routes, equestrian facilities, paths, and sidewalks, as well as available modes of transportation, including cars, buses, bicycles, and walking. How efficiently goods and people move about in a community is one of the most imperative issues a locality must address, as it affects land use, economic vitality, urban design, energy consumption, air quality, and ultimately, the city's infrastructure. Circulation decisions cannot be addressed solely at the local level, however; they must be coordinated with regional, state, and federal agencies, as well as with neighboring communities.





Relationship to Other General Plan Elements

State planning law requires that the Circulation Element be consistent with other General Plan elements. As circulation affects such a wide range of issues, consistency with other elements is especially important. The elements most closely linked with the Circulation Element are Land Use and Noise. The Land Use Element identifies the development potential of vacant or underutilized properties throughout the city, which is a major factor in developing future traffic volume estimates that are used to evaluate roadway adequacy in the Circulation Element. The transportation policies found in the Circulation Element are also directly linked to the programs and policies in the Noise Element, since transportation facilities users are largely responsible for excessive noise levels in certain locations in the community. Projected noise distributions, depicted as noise contours in the Noise Element, are in turn related to the Circulation Element. Policies and plans contained in the Noise Element are largely based on the Circulation Element and are aimed at minimizing the effects of transportation noise on current and planned land uses. The Natural Resources and Conservation Element is also related to this element, as it addresses air quality and greenhouse gas emissions.

Circulation Plan

Huntington Beach's circulation network consists of roadways, transit services, multiuse trails, waterways, bikeways, and air traffic from the various heliports in the city. Other facilities such as park-and-ride lots, transit shelters, bicycle racks and lockers, and public and private parking facilities support these methods of travel. Similarly, the overall circulation system supports the movement of goods and services via the various components of that system.

Measuring Traffic Flow

Roadway networks must be regularly evaluated to ensure they are moving vehicles efficiently and maintaining adequate capacity to support future growth. This element uses specific approaches to measure and describe traffic flow and roadway capacity. They involve a policy component with respect to desirable level of service (LOS) and vehicle miles traveled (VMT), and a technical component that outlines the criteria involved.

Volume-to-Capacity Ratio

The volume-to-capacity (V/C) ratio indicates how many vehicles travel on a roadway (volume) and the number of vehicles the roadway can carry (capacity). V/C ratios are calculated based on current or future traffic volumes and capacity values for various types of roadway facilities. Volume is established either by a traffic count (in the case of current volumes) or by a forecast for a future condition. Capacity is a critical component of roadway design. The higher the V/C ratio (approaching or above 1.00), the more congested the





roadway becomes. For example, a roadway that carries 1,000 vehicles per hour but has the capacity to accommodate 2,000 vehicles per hour at free flow speed has a V/C of 0.50, which drivers would experience as “free-flowing,” with only minor delays.

The V/C ratio is used to reflect intersection performance through the intersection capacity utilization (ICU). This measure is applied using peak-hour volumes and the geometric configuration of traffic signal controlled intersections. The ICU sums the V/C ratios for the critical movements of an intersection, and thus accounts for the overall performance of intersections, which is typically the portion of the system that most influences the overall operations within a roadway system.

Level of Service

LOS is a tool used to describe the operating characteristics of the street system in terms of the level of congestion or delay experienced by vehicles. Service levels range from A through F, with each level defined by a range of V/C ratios, as shown in **Table CIRC-1**. LOS A, B, and C are considered good operating conditions, with only minor delays being experienced by motorists. LOS D represents operating conditions where drivers occasionally have to wait through more than one signal cycle to proceed through the intersection. LOS E is considered a near-capacity condition, and LOS F represents an oversaturated condition with long delays. The LOS designations are based upon ICU values calculated for intersections.

Table CIRC-1
Peak Hour Level of Service Descriptions for Intersections

LOS	Description	V/C or ICU
A	Low volumes; high speeds, speed not restricted by other vehicles; all signal cycles clear with no vehicles waiting through more than one signal cycle.	0.00–0.60
B	Operating speeds beginning to be affected by other traffic; between one and 10 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.	0.61–0.70
C	Operating speeds and maneuverability closely controlled by other traffic; between 11 and 30 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods; recommended ideal design standards.	0.71–0.80
D	Tolerable operating speeds; 31 to 70 percent of the signal cycle have one or more vehicles which wait through more than one signal cycle during peak traffic periods; often used as design standard in urban areas.	0.81–0.90
E	Capacity; the maximum traffic volume an intersection can accommodate; restricted speeds; 71 to 100 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.	0.91–1.00
F	Long queues of traffic; unstable flow; stoppages of long duration; traffic volume and traffic speed can drop to zero; traffic volume will be less than the volume which occurs at level of service E.	Above 1.00

Source: *Highway Capacity Manual 2000, Transportation Research Board, National Research Council*





Vehicle Miles Traveled

SB 743 was passed by the state legislature in 2013. Among other topics, it discusses how transportation impacts are addressed under the California Environmental Quality Act (CEQA). Currently, an environmental impact report addresses impacts to traffic congestion and delays. SB 743 requires the Office of Planning and Research to update the State CEQA Guidelines so that impacts are instead measured by the predicted change in VMT rather than the change in LOS. This method allows for better calculation of the greenhouse gas and energy impacts. Local jurisdictions may still use LOS in making planning decisions, but it cannot be included as part of the CEQA process. This may result in significant changes to the way transportation systems are designed and operated in cities. The City of Huntington Beach will utilize VMT or a similar metric as a CEQA threshold of significance, while still maintaining the best possible traffic flow by assessing proposed development or reuse project impacts to LOS as a part of determining a project's consistency with the General Plan. Providing additional transportation mode options could improve LOS for vehicle travel, while also decreasing VMT for single-occupant vehicles.

The benefits of having a variety of travel options are numerous. Having access to public transit, cycling, and walking options increases the opportunity for residents to navigate the community and fulfill the necessary aspects of everyday life, regardless of age, ability, or economic status. Multiple options also provide individuals with greater choice and control over their mobility, and support a physically and socially active lifestyle. In addition, increased travel options have the potential to reduce automobile traffic, reduce greenhouse gas emissions, and minimize the need for large, multilane roadways and busy neighborhood streets.

Land Use Plan and Forecasts

The Circulation Element is designed to meet transportation needs based on assumptions about the intensity and location of development from the Land Use Plan. In turn, the Land Use Plan was developed through an iterative process with the Circulation Plan to ensure that the transportation network can meet the needs of proposed land uses.

Anticipated future development consistent with General Plan land use designations is presented in the Land Use Element. With implementation of the General Plan, up to 7,228 additional dwelling units and approximately 5.4 million additional nonresidential square feet could be constructed in the planning area. This additional development would result in the addition of approximately 148,000 average daily vehicle trips to roadways within the planning area.





Regional Mobility

Orange County has seen rapid growth since the 1990s, and is projected to have continued growth well into the 21st century. Regional transportation strategies are needed to successfully implement City and County plans accommodating future growth. These strategies must link Huntington Beach to other regional employment and commercial centers, as well as airports and transportation hubs, and should prominently feature alternative modes of travel to the automobile.



Currently, regional and interregional roadway access is provided by a system of freeways and arterials. The San Diego Freeway (I-405) is the major north–south freeway, traversing the northeastern portion of the planning area. Pacific Coast Highway (SR 1) extends parallel to the coast on the western portion of the planning area. Pacific Coast Highway provides regional access to the City of Newport Beach to the south and the City of Seal Beach to the north, as well as points beyond.

OCTA provides local transit service and regional transit connections between the city and other areas of the county and region. OCTA provides a variety of transit services including bus service, passenger rail, and mobility services for those with special needs. OCTA continues to develop new transit alternatives to improve regional mobility.

Regional transportation plans and programs address regional and local transit, bicycle routes, and improved accessibility for Huntington Beach to and from points east of the Santa Ana River. Resolving these regional issues will require coordination between Huntington Beach, the County, and neighboring jurisdictions.

Complete Streets

Complete Streets are streets that accommodate all modes of travel in a convenient manner for all users. Pedestrians, bicyclists, motorists, and transit riders of all ages and abilities must be able to move along and across a complete street in a relatively safe manner. Complete Streets help facilitate a variety of important community benefits, including the following:

- Complete Streets provide travel choices and give people the option to use alternative modes of transportation.
- Complete Streets encourage healthy physical activity. Public health experts promote walking and bicycling to combat obesity, especially in children.





- Complete Streets can lead to economic revitalization by reducing transportation costs and travel time while increasing property values and job growth in communities.
- Thoughtful design and accommodations for bicyclists and pedestrians reduces the incidence of crashes and improves safety for all transportation users.
- Complete Streets foster strong communities where all people feel welcome on the road and where walking and bicycling are an important part of improving public transportation and creating friendly, walkable neighborhoods.

Making a street more complete could include installing or improving sidewalks, adding bike or dedicated bus lanes, or maintaining frequent and visible crosswalks, roundabouts, or any number of other design features that suit the location and maintain or improve overall transportation flow. The City of Huntington Beach has built the vast majority of streets utilizing the Complete Streets approach, and expanding the Complete Streets efforts would require retrofit or redesign of existing streets.

In addition to providing ways to travel, and creating places for people, Huntington Beach's streets also provide access to private property and public sewer, water, electrical, and storm drain utilities.

The Local Road System

Roadways in Huntington Beach are generally laid out on a north–south, east–west trending grid system. The grid system becomes slightly modified in the Downtown area, where roadways trend northeast–southwest, and in the Huntington Harbour and Sunset Beach areas. As shown later in the Arterial Highway Plan, the local roadway system is organized in a hierarchical fashion, based on the grid system. However, due to natural barriers such as the Bolsa Chica Wetlands, the Santa Ana River, the Pacific Ocean, and the Seal Beach Naval Weapons Station, the grid system becomes discontinuous. This results in circuitous and somewhat limited access to certain locations, such as access to Pacific Coast Highway from north-central Huntington Beach, or access across the Santa Ana River from the southeast.





Roadways are not equal in function or in their service of different travel modes. Major and primary arterials, like Warner Avenue or Goldenwest Street, must effectively balance the needs of both automobiles and mass transit vehicles in order to keep drivers from using adjacent neighborhood streets to avoid traffic. Secondary arterials like Newland Street or Slater Avenue still accommodate significant automobile traffic while also balancing the needs of more direct local access, on-street parking, and increased nonmotorized modes of transportation. Collector streets like Delaware Street or Orange Avenue are more supportive of other modes and uses, such as bicycles. Finally, local streets are mixed environments where all users interact, and the parkways and sidewalk areas can be used for recreation or gathering.

Roadway Types

The local street system is composed of various-sized roadways that allow for mobility from point-to-point and access to properties. Roads generally emphasize either mobility or access. In Huntington Beach, roadways are classified as follows:

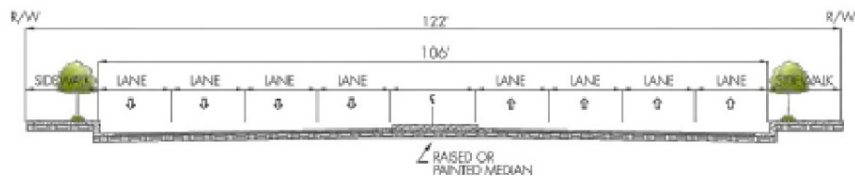
- Freeway
- Smart Street Arterial
- Principal Arterial
- Major Arterial
- Primary Arterial
- Secondary Arterial
- Collector Arterial
- Local Street

Some roadway types have a standard cross section for use in selected areas. The standard roadway classifications and key mobility and access characteristics of each are described in the following paragraphs. Typical non-intersection cross sections are illustrated in **Figure CIRC-1**. Additional rights-of-way (beyond the standard width) may be required at higher volume intersections and to accommodate turning movements.

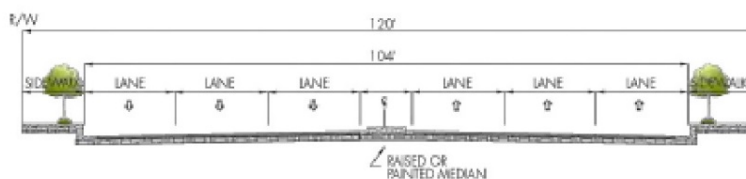
Freeways

Freeways are limited access, high-speed, divided travelways of six lanes or more. Access is provided at strategically spaced, grade-separated on- and off-ramps. I-405 provides regional freeway access at a number of interchanges in or adjacent to the city. Freeway design standards are dictated by Caltrans, District 12, and the Federal Highway Administration. Any interchange improvements must be coordinated with and approved by Caltrans.

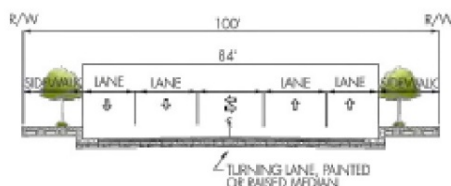




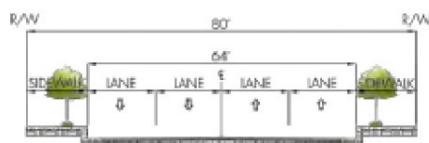
SMART STREET ARTERIAL



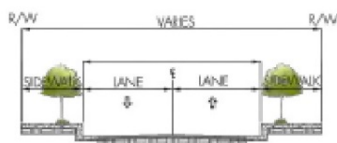
MAJOR ARTERIAL



PRIMARY ARTERIAL (DIVIDED)



SECONDARY ARTERIAL (UNDIVIDED)



COLLECTOR STREET (UNDIVIDED)

Source: City of Huntington Beach (2014).



Typical Roadway Cross Sections

Figure CIRC-1





Smart Street Arterials

Smart street arterials are six- to eight-lane roadways with enhanced capacity compared to a standard arterial street. Smart streets are designated by OCTA as important regional routes and improved with Measure M funds to increase traffic capacity and flow through using techniques such as signal synchronization, bus turnouts, intersection improvements, driveway consolidation, and prohibition of on-street parking.

Traffic-carrying capacities of smart streets can range from 60,000 to 79,000 vehicles per day, depending on the number of lanes, degree of access control, peak-period loading, and configurations of major intersections.

Beach Boulevard is designated as a smart street arterial by OCTA. Beach Boulevard (SR 39) and Pacific Coast Highway (SR 1) are under Caltrans's jurisdiction.

Principal Arterials

Principal arterials act as main thoroughfares and provide access to major activity centers and the regional freeway system. Principal arterials are typically eight-lane roadways featuring raised or striped medians. Desirable minimum spacing for street intersections along a principal arterial is approximately one-quarter mile. Unsignalized minor street and driveway access may be allowed, but signalized access is preferred and left-turn restrictions are typically planned at unsignalized access locations.

Curbside parking is prohibited. Traffic-carrying capacities of $\pm 65,000$ vehicles per day can be achieved depending on the degree of access control, peak-period loadings, and lane configurations at major intersections.

While the City does not currently have any principal arterials, this classification is part of the County Master Plan of Arterial Highways, and could be used for later reclassifications if appropriate. Principal arterials can be designated as smart streets with the appropriate capacity enhancements, as the two classifications are not mutually exclusive.

Major Arterials

Major arterials are high-capacity six-lane roadways with painted or raised landscaped medians. Left-turn restrictions at minor unsignalized driveways enhance vehicle flow.

Curbside parking is usually not appropriate along some of the more heavily traveled major arterial street segments in the city. Maximum service volumes of $\pm 50,000$ vehicles per day can be achieved, depending on the degree of access control, intersection operations, and peak-period loadings.





Major arterials can be designated as smart streets with the appropriate capacity enhancements, and so these two classifications are not mutually exclusive.

Primary Arterials

Primary arterials are four-lane divided roadways carrying local and regional commute traffic. Unsignalized minor street and driveway access may be allowed, but signalized access is preferred and left-turn restrictions are typically planned at unsignalized access locations.

Curbside parking is generally prohibited. Maximum service volumes of $\pm 35,000$ vehicles per day can be achieved depending on the degree of access control, peak-period loadings, and lane configurations at the major intersections.

Secondary Arterials

Secondary arterials are four-lane roadways without medians. Direct access from private residential properties to secondary arterials should be avoided where possible unless medians can be provided at such access points.

While secondary arterials have curbside parking, localized circumstances could warrant parking restrictions, such as prohibiting parking near intersections where left-turn lane striping is provided. In some locations, secondary arterials may include a limited median or be restriped to provide a left-turn pocket. Maximum service volumes of $\pm 25,000$ vehicles per day can be achieved depending on the degree of access allowed, intersection operations, and peak-period traffic loadings.

Collector Arterials

Collector arterials provide access to local streets from the arterial roadway network. Collectors are typically two-lane roadways that sometimes feature painted medians for left-turn movements.

Collectors allow curbside parking. Parking should be restricted near intersection approaches where a separate right-turn lane is provided. Maximum service volumes of $\pm 12,500$ vehicles per day can be achieved depending on the degree of access control and peak-period traffic loadings.

Augmented Roadways

The augmented designation for arterial street classifications provides flexibility for customizing sections of roadway while retaining the basic qualities of the classification such as the minimum number of lanes. Whether for aesthetic or capacity reasons, the intent is to allow these arterials to be compatible with their localized settings, providing a context-sensitive approach to the actual design parameters. Examples include the type and size of medians, the size and use of parkways, and in some cases, auxiliary lanes to facilitate local access.



Local Streets

Local streets are two-lane roadways without medians. Centerline striping is typically not provided, and curbside parking is generally allowed. Traffic-carrying capacity is physically similar to a collector; however, the qualitative limit of acceptable traffic volumes in a residential environment is lower (less than 5,000 vehicles per day). Local streets are not shown on the Arterial Highway Plan.

Table CIRC-2 summarizes the function, typical width, access constraints, and maximum volumes for each roadway type.

Table CIRC-2
Roadway Characteristics by Type

Standard Roadway Class	Mobility and Access Characteristics	Minimum width (ROW/ Pavement)	Typical Number of Lanes	Maximum Two-Way Daily Traffic Volume (at LOS E)
Smart Street Arterial	High-capacity arterial roadways featuring enhanced traffic signal synchronization, bus bays, intersection improvements, and additional travel lanes. Direct access to adjacent properties is discouraged, except at signalized intersections.	Variable ROW (120'–144')	6 to 8 lanes with raised or painted median and additional turn lanes at intersections	79,000
Principal Arterial	Main thoroughfares providing access to major activity centers and the regional freeway system. Direct access to adjacent properties is discouraged, except at signalized intersections.	120'/104'	8 lanes with raised or painted median and additional turn lanes at intersections	65,000
Major Arterial	Major arterials complement the principal system by providing a medium-capacity backbone system. Only limited access is provided, typically to commercial properties and not to residential properties.	120'/104'	6 lanes with raised or painted median and additional turn lanes at intersections	50,000
Primary Arterial	Roadways intended to carry traffic between local streets and principal or major arterials. They are similar to major arterials, with only limited access to adjacent properties.	100'/84'	4 lanes divided, with turn lanes as needed	35,000
Secondary Arterial	Roadways intended to carry traffic between local streets and principal or major arterials. They are similar to major arterials, with only limited access to adjacent properties.	80'/64'	4 lanes undivided, with turn lanes as needed	25,000
Collector Arterial	Roadways providing property access and linking properties to secondary, major, and principal arterials.	Varies	2 lanes undivided	12,500





Beach and Edinger Corridors Specific Plan

The sections of Beach Boulevard and Edinger Avenue that fall within the Beach and Edinger Corridors Specific Plan area have cross sections that are unique to the Specific Plan (for example, different lane configurations and median landscaping) and which allow for deviation from the standard cross sections described in **Table CIRC-2**.

Arterial Highway Plan

Circulation Element goals, policies, and implementation programs emphasize the need to provide a circulation system capable of serving current and future local and regional traffic. The planning horizon for the roadway system is 2040. The City's Arterial Highway Plan is illustrated in **Figure CIRC-2** and has been developed to accommodate anticipated volumes in 2040.

Relationship to County Master Plan of Arterial Highways (MPAH)

The plan depicted in **Figure CIRC-2** is the required initial plan that must be consistent with the current OCTA MPAH. Several amendments to the MPAH and, subsequently, the Arterial Highway Plan are recommended to be pursued. The recommended amendments to the current MPAH are depicted in **Figure CIRC-3**. Coordination with OCTA to pursue the MPAH amendments is required before any changes can be made to the City's adopted plan. Each amendment will be evaluated in cooperation with OCTA and other affected agencies prior to a final decision regarding amendment of the MPAH. As MPAH amendments are approved by OCTA, administrative amendments to the Arterial Highway Plan will be made when consistent with the recommendations identified in **Figure CIRC-3**.

Principal and Secondary Intersections

As a result of the way Huntington Beach's road network has been developed, many trips funnel through a few key intersections. If these intersections fail to operate at adopted performance standards, this failure seriously impacts the overall effectiveness of the entire roadway system. Such locations are defined as "principal intersections" and "secondary intersections." Principal intersections have been designated as such because they are considered to have strategic importance within the overall Arterial Highway Plan. Principal and secondary intersections are critical to the function of the entire network and are regularly monitored and given priority for roadway improvements.

Principal and secondary intersections will be identified in the Technical Administrative Report and will be amended based on annual review and reporting of conditions. Action involved in changing intersection designations (principal to secondary or secondary to principal) involves administrative review and approval by the Planning Commission. A General Plan Amendment is not required for such changes.





Circulation



Arterial Highway Plan

Figure CIRC-2

City of Huntington Beach General Plan



Proposed MPAH Amendments

Figure CIRC-3





The standard right-of-way and roadway widths specified in **Table CIRC-2** will vary on approaches to intersections to accommodate intersection improvements, such as auxiliary turn lanes and/or dual-left turn lanes. Parking will typically be restricted on the approaches to principal and secondary intersections to ensure adequate space to develop such improvements.

Critical Intersections

One further intersection definition is “critical intersection,” which is recommended for isolated cases where the long-range LOS is projected to be worse than the desired threshold and no feasible improvements are identified (see discussion on LOS below). The intent is that such locations be monitored over time.

Performance Criteria

Performance standards for intersections involve a policy component, the desired LOS, and a technical component that involves the assumptions and procedures used to determine the LOS. The LOS standards are set by the City of Huntington Beach (Policy CIRC 1.B), except in the case of Orange County Congestion Management Program (CMP) intersections. The lowest acceptable performance standard for CMP intersections is LOS E. Seven CMP intersections are located in Huntington Beach:

- Beach Boulevard at Adams Avenue
- Beach Boulevard at Edinger Avenue
- Beach Boulevard at Pacific Coast Highway
- Beach Boulevard at Warner Avenue
- Bolsa Chica Street at Bolsa Avenue
- Bolsa Chica Street at Warner Avenue
- Pacific Coast Highway at Warner Avenue

Evaluation of volumes, capacities, and levels of service on the City street system are based on peak-hour intersection data since intersections are the primary limiting factor affecting traffic flow on city streets. The LOS standards as established by Policy CIRC-1.B are as follows:

Critical Intersections	LOS E
Principal Intersections	LOS D
Secondary Intersections	LOS C

Included in the principal intersections are the CMP intersections listed above; hence City policy is to achieve LOS D for these CMP intersections, a higher standard than the CMP LOS E requirement.





The technical procedures used to determine LOS are based on the ICU methodology described earlier. Parameters and criteria used in such calculations will be defined in the Technical Administrative Report, which will be prepared following the adoption of this Circulation Element.

Future roadway improvements needed to fully implement the Arterial Highway Plan have been determined through use of a citywide traffic forecasting model maintained by the City. The Technical Administrative Report will list the intersection and roadway improvements required to transition to full implementation of the Arterial Highway Plan. The City will continue to use the five-year CIP process to prioritize, fund, and build these improvements, updating both the CIP and the Technical Administrative Report on an annual basis to reflect current needs, priorities, and financial conditions. New development project mitigation will also be used to address necessary improvements.

Relationship to Land Use

Planned land uses within Huntington Beach through the year 2040 influence future traffic volumes and highway capacity needs. Baseline (year 2014) daily trip generation within the planning area was around 1,618,820 trips per day, and 148,000 additional trips are anticipated by 2040 (an increase of about 9 percent). The Arterial Highway Plan is designed to accommodate this increase, but will require improvements including new roadway construction, improved transit service, and enforcement of the transportation demand management program.

Neighborhood Traffic Management

As vehicle traffic in Huntington Beach and the region increases, commuters and locals may look for less-crowded streets for quicker drive times. Drivers may choose to leave congested arterials in favor of local streets, impacting generally quiet residential neighborhoods. In busy commercial areas, employees and visitors may find it easier or less expensive to park in an adjoining neighborhood. Resulting increases in traffic, speeding on local streets, and inadequate parking can disrupt residential neighborhood activities.

Preserving the character and safety of neighborhoods is important to the City. Policies aimed at protecting neighborhoods from the negative effects of cut-through traffic and inappropriate parking include residential parking permits, site planning, and traffic-calming measures. Traffic-calming techniques are used to direct traffic elsewhere and slow traffic within neighborhoods. Specific traffic-calming measures will be identified in the neighborhood Technical Administrative Report prepared following adoption of this Circulation Element, and will be updated on an ongoing basis.





Public Transportation

Most regional connections from Huntington Beach to locations outside the city are made by personal automobiles. However, there are also many riders who use the public transportation system.

Fixed-route and demand-responsive services meet these needs. Fixed-route services are transit lines that operate on regular schedules along a set route. Demand-responsive services have defined service areas but do not operate on fixed routes or schedules.



In 2014, OCTA operated 16 routes through the city (see **Figure CIRC-4**). The number of lines and routes are adjusted as needed in response to ridership patterns. OCTA and the City both operate demand-response services. OCTA operates the ACCESS program. The City, with the aid of OCTA, operates the Senior Services Mobility Program.

Two park-and-ride facilities allow commuters to park their personal vehicles at one location and utilize carpools, vanpools, or commuter bus service. The park-and-ride facilities are the Golden West Transportation Center at Gothard Street and Center Avenue, and a large lot at the Boeing Corporation campus at Bolsa Avenue and Bolsa Chica Street.

Future Plans

The Union Pacific Railroad right-of-way runs east of Gothard Street and extends from the northern city limits to its endpoint just north of Garfield Avenue. Approximately three trains per week use the active portion of the rail line north of Ellis Avenue. The City has designated the abandoned portion of the rail corridor south of Ellis Avenue for a future transportation corridor use. Future development of all or portions of the corridor, including the existing active rail section, for transportation purposes may be pursued by the City in the future. Potential uses include development of a bicycle or multipurpose trail or to function as an exclusive transit corridor. These options may be limited in some areas where portions of the corridor are no longer available for public use.





City of Huntington Beach General Plan





Helistops and Heliports

Local heliports are used primarily for air ambulance, business, emergency, and police uses. Heliports are located at the Boeing Corporation (Bolsa Chica Street at Bolsa Avenue), Guardian Center (Beach Boulevard at Warner Avenue), Huntington Beach Police Station (Gothard Street and Talbert Avenue), Cal Resources at Pacific Coast Highway (between Seapoint Street and Warner Avenue), and the Huntington Beach Civic Center (Main Street at Yorktown Avenue). City policy regarding heliports is to ensure that their development and operation are coordinated with the Airport Land Use Commission (ALUC) and to comply with conditions mandated by the Federal Aviation Administration, the ALUC, and Caltrans.

Transportation Demand Management and Air Quality

Huntington Beach is located within the South Coast Air Basin, which is a nonattainment area with regard to meeting state and federal air quality standards. The City has established a Transportation Demand Management (TDM) ordinance to mitigate potential impacts of development projects on mobility, congestion, and air quality. The City uses ordinance requirements and policies in this element to encourage individuals and employers to change their travel behavior. Fewer vehicle trips and miles translate to reduced pollutant emissions. Policies and implementation measures include requiring employers and new developments to provide appropriate transit and pedestrian facilities, encouraging current businesses and new development projects to submit TDM plans, and encouraging the creation of Guaranteed Ride Home and carpool programs.

The City also encourages the use of low- or no-emission vehicles, including hybrids, electric vehicles, or other emerging technologies. One example is low-speed, zero-emission neighborhood electric vehicles (NEVs). These vehicles are usually restricted to roads with speeds of 35 mph or less and must be charged approximately every 30 miles. For these reasons, the City encourages businesses to provide charging stations and is investigating alternative roadway systems for NEVs.





Parking

Huntington Beach is a popular destination for beachgoers and shoppers. Great demand for limited parking in Downtown, at the beach, and at parks, sports fields, high schools, churches, and industrial locations has been a continuing issue for many years. Excessive numbers of vehicles parked on city streets can potentially impede vehicle circulation, reducing the effective capacity of roadways and causing traffic congestion. Residential neighborhoods also experience heavy parking demand when large numbers of visitors use on-street parking, especially during special events. Pursuant to Coastal Act requirements, parking must be maintained within the coastal zone that allows visitors to access the beach and coastal resources.

The City operates parking lots and garages in Downtown and near the beach. To reduce associated impacts on adjacent residential neighborhoods, the City is committed to developing new parking facilities and programs and continuing to regulate neighborhood parking through residential permit programs. At the same time, the City will explore ways to reduce overall parking requirements when appropriate, in order to minimize the amount of land used for parking and encourage alternative forms of transportation.

Pedestrian, Bicycle, and Equestrian Paths and Waterways

Accommodating Pedestrians

Sidewalks and walking paths allow people to walk easily around most parts of Huntington Beach, particularly in areas such as Downtown, adjacent to the beach, and along portions of Beach Boulevard. Within master-planned neighborhoods, pedestrian paths link homes to recreation facilities. In many other neighborhoods, sidewalks allow children to walk to schools and parks and surrounding uses.



The City seeks to improve the pedestrian experience and enhance pedestrian safety. Areas eligible for improvements will be designated as pedestrian enhancement zones (PEZs). PEZ improvements may include widened sidewalks, crosswalks, trees, pedestrian-scale lighting, and traffic-calming measures. The City will establish a designation process for PEZs, coordinating with County and regional transportation agencies to assess the need for improved facilities and balance the demand for improved pedestrian facilities with the need to maintain adequate vehicular traffic flows.





Routes for Bicyclists

Huntington Beach's mild climate permits bicycle riding year-round, and the growing popularity of bicycling has drawn enthusiasts onto the streets and bike trails near the beach and throughout the planning area. The bikeway plan shown in **Figure CIRC-5** identifies the planned system of bikeways to accommodate growing demand and provide a real alternative to the car for local trips. The plan establishes three classes of bicycle routes:



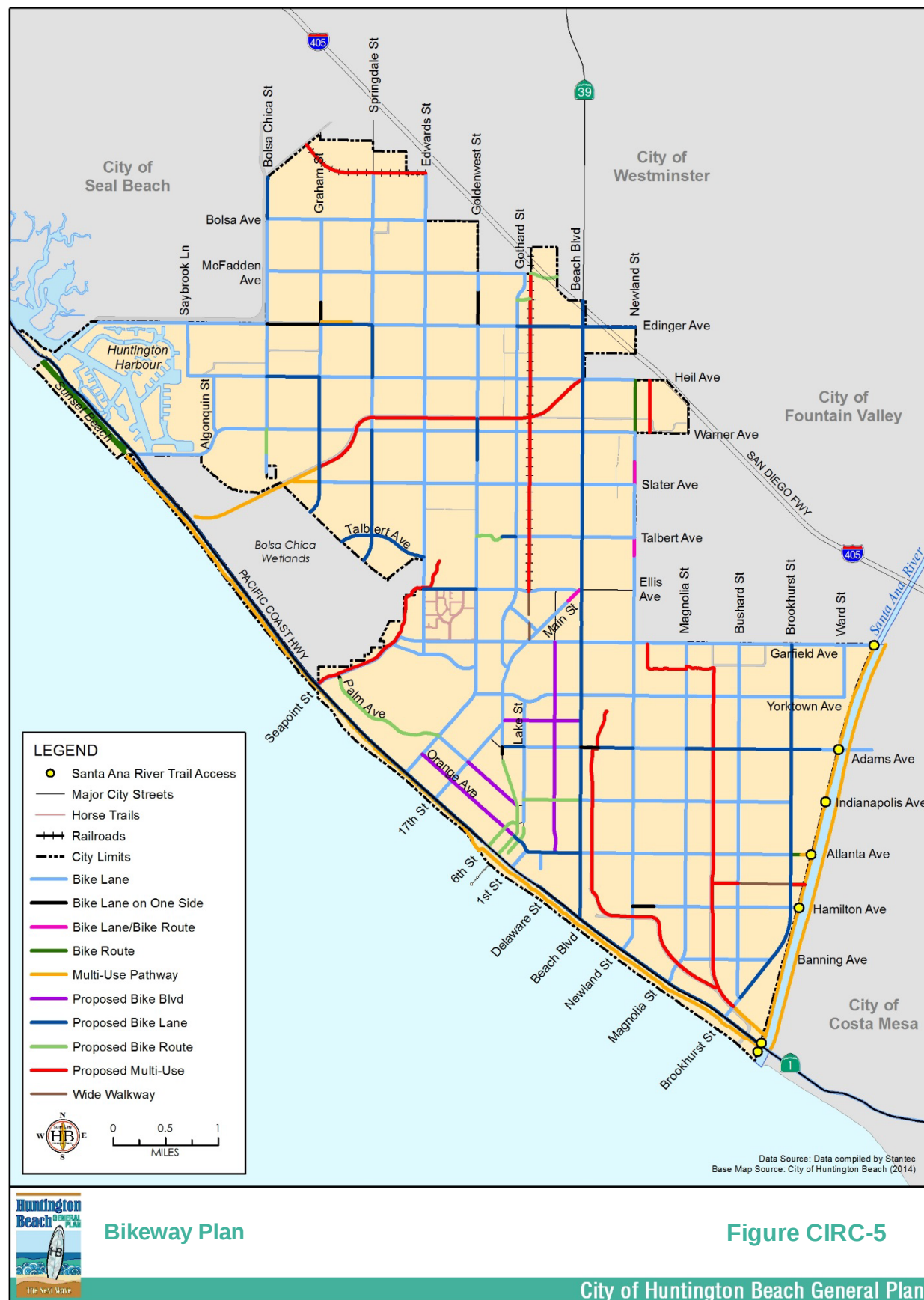
- **Class I Bike Paths** – Off-road routes located along designated multiuse trails or vacated rail lines separated from streets.
- **Class II Bike Lanes** – On-road routes delineated by painted stripes and other identifying features.
- **Class III Bike Routes** – On-road routes sharing use with pedestrians or motor vehicle traffic that are signed but not striped.

Cross sections for each type of route are shown on **Figure CIRC-6**. Class II and III routes along the north-south and east-west arterials connect to pedestrian trails and Class I routes. Given the built out nature of the city, creating new Class I routes is difficult. Thus, where bicyclists and pedestrians share the road with automobiles, the City will work to meet appropriate traffic safety standards.

Equestrian Facilities

Huntington Beach, despite its generally suburban character, has managed to retain a few residential neighborhoods near Central Park where the keeping of horses is permitted. To support equestrian activities, the City has required the development of horse trails around and through these neighborhoods with a planned route west to Pacific Coast Highway. Visitors and others also use the trails for rented horses available at the Huntington Central Park Equestrian Center. The center and equestrian trails provide welcome recreation options for residents and others, and the City will retain these facilities as community resources.







Class 1 Multi-Use Bike Path



Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flow by motorists minimized.

Description: Right-of-way separated from motor vehicle traffic. Used where adjacent roadway speeds and the volume of traffic is too high for safe shared use. Also used for connections through open space areas and parks, or where no other facility type is feasible.

Design Guidelines:

- Eight foot paved with two foot graded edge minimum width for two-way use. Greater width is recommended for high use corridors.
- Bike paths adjacent to a highway closer than five feet from the edge of the shoulder shall include a physical barrier such as rails, dense shrubs or trees.

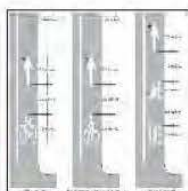
References:

Caltrans Highway Design Manual Chapter 1000
California MUTCD 2012

Class 2 Bike Lane



Buffer wide bike lanes



Bike Lane Road Stencils



Sign R81 (CA)

Provides a striped lane for one-way bike travel on a street or highway.

Description: Provides a striped lane for one-way bike travel on a street or highway. Installed along streets in corridors where there is significant bicycle demand, and where there are distinct needs that can be served by them. In streets with on-street parking, bike lanes are located between the parking area and the traffic lanes.

Design Guidelines:

- Five foot minimum width for bike lanes located between parking area and traffic lanes.
- Four foot minimum width if no gutter or parking exists. Including a normal two foot gutter, minimum bike lane width shall be five feet.

References:

Caltrans Highway Design Manual Chapter 1000 & 300
California MUTCD 2012

Class 3 Bike Route



Sign D11-1



Sign R4-11

Provides for shared use of the roadway with motor vehicle traffic.

Description: Within vehicular right-of-way, delineated by directional signage. Used where roadway speeds and traffic volume are fairly low and shoulder provides adequate room. Bike Routes indicate to cyclists that there are particular advantages to using these routes compared to alternative routes.

Design Guidelines:

- Wider than standard outside lane recommended.
- Because cyclists are permitted on all roadways (except prohibited freeways), bicycle routes should offer a higher degree of service than other streets.

References:

Caltrans Highway Design Manual Chapter 1000
California MUTCD 2012

Bikeway Cross Sections

Figure CIRC-6





Boating

Given the city's coastal location, Huntington Beach residents take advantage of its local waterways largely for recreation from Huntington Harbour, Sunset Channel, and the Orange County Sunset Aquatic Marina. Additional future uses could include ferries to employment centers or water taxis. The City supports and encourages private development of such waterborne transportation options.

Scenic Corridors

The practice of identifying scenic corridors and routes was introduced by the state of California in the 1960s as a way to protect the aesthetic value of lands adjacent to highways. In Huntington Beach, this practice has been extended to cover corridors that the City has determined to have notable aesthetic appeal for the community.

Caltrans defines scenic corridors as lands generally adjacent to and visible from the highway, using a motorist's line of vision. Scenic corridors in Huntington Beach consist of roads that offer motorists, cyclists, and pedestrians attractive vistas and pleasing street scenes. Though not officially designated by the state, Pacific Coast Highway in Sunset Beach is an informal "Scenic Highway," which is effectively the equivalent of a major urban scenic corridor. The City has established policies regarding treatment of scenic corridor rights-of-way, selection criteria for appropriate surrounding land uses, and rigorous development review procedures to protect the aesthetic appeal of these corridors.





The City defines three types of scenic corridors:

- **Major Urban Scenic Corridors** – Major corridors offering views of either natural or built environments. Development may be regulated to preserve views within the coastal zone, and landscaping and detailing are required to reinforce the aesthetic beauty of the surrounding area. Major urban scenic corridors are prominent, signature boulevards conveying arrival and identity, and in many cases will connect with adjacent cities.
- **Minor Urban Scenic Corridors** – Minor corridors terminate within the city boundaries and typically carry less traffic than major corridors. Development may be regulated to preserve views within the coastal zone, and landscaping and detailing are required to reinforce the aesthetic beauty of the surrounding area.
- **Landscape Corridors** – Corridors requiring specific treatment of signage, landscaping, or other details to reinforce the design continuity of the area.

Scenic corridors are regulated by design standards summarized in **Table CIRC-3**.

Table CIRC-3
Summary of Scenic Corridor Development Requirements

Scenic Corridor Type	Development Requirements
Urban Scenic Corridors (Major and Minor)	• Utilities to consist of underground facilities • Prohibit off-site signs and billboards • Require open space easements for natural areas adjacent to corridor • Require adjacent developments to incorporate compatible landscaping • Other design requirements as specified in the Land Use Element • Utilize the City's Design Review Board to evaluate developments within designated scenic corridors
Landscape Corridors	• Prohibit off-site signs and billboards • Require adjacent developments to incorporate compatible/increased landscaping • Other design requirements as specified in the Land Use Element

There are several intersections along the edges of Huntington Beach that serve as entry points to the various scenic corridors in the community. These intersections, known as entry nodes, are key locations that help to demarcate the corridor and set it apart from the surrounding areas. There are 11 primary entry nodes and 5 secondary entry nodes in Huntington Beach. The locations of the scenic corridors and entry nodes are shown in **Figure CIRC-7**.





Transportation and Urban Runoff

The quality and quantity of stormwater runoff flowing into the Santa Ana River and Pacific Ocean are regulated by the State of California. Urban environments such as Huntington Beach contain expanses of impervious surfaces that prevent stormwater from percolating into the ground; instead, runoff drains lead directly to the river or ocean. The circulation system—comprising sidewalks, roads, and parking lots—makes up a large proportion of the impervious surface acreage in the planning area and resulting pollution. Many of the pollutants entering the stormwater system are byproducts of motor vehicles, including gas and oil.

To responsibly address the water quality impacts of urban runoff, and to meet Santa Ana Regional Water Quality Control Board National Pollutant Discharge Elimination System (NPDES) permit requirements, the City will continue to require mitigation of potential impacts of transportation-related sources of water pollution, particularly in urban runoff.





Scenic Highway Plan

Figure CIRC-7



Issues, Goals, and Policies

The circulation issues addressed in this element include:

- Maintaining adequate level of service
- Providing adequate Downtown and beach parking
- Enhancing regional transit
- Increasing local transit options
- Ensuring mobility options for all users
- Enhancing bicycle, pedestrian, equestrian, and waterway options
- Protecting and developing scenic corridors
- Providing for alternative fuel vehicles and infrastructure
- Ensuring access for emergency vehicles

Maintaining Adequate Level of Service

While the City has generally maintained adequate levels of service over time, congestion occurs at some key intersections and on several arterial roadways during commute hours, on the weekends, and during the tourist season. The City does not control operations on some roadways, such as Beach Boulevard and Pacific Coast Highway, as they are under Caltrans jurisdiction. Maintaining adequate levels of service enhances quality of life for Huntington Beach residents, promotes traffic safety, and improves the ability of emergency service providers to respond to emergency situations.

Goal CIRC-1a. The circulation system supports existing, approved, and planned land uses while maintaining a desired level of service and capacity on streets and at critical intersections.

Goal CIRC-1b. The implementation of citywide systems and driver applications, such as vehicle detection, traffic signal coordination, collision avoidance systems, traffic calming measures, and emergency or traffic notification systems, creates a quality circulation system.

Goal CIRC-1c. Through ongoing evaluation of jurisdiction, efficient transportation management provides the highest level of safety, service, and resources.

Policies

- A. Develop and maintain the city street network and pursue completion of missing roadway links identified on the Arterial Highway Plan (Figure CIRC-2) and standard roadway cross





sections (Figure CIRC-1), including appropriate roadway widths, medians, and bicycle lanes.

- B. Maintain the following adopted performance standards for citywide level of service for traffic-signal-controlled intersections during peak hours.
 - a. Locations with specific characteristics identified as critical intersections: LOS E (ICU to not exceed 1.00)
 - b. Principal Intersections: LOS D (0.81–0.90 ICU)
 - c. Secondary Intersections: LOS C (0.71–0.80 ICU)
- C. Monitor the capacity of principal intersections. When principal intersections approach or have reached unacceptable levels of service, consider elevating the priority of Capital Improvement Program (CIP) projects that reduce traffic congestion at these intersections.
- D. Require additional right-of-way and restrict parking on segments adjacent to principal intersections to allow for future intersection improvements and turning movements as needed to satisfy performance standards.
- E. Maintain compliance with the OCTA Congestion Management Program or any subsequent replacement program.
- F. Require development projects to provide circulation improvements to achieve stated City goals and to mitigate to the maximum extent feasible traffic impacts to adjacent land uses and neighborhoods as well as vehicular conflicts related to the project.
- G. Limit driveway access points, require driveways to be wide enough to accommodate traffic flow from and to arterial roadways, and establish mechanisms to consolidate driveways where feasible and necessary to minimize impacts to the smooth, efficient, and controlled flow of vehicles, bicycles, and pedestrians.
- H. Protect residential neighborhoods from adverse conditions associated with cut-through and nonresidential traffic.
- I. Pursue technological innovations to ensure Huntington Beach has the best available traffic management systems.
- J. Investigate current jurisdictional control of roadways and determine where adjustments may be made in the future.

Providing Adequate Downtown and Beach Parking

Parking can be a challenge in Downtown throughout the year, but especially during the high tourist season and special events. Street parking and Downtown parking structures are the current primary parking options. While drivers circulate looking for available parking spaces, congestion increases. This congestion may diminish the visitor experience.





Goal CIRC-2. Parking is easy for both residents and visitors to locate, and provided in sufficient quantity to handle peak parking times such as tourist season and special events.

Policies

- A. Provide enhanced wayfinding signs to direct users toward existing parking areas.
- B. Evaluate options for increased parking in Downtown and beach areas and determine the best method to accommodate future parking demand. Off-site parking locations in tandem with parking shuttles should be investigated as part of this strategy.
- C. Establish a parking management program and require that new development projects supply parking that supports anticipated demands.
- D. Allow for shared parking and other creative parking arrangements that optimize available parking areas, and support and collaborate with property owners to manage the available parking supply. Identify rideshare service opportunities that could reduce parking demand, where feasible.

Enhancing Regional Transit

Enhancing regional transit connections would improve access and mobility for residents and visitors and could reduce vehicle miles traveled, traffic congestion, and parking limitations in the community.

Goal CIRC-3a. Convenient and efficient connections between regional transit and areas of employment, shopping, recreation, and housing will increase ridership and active mobility, with a focus on first/last mile solutions.

Goal CIRC-3b. The City is positioned to expand transit, through a long-range strategy that allows the City to carry out transportation goals as funding and infrastructure are feasible.

Policies

- A. Pursue an urban transit system that serves Huntington Beach, and evaluate local and regional transit service to identify areas of opportunity for existing regional transit linkages.
- B. Ensure that local transit is reliable and safe, and provides high-quality service to and from regional transit and destination areas.
- C. Use the best available transit technology to streamline and link destinations and improve rider convenience and safety.
- D. Require new projects to contribute to the transit and/or active transportation network in proportion to their expected traffic generation.





- E. Include or promote multimodal transit centers and stops that allow for seamless connections between regional and local transit systems, pedestrian and bicycle networks, and commercial and employment centers.
- F. Explore the possibility of locating a transportation center in or near Downtown.

Increasing Local Transit Options

Existing local bus service has been characterized as limited and slow. A negative perception of the transit system dissuades ridership, and current ridership levels do not warrant expanded routes or frequencies. Because driving remains the preferred travel mode for most residents and visitors, creating a successful local transit system will be challenging. Still, Huntington Beach can take steps to improve local transit conditions over the long term by incorporating transit amenities within local roadway improvements, preserving existing rail rights-of-way for future rail or trail use, and dedicating additional rail rights-of-way to form connections to the regional transit system.

Goal CIRC-4. A balanced and integrated multimodal transportation system that increases mass transit opportunities for Huntington Beach residents.

Policies

- A. Continue to reserve abandoned rail rights-of-way for future transportation uses such as transit and bicycle facilities.
- B. Increase bus lines and services along commute routes and connecting to regional transit such as ARTIC, in partnership with OCTA and LA Metro.
- C. Use roadway improvement projects as an opportunity to enhance transit amenities and options.
- D. Maintain a system of transit and paratransit services that assist seniors and persons with disabilities.
- E. Provide alternative transportation options for residents and visitors to travel to Downtown.
- F. Increase ridership by providing attractive, comfortable, and convenient options for local transit.
- G. Ensure that construction and operation of heliports and helistops and construction or alteration of structures more than 200 feet above ground level fully comply with provisions of federal and state law, and with referral requirements of the Airport Land Use Commission.





Ensuring Mobility Options for All Users

Traditional circulation planning tends to focus on travel by cars, many times at the expense of other modes of transportation, such as walking, biking, train, and transit. The Circulation Plan is intended to accommodate and encourage these other modes of travel. In addition to carrying traffic between destinations, streets are integral to neighborhoods and provide places for people to gather and recreate. The City's objective is to balance the many competing roles that streets play in the lives of residents, businesses, and visitors.

Goal CIRC-5. The City's active transportation system integrates seamlessly with transit and vehicle circulation as part of a Complete Streets system.

Policies

- A. Maximize use of transportation demand management strategies to reduce total vehicle miles traveled and improve regional air quality.
- B. Develop Complete Streets that create functional places meeting the needs of pedestrians, bicyclists, transit riders, wheelchair users, and motorists. Provide safe, accessible, and connected multimodal routes, especially along popular and arterial routes.
- C. Coordinate with neighboring jurisdictions to ensure that bicycle routes connect to and are consistent with routes in adjacent jurisdictions.
- D. Maintain and repair bicycle lanes and sidewalks as necessary to expand use and safety.
- E. Improve citywide awareness of pedestrian and bicycle safety.
- F. Include low-impact stormwater system design techniques in Complete Streets designs (i.e., natural stormwater retention basins, curb cuts to planter areas for stormwater management).
- G. Support alternative fuel vehicles where feasible.

Enhancing Bicycle, Pedestrian, Equestrian, and Waterway Options

The existing development pattern in Huntington Beach limits the ability in some areas of the city to commute via bicycle or by walking, and could result in limiting access to goods, services, schools, and parks and recreation resources. It is generally considered challenging and unpleasant to cross or travel along major roadways as a bicyclist or pedestrian. Enhancements to the roadway system through Complete Streets serve the needs of all users equally and can increase the viability of bicycling and walking for both commute and local service trips. At the same time, some portions of Huntington Beach (e.g., Downtown/Main Street) are dominated by pedestrians during the peak tourist season and would benefit from improvements that balance the needs of other users.





Equestrians and boaters are also important circulation system users requiring access to facilities.

Goal CIRC-6. Connected, well-maintained, and well-designed sidewalks, bike lanes, equestrian paths, and waterways allow for both leisurely use and day-to-day required activities in a safe and efficient manner for all ages and abilities.

Policies

- A. Provide pedestrian and bicycle routes that integrate with local and regional transit, connect destinations, and provide end-of-trip facilities.
- B. Designate and improve pedestrian enhancement zones (PEZs) at appropriate locations.
- C. Require new commercial and residential projects to integrate with pedestrian and bicycle networks, and that necessary land area is provided for the infrastructure.
- D. Implement and operate appropriate traffic control devices to reduce conflicts between pedestrians, bicycles, and motor vehicles.
- E. Ensure that bicycle and pedestrian facilities comply with accessibility provisions of the Americans with Disabilities Act.
- F. Increase bicycle parking in or near Downtown, near the beach, and throughout the planning area. Identify opportunities for a pilot bikesharing program in Downtown.
- G. Encourage the use of easements and/or rights-of-way along flood control channels, public utilities, railroads, and streets, for use by bicyclists and/or pedestrians, where safe and appropriate.
- H. Maintain an equestrian trail network that supports horse properties and local stables, and link trails to regional facilities that can be combined with hiking trails.
- I. Maintain navigable waterways in Huntington Harbour and Sunset Channel for both recreational and commuter use.

Protecting Scenic Corridors

Scenic corridors enhance the visibility and attractiveness of the community, and in some cases, provide visual access to the beach and ocean. Protecting the aesthetic appeal of these areas is an ongoing City priority.





Goal CIRC-7. Designated scenic corridors protect and enhance visual quality and scenic views.

Policies

- A. Establish and implement landscape and urban streetscape design themes for landscape corridors, minor urban scenic corridors, and major urban scenic corridors that create a distinct character for each, enhancing each corridor's surrounding land uses.
- B. Require that any bridges, culverts, drainage ditches, retaining walls, and other ancillary scenic and landscape corridor elements be compatible and architecturally consistent with surrounding development and established design guidelines, to the greatest extent practicable.
- C. Require that slopes and earthen berms along scenic corridors be landscaped consistent with design objectives and standards.
- D. Provide landscaped medians and sidewalk treatments in accordance with City standards within major and primary arterial streets designated as landscape corridors, and continue to require the construction of landscaped medians and sidewalk treatments in new developments.
- E. Require that development projects adjacent to a designated scenic corridor include open spaces, plazas, gardens, and/or landscaping that enhance the corridor and create a buffer between the building site and the roadway.
- F. Continue to locate new and relocated utilities underground within scenic corridors to the greatest extent possible. All other utility features shall be placed and screened to minimize visibility.

Providing for Alternative Fuel Vehicles and Infrastructure

Increasing the use of alternative fuels (e.g., natural gas, hydrogen, fuel cells) in traditional vehicles and increasing the use of electric vehicles represent important strategies to maintain mobility while reducing air pollution and greenhouse gas emissions.

Goal CIRC-8. Planning and infrastructure support electric and alternative fuel vehicles through power or fueling stations and other means.

Policies

- A. Encourage inclusion of power stations and alternative fuels at traditional gas stations.
- B. Plan for conversion of all government fleet vehicles to alternative fuel or electricity.





Ensuring Access for Emergency Vehicles

Ensuring the ability of the City's emergency services to respond to emergency situations is crucial to the community's public safety. Congestion may impede the ability of the City's emergency services to respond in a timely manner. It is important to implement new devices and programs to improve the ability of emergency personnel and vehicles to respond to calls for assistance and direct residents during emergencies.

Goal CIRC-9. The circulation system is prepared for emergency vehicle response by reducing congestion or other roadway- and traffic-related impediments which can slow response times.

Policies

- A. Provide a circulation system that helps to meet emergency response time goals and incorporates technology infrastructure to clear intersections during emergency response events.
- B. Complete transportation improvements that assist in meeting the response goals for emergency services.
- C. Provide a system of primary, major, and secondary arterials that can be used for evacuating persons during emergencies or for ingress when emergency response units are needed.

