



mobility and infrastructure

in this section

mobility

mobility introduction

baseline considerations

key terms

goals and policies

infrastructure

infrastructure introduction

baseline considerations

key terms

goals and policies

mobility introduction

Moving around, to, and through Whittier is facilitated by many modes of transport: car, bus, bike, electric bike/scooter, and our own two feet. Whittier residents and businesses also have ready access to airports in Burbank, Ontario, Santa Ana, and Los Angeles. Coordinated transportation planning has created a relatively efficient system of freeways, roads, sidewalks, and trails, that give residents and the business community many mobility choices, including choices for recreation. Even so, the private automobile continues to dominate as the mode of choice; local, regional, and national agencies traditionally have focused both planning efforts and spending on freeway and roadway improvements. This auto- and truck-centric model has contributed to congestion, pollution, and elevated CO₂ levels, leading to increasing concerns regarding health and the environment. As such, Whittier's model for mobility in the 21st century deviates from traditional transportation planning. We shift circulation and associated land use planning toward options that will improve environmental quality, encourage healthier lifestyles, support economic development, and provide options for safe alternative modes of transportation.

We recognize the freedom of movement cars provides – and the fact that people often use cars as expressions of status and personality. This freedom of travel will continue to influence circulation infrastructure investment choices, resulting in significant funds that will be spent over the next 20 to 30 years on roads and freeways. The City supports investment to remedy traffic congestion spots. However, in Whittier such spending will be balanced with commitments to improve access to bus, local shuttle, and future light rail transit, improve bicycle access and safety, and enhance the pedestrian experience.

Whittier's overarching mobility goal is to establish and maintain a balanced, multi-modal transportation network that enables residents to travel safely and minimizes environmental and neighborhood impacts.

baseline considerations

Most trips begin and/or end with a person walking to/from a destination, at least for a short distance. Thus, the walking environment is one of the most basic elements of public space. Whittier's pedestrian network consists primarily of sidewalks provided along most roadways in commercial districts and residential neighborhoods. Sidewalks vary in width and physical conditions, making some more attractive to walking than others. Sidewalks also provide a primary transportation mode for mobility-impaired population groups such as youth, seniors, and disabled persons. In addition, Class I bicycle paths are designed as multi-use trails that pedestrians can also use. The many neighborhoods, centers, and corridors throughout Whittier

MOBILITY AND INFRASTRUCTURE ELEMENT

offer different levels of “walkability.” Factors affecting walkability include sidewalk condition, destinations to walk to (parks, schools, and commercial areas), ease in crossing streets, connectivity between areas and modes of transportation, good lighting, and an overall perception of safety. Improving pedestrian accessibility, amenities, and walkability is key to the Envision Whittier General Plan.

Uptown Whittier is one of the most walkable areas: pedestrian visibility and access are prioritized at most pedestrian/vehicle conflict locations. Uptown’s commercial and entertainment destinations, combined with easy access to transit, flat terrain, short blocks, wide sidewalks, street trees, pedestrian-scale lighting, convenient parking, frequent crosswalks, and low-speed roadways all contribute to create a safe and inviting pedestrian environment that encourages walking. Initiatives to link pedestrians from Uptown to surrounding neighborhoods including the nearby Disadvantaged Communities, local trails, and other Whittier destinations is paramount. This connectivity is the basis for pedestrian planning, which includes the proposed local circulator (shuttle), enhanced parking strategies, and a ride/car sharing policy.

Physical barriers such as major roadways discourage or in some places prohibit pedestrian access, and they limit pedestrian connectivity between many neighborhoods. Wide roadways with high speeds and long blocks, such as segments of Whittier Boulevard, discourage pedestrian crossings. Many intersections along wide arterials prohibit pedestrian crossings at one or more approaches to signalized intersections, forcing pedestrians to take indirect routes or dash dangerously across busy roadways outside of crosswalks. Pedestrian improvements are important to better facilitate movement between the residential neighborhoods flanking the commercial corridor, proposed mixed-use development, and existing commercial destinations.

Whittier has many features that make cycling pleasurable: a mild climate, relatively flat or gently sloping terrain, and proximity to many recreational and shopping destinations. Whittier’s commitment is to accommodate all categories of bicycle riders and encourage healthier lifestyles and a healthier environment. Whittier seeks to make safety a goal for “8-80” riders, making bicycle riding comfortable and safe for 8 year old children as well as 80 year old adults.

Whittier has adopted three classes of bicycle facilities, which mirror the standard classifications used by Caltrans and commonly adopted by other jurisdictions.

- **Class I Bikeway (Bike Path):** A separate facility designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized. An example of a Class I facility is the Greenway Trail.
- **Class II Bikeway (Bike Lane):** A striped lane designated for the use of bicycles on a street. Vehicle parking and vehicle/pedestrian cross-flow are permitted at designated locations. Examples of Class II facilities are Broadway Avenue, Greenleaf Avenue, and First Avenue.

- **Class III Bikeway (Bike Route):** A route designated by signs or pavement markings for bicyclists within the vehicular travel lane (i.e., shared use) of a roadway. Portions of Penn Street, Painter Avenue, and Mulberry Drive/Slauson Avenue are examples of bike routes.

In addition, several recreational paths are provided in Whittier including the Whittier Greenway Trail. However, bicycle access to the Whittier Greenway Trail from other parts of Whittier is limited. Although bicycle facilities are provided along many roadways, the bicycle network in Whittier does not serve all areas. In addition, potential conflicts with buses or trucks on heavily traveled commercial corridors, turning vehicles, and steep terrain in the northern area of Whittier serve as bicycle barriers.

The Envision Whittier Plan puts forth policy to address the barriers, and enhance bicycle safety and connectivity, including extending the Greenway Trail further east to the County border.

Public transit takes many forms, including light rail, bus, and paratransit. Whittier looks to expand public transit to include the proposed eastside light rail extension Metro “L” Line (formerly Gold Line) and a local circulator (shuttle); creating easier access to all types of transit is a key goal.

While public transit is provided and maintained by other agencies, the City can greatly influence ridership through land use and zoning decisions, connectivity to other modes (including biking and walking), providing a shuttle service linking key destinations, and improving traffic operations within strategic corridors to facilitate bus headways. The City can also dedicate rights-of-way for new systems where appropriate and continue extensive consultation with various agencies to expand transit service and accessibility.



Cyclist on Greenway Trail near Mar Vista Street

Whittier’s well-developed street system allows people to travel from their homes and businesses to destinations within the community with relative ease and to access the freeways that link the community to the region.

Historically, Whittier defined its roadway network according to the classification system used by State highway departments: freeways, expressways, arterials, collectors, and local streets. This traditional approach is primarily focused on ensuring access and mobility for automobiles, and generally does not account for other travel modes or the surrounding context. Whittier has a variety of different contexts, however, and each one deserves a different type of transportation focus. For instance, in the Uptown context, a much greater emphasis is placed on pedestrian

MOBILITY AND INFRASTRUCTURE ELEMENT

mobility, amenities, and on-street parking, whereas in an industrial or strip commercial district, focus is typically on automobile mobility and off-street surface parking.

To ensure a balanced, multi-modal transportation network, the Envision Whittier General Plan organizes streets and other transportation facilities according to typologies that consider the context and prioritize different travel modes for each street. Together, the typologies provide a network of “complete streets” to accommodate all types of local transportation modes. These typologies will guide the development of standards, to ensure transportation plans and improvements consider relationships to surrounding land uses, appropriate travel speeds, and the need to accommodate multiple travel modes and various users.

The following typology definitions apply to the streets and other facilities that make up the Whittier vehicle circulation plan (Figure MI-1).

Major arterials are designed to move large volumes of traffic through the community to other major arterial roadways or freeways. Whittier Boulevard (State Route 72) is Whittier’s only major arterial; it provides access to I-605 and connects with the adjacent cities of Montebello, Pico Rivera, and La Habra. Whittier Boulevard provides two travel lanes in each direction with limited street parking. Whittier Boulevard’s posted speed limit is 35 to 45 miles per hour.

Minor arterials are designed to move traffic from major arterials to secondary streets. Beverly Boulevard; Norwalk Boulevard; Hadley Street; Painter Avenue; Colima Road (County Route N8); portions of Lambert Road, Washington Boulevard, Mulberry Drive; and Santa Fe Spring Road are minor arterials.

Secondary streets are designed to collect and distribute traffic from major highways and arterials to community destinations. Greenleaf Avenue, Santa Gertrudes Avenue, and Mar Vista Street are secondary streets.

Collector streets are designed to move traffic from local streets to secondary major arterials. Janine Drive, La Cuarta Street, and Washington Avenue are classified as collector streets.

Local streets provide access to individual parcels and generally provide one travel lane in each direction, with on-street parking permitted on both sides of the street.

The Envision Whittier General Plan looks to improve connectivity, reduce neighborhood intrusion, “right size” rights-of-way, and improve parking management to balance automobile vehicle needs with other transportation modes while improving access in all neighborhoods, including the Disadvantaged Communities, and enhancing pedestrian, bicyclist, and automobile safety.

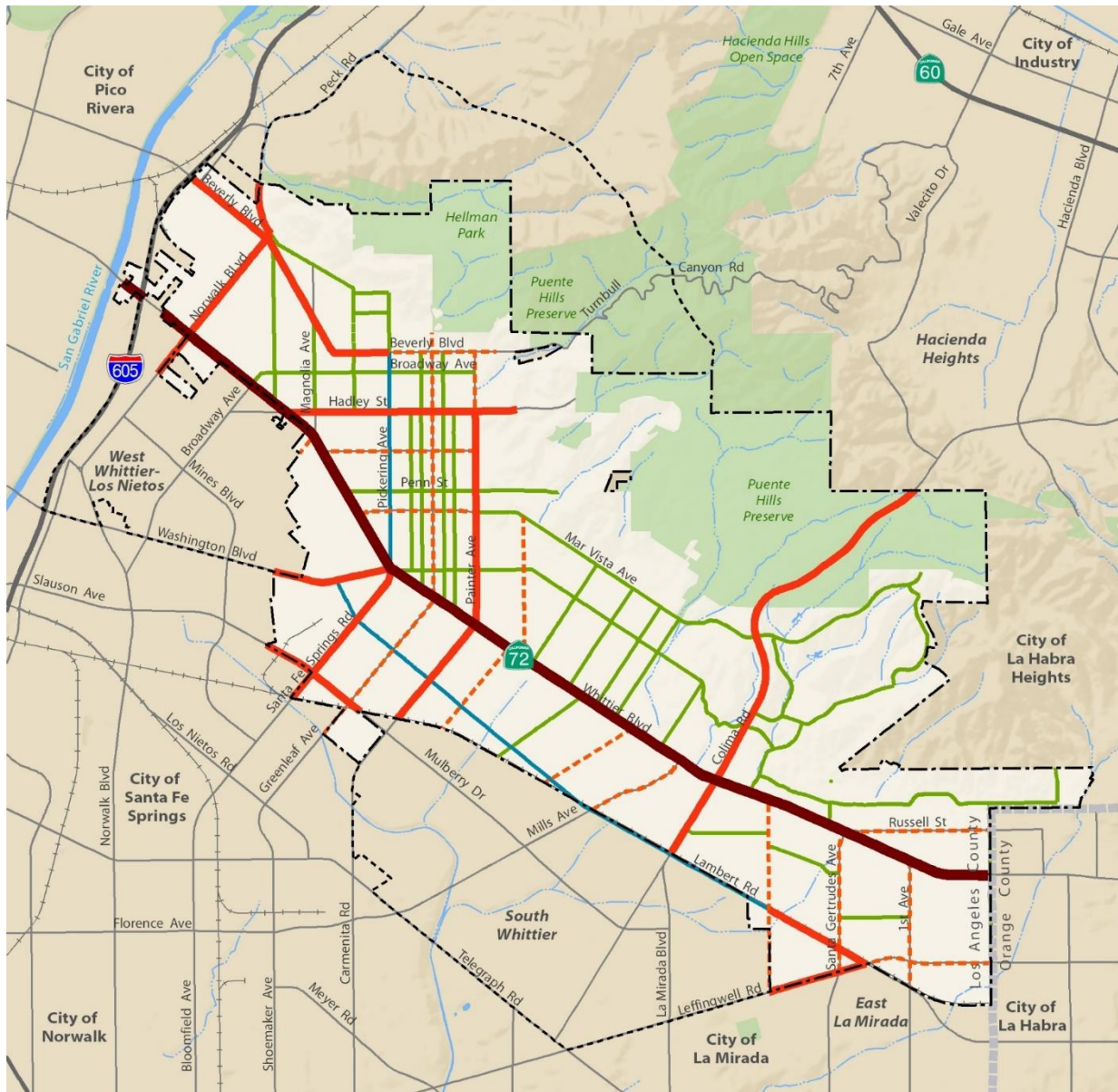


Figure MI-1:
Street Classification

- Street Classification**
- Major Arterial
 - Minor Arterial
 - - - Secondary Street
 - Secondary Street - Augmented
 - Collector Street

- Base Map Features**
- Whittier City Boundary
 - Whittier Sphere of Influence
 - County Boundary
 - Major Streets
 - Freeways
 - + Railroads
 - River and Creeks
 - Open Space/Natural Areas

Source: Fehr & Peers; 2017 and City of Whittier, 2017.
Prepared by Fehr & Peers, September 2017.



Note: This map does not include the small City-owned parcel in the Whittier Narrows area.

MOBILITY AND INFRASTRUCTURE ELEMENT

- The City of Whittier does not have designated truck routes; however, the Whittier Municipal Code provides truck traffic restrictions on the streets. Typically, truck routes are established to facilitate the movement of vehicles, which exceed maximum gross weight of three tons. Routes are designated based on the districts served, access to freeways and connector streets, and the avoidance of residential neighborhoods. Identifying truck routes is important not just to preserve dedicated routes serving industrial districts and reducing land use conflicts, but also to allow for proper street construction and maintenance, given that heavy truck traffic impacts physical street conditions more quickly than automobile traffic. An effective and efficient goods movement system is essential to the economic livelihood of all districts in the city. Policies for goods movement address all transportation facilities' abilities to accommodate the effective and efficient movement of goods, while balancing the needs of other travel modes.

key terms

Complete Streets refers to a comprehensive approach to the practice and related policies of mobility planning. The complete street concept recognizes that transportation corridors have multiple users with different abilities and mode preferences (e.g., pedestrians, bicyclists, transit riders, and drivers) that need to be accounted for.

Corridor refers to major commercial or mixed use streets that connect centers and neighborhoods, and have their own identity.

Environmental Justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental regulations and policies implemented by local agencies.

Disadvantaged Communities refers to areas and people throughout California suffering most from a combination of economic, health, and environmental burdens. These burdens include poverty, high unemployment, air and water pollution, presence of hazardous wastes, and high incidence of asthma and heart disease.

Level of Service (LOS) is a qualitative measure used to relate the quality of motor vehicle traffic service. LOS is used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measure like vehicle speed, density, congestion, etc.

Multi-Modal is the utilization of all available modes of travel that enhance the movement of people and goods including, but not limited to, highway, transit, nonmotorized, and demand

management strategies (including telecommuting). The availability and practicality of specific multimodal systems, projects, and strategies may vary by county and region in accordance with the size and complexity of different urbanized areas. (Government Code §65088)

Paratransit is an alternative mode of passenger transportation that does not follow fixed routes or schedules, and consists typically of mini-vans or cutaway-buses. Paratransit services are operated by public transit agencies, community groups or not-for-profit corporations, and for-profit private companies or operators.

Right-of-Way refers to any place that is dedicated to use by the public for pedestrian and vehicular travel. A right-of-way may include but is not limited to, a street, sidewalk, curb, and gutter. A right-of-way may be a crossing, intersection, parkway, median, highway, alley, lane, mall, court, way, avenue, boulevard, road, roadway, railway, viaduct, subway, tunnel, bridge, thoroughfare, park square, or other similar public way.

Smart Cities refers to an urban area that uses technology and data to improve the efficiency of city service delivery, enhance equity of life, and increase equity and prosperity for all residents and businesses.

Traffic Calming is the combination of policies and measures that reduce the negative effects of motorized vehicle use by improving livability in the surrounding neighborhood. With traffic calming, accessibility and mobility are not reduced; they are modified to fit needs of neighborhood. Traffic calming achieves this by modifying the design of streets to serve a broad range of transportation, social, and environmental purposes.

Transit is the conveyance of persons or goods from one place to another by means of a local public transportation system (e.g., Metro Bus, Dial-A-Ride and L Line).

Transit-Oriented Development (TOD) refers to moderate- to higher-density development, located within an easy walk of a major transit stop (L Line future station, shuttle or bus stops), generally with a mix of residential, employment, and shopping opportunities designed for pedestrians without excluding the auto. TOD can be new construction or redevelopment of one or more buildings whose design and orientation facilitate transit use.

Transportation Demand Management (TDM) is a strategy for reducing demand on the road system by reducing the number of vehicles using the roadways and/or increasing the number of persons per vehicle. TDM attempts to reduce the number of persons who drive alone on the roadway during the commute period and to increase the number in carpools, vanpools, buses and trains, walking, and biking. TDM can be an element of TSM (see below).

Transportation Systems Management (TSM) refers to individual actions or comprehensive plans to reduce the number of vehicular trips generated by or attracted to new or existing

MOBILITY AND INFRASTRUCTURE ELEMENT

development. TSM measures attempt to reduce the number of vehicle trips by increasing bicycle or pedestrian trips or by expanding the use of bus, transit, carpool, vanpool, or other high occupancy vehicles.

Vehicle Miles Traveled (VMT) is the total distance traveled in miles by all motor vehicles of a specific group in a given area at a given time.

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries while increasing safe, healthy, equitable mobility for all.

Walkability refers to a measure of how friendly an area is for walking. Factors affecting walkability include but are not limited to: land use mix; street connectivity; residential density (residential units per area of residential use); "transparency" which includes amount of glass in windows and doors, as well as orientation and proximity of homes and buildings to watch over the street; plenty of places to go to near the majority of homes; placemaking, street designs that work for people, not just cars; and nonresidential floor area ratio. Major infrastructural factors include access to mass transit, presence and quality walkways, buffers to moving traffic (planter strips, on-street parking, or bike lanes) and pedestrian crossings, aesthetics, nearby local destinations, shade or sun in appropriate seasons, street furniture, and traffic volume and speed.

Wayfinding is all the ways in which people orient themselves in physical space and navigate from place to place, including signage and other graphic communication.



Traffic signal maintenance along Lambert Road

goals and policies

Goal 1: A connected, balanced, integrated, safe, and multi-modal transportation system that accommodates all travel options

- MI-1.1: Establish Whittier's transportation network as a Complete Streets system and maintain the system in excellent condition to ensure that motor vehicle drivers, cyclists, pedestrians, transit users, goods movement, and people using any other mobility mode can easily and safely reach their destinations in Whittier. This includes:
 - developing street design standards on arterial corridors that are context sensitive to adjacent land uses and districts, and to all roadway users including transit, bicycles, and pedestrians;

MOBILITY AND INFRASTRUCTURE ELEMENT

- maintaining or improving the level of service to acceptable levels on major streets and intersections throughout the community. Level of Service D or better is the goal, except for areas with a multi-modal priority, including Uptown, Whittier Boulevard, and the area surrounding the planned L Line rail station;
- prioritizing roadway safety by such means as minimizing and mitigating neighborhood intrusion by commuter traffic, moving commuter traffic through Whittier on arterial streets, and improving conditions for pedestrians and cyclists;
- reviewing the safety and functioning of the street system on a regular basis to identify problems and develop solutions;
- considering applying traffic calming concepts adjacent to schools;
- designating local truck routes;
- upgrading existing ITS systems with new technologies such as traffic signal heads, roadside units, traffic management systems, digital signages, transit Signal prioritization, V2X communication, etc. to increase vehicular capacity efficiencies and make the ITS infrastructure future ready for autonomous vehicles (AV) and CVs; specific locations include Colima Road, Whittier Boulevard, Lambert Road, Five Points, and areas near freeway ramps;
- coordinating with regional authorities and adjacent jurisdictions for regional highway network improvements, regional multi-modal programs, and signage programs;
- developing a comprehensive wayfinding signage program for motor vehicles, cyclists, and pedestrians that directs people to efficient travel routes to reach key destinations;
- requiring all new and substantially renovated office, retail, industrial, and multi-family developments to: a) install transit amenities such as bus turnouts, pedestrian shelters, and other elements, b) include bicycle and pedestrian amenities on and off site such as on-site bike paths, sidewalk improvements, benches, and pedestrian signal push-buttons at nearby signals; c) install and connect to open space areas (parks, dog parks, or other open spaces);
- requiring all new and substantially renovated office, retail, industrial, mixed-use, and multi-family developments adjacent to the Greenway Trail to provide pedestrian and bicycle access to the Trail; and

MOBILITY AND INFRASTRUCTURE ELEMENT



- incorporating planning and design principles to promote healthy physical and economic activities that serve all users (all ages and abilities) and trip types (all travel modes and consideration of non-commute trips) through the investment in public infrastructure.



- MI-1.2: Establish a citywide pedestrian network consisting of both on-street (sidewalks) and off-street (trails or paths) facilities to connect neighborhoods, schools, open space, and major destinations. This includes:



- enhancing pedestrian access to local and regional transit, known as “first/last mile” strategies that can help make taking transit a more convenient option;
- improving the pedestrian experience by providing benches, street trees, wayfinding signs, trash receptacles, and adequate lighting using design tools to enhance safety and comfort through “eyes on the street”. Focus should be given to the pedestrian circulation and amenities in and adjacent to the areas most deficient particularly Disadvantaged Communities;
- encouraging the use of outdoor seating and parklets in Uptown; and
- requiring all new and substantially renovated office, retail, industrial, multifamily, and mixed-use developments to provide pedestrian amenities on and off-site including paths, benches, trash receptacles, and pedestrian signal push-buttons at nearby signals.



- MI-1.3: Develop and maintain a citywide bicycle network of off-street bike paths, on-street bike lanes, and bike streets (Figure MI-2). Including:



- enhancing existing and proposed Class II bike lanes to protected bike lanes and bike routes to bike lanes or bike boulevards on streets such as Colima Road, Russel Street, Mills Avenue, Washington Boulevard, Broadway Avenue, and Norwalk Boulevard;
- enhancing bicycle access to local and regional transit, known as “first/last mile” strategies that can help make taking transit a more convenient option;
- improving the network to encourage cycling as a key travel mode by including supportive bicycle facilities, such as bike stations and secure bike storage. Focus should be given to the bicycle network and amenities in and adjacent to



Whittier bus stop with bench, shade structure, and trash bin

the Disadvantaged Communities, and within one mile of the proposed L Line station.



- MI-1.4: Establish a Safe Routes to School Program, including:
 - forming a Safe Routes to School Task Force (“Task Force”) to develop and implement strategies grounded in the “E’s” (education, encouragement, engineering, engagement, evaluation, economics, and equity) that address Safe Routes to School planning, funding, and policies. The Task Force should be composed of City staff, staff representing the school districts in Whittier, students, and parents; and
 - ensuring that Safe Routes to School resources are distributed equitably across all Whittier school districts and schools including those serving the Disadvantaged Communities. Any prioritization considers, among other things, personal and traffic safety concerns, crash data, infrastructure deficiencies, equity issues such as existing and potential patterns of students walking and bicycling to school.

Goal 2: Easy access to regional and local transit service for all residents and people working in Whittier

- MI-2.1: Establish a local transit circulator system that connects Whittier residents and visitors to shopping and employment districts, regional transit facilities, schools, and recreation destinations (Figure MI-3).
- MI-2.2: Establish a transit hub near Metro’s planned L Line light rail station; connect local transit circulator services at the future station.

This page intentionally left blank.

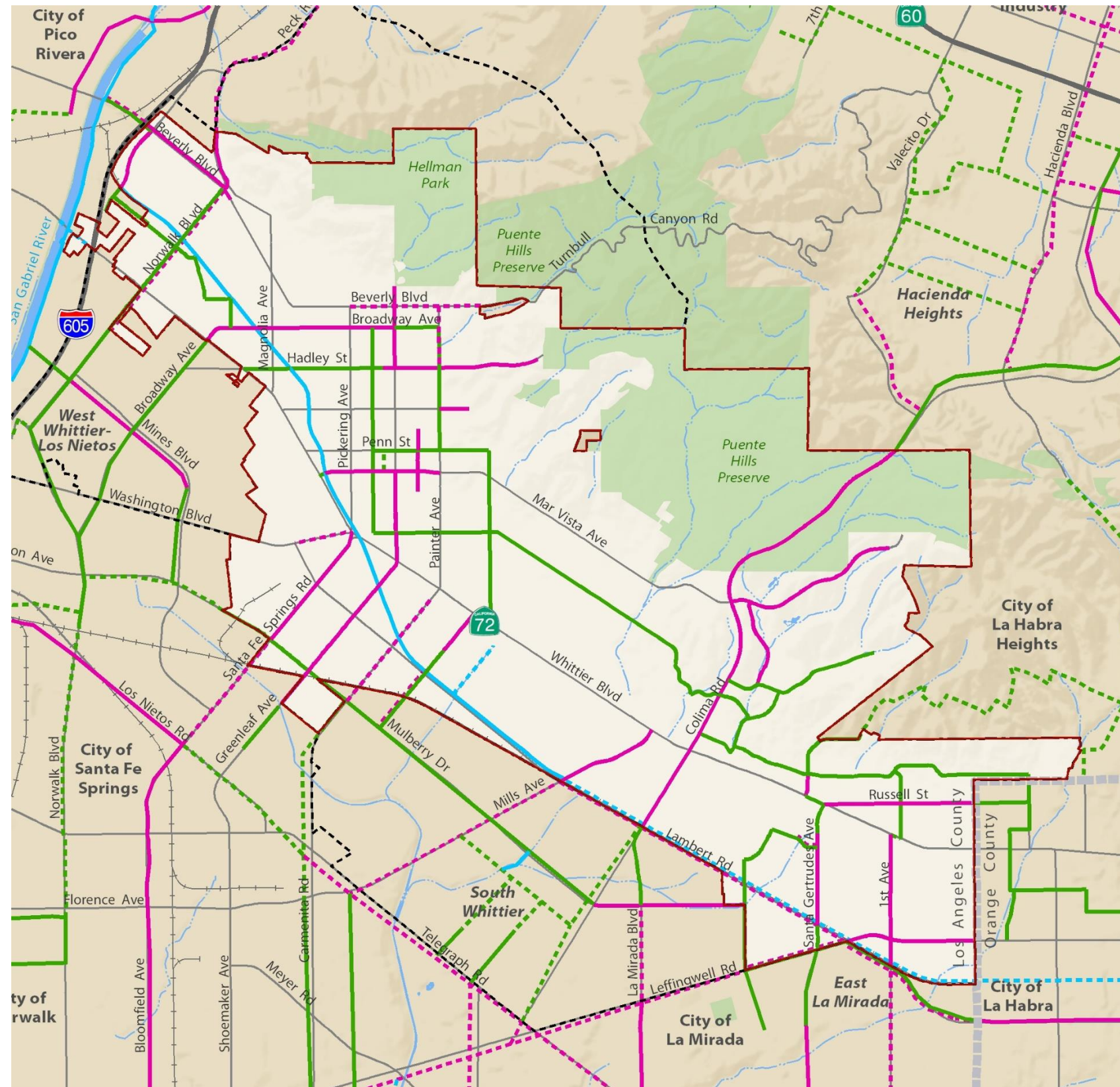


Figure MI-2:
Existing and Proposed Bike Facilities

Bicycle Facilities

- Existing Class I Bike Path
- Existing Class II Bike Path
- Existing Class III Bike Path
- - - Proposed Class I Bike Path
- - - Proposed Class II Bike Path
- - - Proposed Class III Bike Path

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Open Space/Natural Areas

Source: Fehr & Peers; 2017 and City of Whittier, 2017.

Prepared by Fehr & Peers, September 2017.



Note: This map does not include the small City-owned parcel in the Whittier Narrows area.

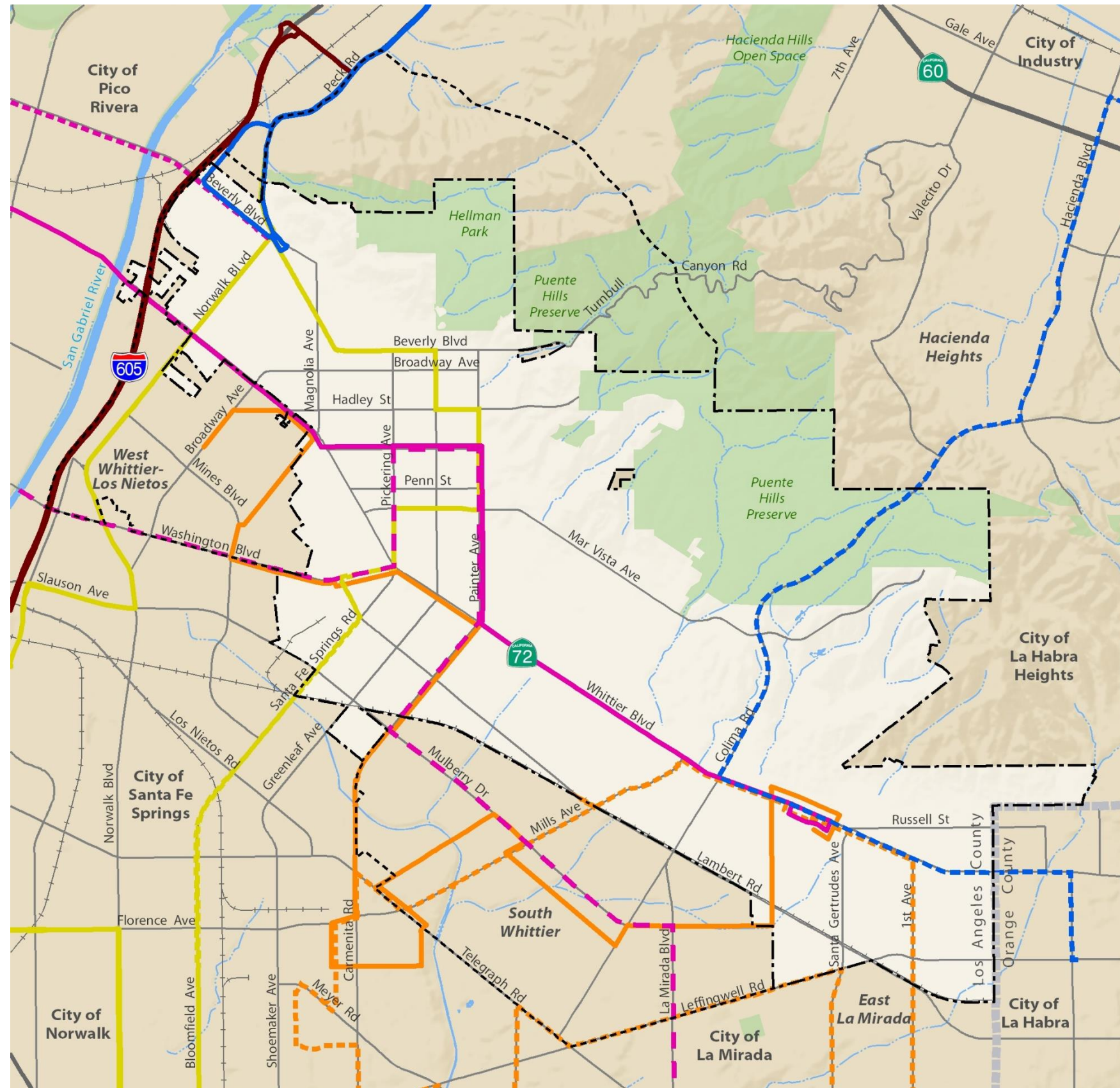


Figure MI-3:
Bus Transit Routes

Bus Routes

- Foothill Transit - 274
- - - Foothill Transit - 285
- LA Metro - 120
- Montebello - 10
- - - Montebello - 40 and 90
- - - Montebello - 50
- Norwalk Transit - 1
- - - Norwalk Transit - 7
- Sunshine Shuttle - A
- - - Sunshine Shuttle - B

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Open Space/Natural Areas

Source: Fehr & Peers; 2017 and City of Whittier, 2017.

Prepared by Fehr & Peers, September 2017.



Note: This map does not include the small City-owned parcel in the Whittier Narrows area.

- MI-2.3: Promote the use of transit within the Whittier as a means of reducing local traffic congestion, achieving greenhouse gases reduction targets, and connecting the community physically and socially. This includes:



- coordinating with transit agencies to enhance regional transit connections through additional routes and increased service frequency and exploring the expansion of Rapid Bus Service on routes serving Whittier. Other strategies include adjusting routes to better connect Disadvantaged Communities with major transit hubs and key destinations such as parks, schools, and healthy food opportunities;
- working with transit service providers to enhance service effectiveness, including:
 - providing additional routes and increased service frequency;
 - adjusting routes to better connect Disadvantaged Communities with transit hubs and key destinations;
 - providing/expanding rapid bus service;
 - providing attractive and convenient bus stops with shade/weather protection, seats, transit information, and trash receptacles; working with regional transit agencies to develop an on-demand transportation system that caters to seniors, people with disabilities, and residents in the Disadvantaged Communities;
 - considering partnering with on-demand micro-shuttle services such as Via; and
 - considering partnering with companies such as Uber or Lyft to provide a feeder system that can fill the network gaps within the local transit network.



Norwalk Transit line on Greenleaf Avenue and Hadley Street

- MI-2.4: Establish Comprehensive Operational Analysis & Long-Range Transit Plans, including:



- researching the potential of integrating autonomous micro-transit services to provide more comprehensive – and nimble – transit service (e.g., first/last mile connections); and
- evaluating the potential of on demand transit to provide end to end mobility services forming public private partnerships with other mobility providers. i.e., leveraging autonomous vehicles (AV) or transportation network company (TNC)

MOBILITY AND INFRASTRUCTURE ELEMENT

service providers for first/last mile services and/or replacing low performing transit routes.

Goal 3: Vehicle miles travelled (VMT) reduced by 15% to meet SB743 thresholds and to establish consistency with State-mandated performance metrics.

- MI-3.1: Enhance first-last mile at transit stops, including improved access, local shuttle service, new transit-supportive infrastructure, and subsidized fares.
- MI-3.2: Implement Transportation Demand Management measures including requiring new developments within one mile of the Whittier Greenway Trail to provide improved pedestrian and bicycle access to the trail.

Goal 4: A strategic roadmap to implement emerging sustainable transportation systems

- MI-4.1: Develop and support electrified modes of transportation, include strategies such as:



- o creating partnerships with regional public utility companies to enable electrification infrastructure roll-out;
- o evaluating opportunities to prioritize Disadvantaged Communities for electrification infrastructure investments;
- o supporting electric vehicle public charging infrastructure; and
- o requiring new and substantially renovated office, retail, industrial, mixed-use, and multi-family developments to provide EV charging infrastructure.

- MI-4.2: Develop citywide car and bike sharing programs to reduce traffic congestion and promote sustainable travel modes.



- MI-4.3: Develop an implementation framework for alternative fuel vehicle infrastructure by inventorying existing supply, evaluating future demand levels, and identifying approaches to accommodate future demand for alternative fuel vehicle stations and other related infrastructure.



- MI-4.4: Prioritize and identify Disadvantaged Community locations to develop sustainable mobility hubs that include car-sharing, bike-sharing, and public EV charging infrastructure.



Metro Bike Hub illustrative



Electric Vehicle Charging Station illustrative

Goal 5: Reduced traffic congestion and environmental impacts associated with goods movement

- MI-5.1: Focus truck traffic onto designated truck routes including retaining and strengthening ordinances restricting through truck movement in residential neighborhoods.
- MI-5.2: Develop a curb management strategy to accommodate on-demand food and goods delivery services' loading needs.
- MI-5.3: Enhance infrastructure to accommodate last-mile delivery services.


Goal 6: Well-managed parking demand and supply citywide

- MI-6.1: Encourage and support joint-use and off-site parking where appropriate, including:
 - monitoring Uptown's parking demand and developing strategies to allow shared parking approaches and use of public parking facilities; and
 - reviewing development proposals to ensure potential adverse parking impacts are minimized or avoided, and that pedestrian and bicycle circulation are not negatively impacted.
- MI-6.2: Develop a strategy to address parking near trailheads to reduce parking intrusion into adjacent residential neighborhoods. The strategy could include parking restrictions for non-residents, creation of trailhead lots, and provision of remote parking with shuttle service. Development of this strategy should consider interested parties' (such as the responsible land management organizations, the adjacent neighborhoods' residents and resident organizations, others) perspectives.
- MI-6.3: Examine the potential shift in parking demand due to parking management implementation and increased use of ride share services (and autonomous vehicles) in the future. This approach should include inventorying existing parking spaces and understanding the adaptability of these spaces for future uses with dynamic pricing and multiple usage during different times of day.
- MI-6.4: Research the possibility of providing overnight and midday storage areas for Transportation Network Companies (TNC) drivers or areas for TNC drivers (future autonomous vehicles) to park while not in use to help reduce congestion and VMT.

Goal 7: An effective Curbside Management Strategy

- MI-7.1: Assess existing assets and create a curbside management strategy, including:
 - inventorying existing curb assets and identifying necessary improvements to make the curb space ready to accommodate micro-mobility scooter, dynamic loading zones for commercial delivery services, autonomous vehicle services, etc. (e.g. location of loading zones, street furniture, etc.);

MOBILITY AND INFRASTRUCTURE ELEMENT

- identifying corridors with effective curb supply for potential commercial and passenger loading zones within Whittier;
- exploring dynamic pricing and regulations to effectively manage curb demand and supply for future uses;
- creating curbside management strategies, to effectively manage curb demand, including but not limited to prioritized uses, time of day uses, flexible curbside uses, and dynamic pricing;
-  ○ repurposing curbside parking to accommodate active transportation elements or promote pedestrian friendly infrastructure, such as plazas and parklets; and
- installing dynamic (physical & digital) wayfinding mechanisms that monitor occupancy, educate users, and facilitate enforcement.

Goal 8: Right-sizing of roadways

- MI-8.1: Investigate opportunities to adjust travel lane widths and the number of lanes on specific collector and arterial streets to create additional space within rights-of-way for bike lanes, landscaping improvements, and useable public green space.

Goal 9: Facilitating Smart Mobility and Autonomous Vehicle (AV)

- MI-9.1: Create a Smart Mobility and Autonomous Vehicle (AV) Master Readiness Plan, including:
 - developing a Smart Mobility working group aimed at guiding autonomous vehicle development and future mobility technologies integration in a way that is consistent with community goals;
 - assessing state and federal regulations for autonomous vehicle testing/deployment and hosting community events to educate residents on the potential impacts of autonomous vehicles and other future technologies;
 - developing a policy framework for autonomous vehicle testing, pilots, and eventual commercial deployment, consistent with State and federal regulations;
 - developing 'autonomous vehicle readiness index' based on policies, physical assessment of existing infrastructure (e.g. signals, striping, curbs, etc.), and cost/feasibility of infrastructure updates;
 - researching and identifying accessibility and equity concerns that may arise with future deployment of autonomous vehicle by Transportation Network Companies (TNC);
 - developing mechanisms to ensure autonomous vehicle mobility services provide equitable service to all neighborhoods (e.g. enforcing regulations for TNC's to provide service in Disadvantaged Communities, leveraging autonomous vehicle ride-hail services to fill mobility gaps within the transit network, etc.);

MOBILITY AND INFRASTRUCTURE ELEMENT

- determining the need and standards for a centralized traffic management system that can integrate and interact with different autonomous vehicle systems and providers. (e.g. sensory hardware required to create an “Air Traffic Control System” for streets); and
- researching implications of innovative and connected vehicle technologies for V2I/V2X applications in transit priority applications, managing autonomous vehicles, autonomous vehicle delivery services, etc. (e.g. DSRC, 5G, Sensor hardware);
- creating inventory of existing infrastructure assets to determine necessary upgrades for autonomous vehicle ready usage and identifying investments on corridors or areas for early integration of autonomous vehicles testing/pilots. (e.g., low speed shuttle pilots, services for senior communities);
- exploring strategies that have been successfully implemented by other jurisdictions for collecting, storing, analyzing, and sharing transportation data (e.g., trip origins, destinations, mode share, delay, productivity); and
- developing data management plan and sharing standards to allow data to be shared with smart mobility technology and autonomous vehicle providers/developers (e.g., MDS/Open Mobility Foundation, Shared Streets).



Dial-A-Ride Shuttle Service

infrastructure introduction

An efficient and reliable infrastructure system is vital to any city's health, safety, livability, and its economic well-being. The Infrastructure section addresses the physical facilities needed for the conveyance of vital services and functions such as water storage and distribution, wastewater collection and treatment, and storm drainage and flood control.

These infrastructure systems represent the vital support network upon which we rely to maintain our daily activities. To preserve high service levels in Whittier, ongoing maintenance, improvement, and replacement is required. New development must ensure that new needs are met without burdening current users.

baseline considerations

- Four water providers serve the Planning Area: City of Whittier, Water Division; San Gabriel Valley Water; Suburban Water Systems; and Orchard Dale Water District (Figure MI-4). Most water is drawn from aquifers in the San Gabriel Main Basin and Coastal Plain of the Los Angeles Central Basin. Since the majority of the Planning Area is built out, the water companies do not anticipate significant population growth. Planned capacity improvements within Whittier are primarily to maintain adequate fire flows.
- The San Gabriel Valley Water Company can also supply recycled water, but the distribution area is limited. Recycled water use is primarily for Caltrans freeway/highway irrigation, City of Whittier parks (Founders Park and Palm Park), and at schools (Dexter School, Orange Grove School, and Longfellow School).
- The City owns, operates, and maintains the wastewater collection system serving Whittier homes, businesses, and institutions. The wastewater collection system consists of approximately 194 miles of sanitary sewer mains. In addition to these City sewers, approximately seven miles of private sewers and 14 miles of County Sanitation Districts of Los Angeles County (LACSD) trunk sewers traverse the City. The City's wastewater system conveys wastewater into the LACSD trunk sewer at various locations throughout the City. Once in the LACSD trunk sewer system, the wastewater is conveyed to the LACSD wastewater treatment plant for final treatment and disposal. Anticipated capital improvements include pipe replacement to correct capacity deficiencies and problem hot spots and to replace aging pipes. The replacement projects are anticipated to continue through 2035.
- Whittier's storm drain system is partially operated by the City of Whittier and the Los Angeles County Flood Control District. Stormwater endpoint discharge is the Pacific

Ocean via the San Gabriel River and its tributaries -- Coyote Creek, La Miranda Creek, Leffingwell Creek, and Verde Creek. The San Gabriel River is impaired by pollutants, including metals (copper, lead, zinc) and selenium that are carried by stormwater. Metals are common stormwater pollutants associated with roads and parking lots. Other sources of these pollutants include building materials (such as galvanized steel) that are exposed to rain. The City is a co-permittee in the Los Angeles County National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit.

- Due to limited space within the existing rights-of-way, water quality BMPs should serve multiple functions such as traffic calming, tree planting, and beautification.
- Due to limited park space, water quality BMPs should serve multiple functions for both recreation and stormwater management.
- The proliferation of overhead utility lines and poles has long been cited as a source of urban visual pollution. Recent new development has included underground electric and telephone service, largely due to technical advances that reduced the cost of undergrounding utility lines. However, undergrounding existing overhead utilities can be complicated and expensive.
- Over the next 20 years, key infrastructure considerations and concerns will be intricately tied to sustainability. As concerns about global warming and climate change increase, we must carefully plan our infrastructure to accommodate a lower reliance on traditional methods of energy production, water use, and waste management. Envision Whittier's Infrastructure goals, policies, and implementation programs focus on utilizing sustainable practices, maintenance, and educating users to maintain service levels. Furthermore, by improving infrastructure in and along Whittier Boulevard (in concert with Caltrans' objectives) and within Uptown, infill and intensified development consistent with priorities for smart growth can be supported.

key terms

National Pollutant Discharge Elimination System (NPDES) as authorized by the Clean Water Act, the NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The State Water Resources Control Board issues permits to jurisdictions with the objectives to attain and protect the beneficial uses of water bodies in the State; reduce pollutants in stormwater to the maximum extent practicable; and to evaluate compliance with the objectives and requirements contained in the permit.

Recycled/Reclaimed Water is former wastewater (sewage) that has been treated to remove solids and certain impurities, and then allowed to recharge the aquifer rather than being

MOBILITY AND INFRASTRUCTURE ELEMENT

discharged to surface water. This recharging is often done by using the treated wastewater for irrigation.

Renewable Energy is the term renewable energy generally refers to electricity supplied from renewable energy sources, such as wind and solar power, geothermal, hydropower and various forms of biomass. These energy sources are considered renewable sources because their fuel sources are continuously replenished.

Sanitary Sewer (Sewer) is a system of subterranean conduits that carries refuse liquids or waste matter to a plant where the sewage is treated, as contrasted with storm drainage systems (that carry surface water) and septic tanks or leach fields (that hold refuse liquids and waste matter on site).

Smart growth is a compact, efficient, and environmentally sensitive pattern of development that provides people with additional travel, housing, and employment choices by focusing future growth away from rural areas and closer to existing and planned job centers and public facilities.

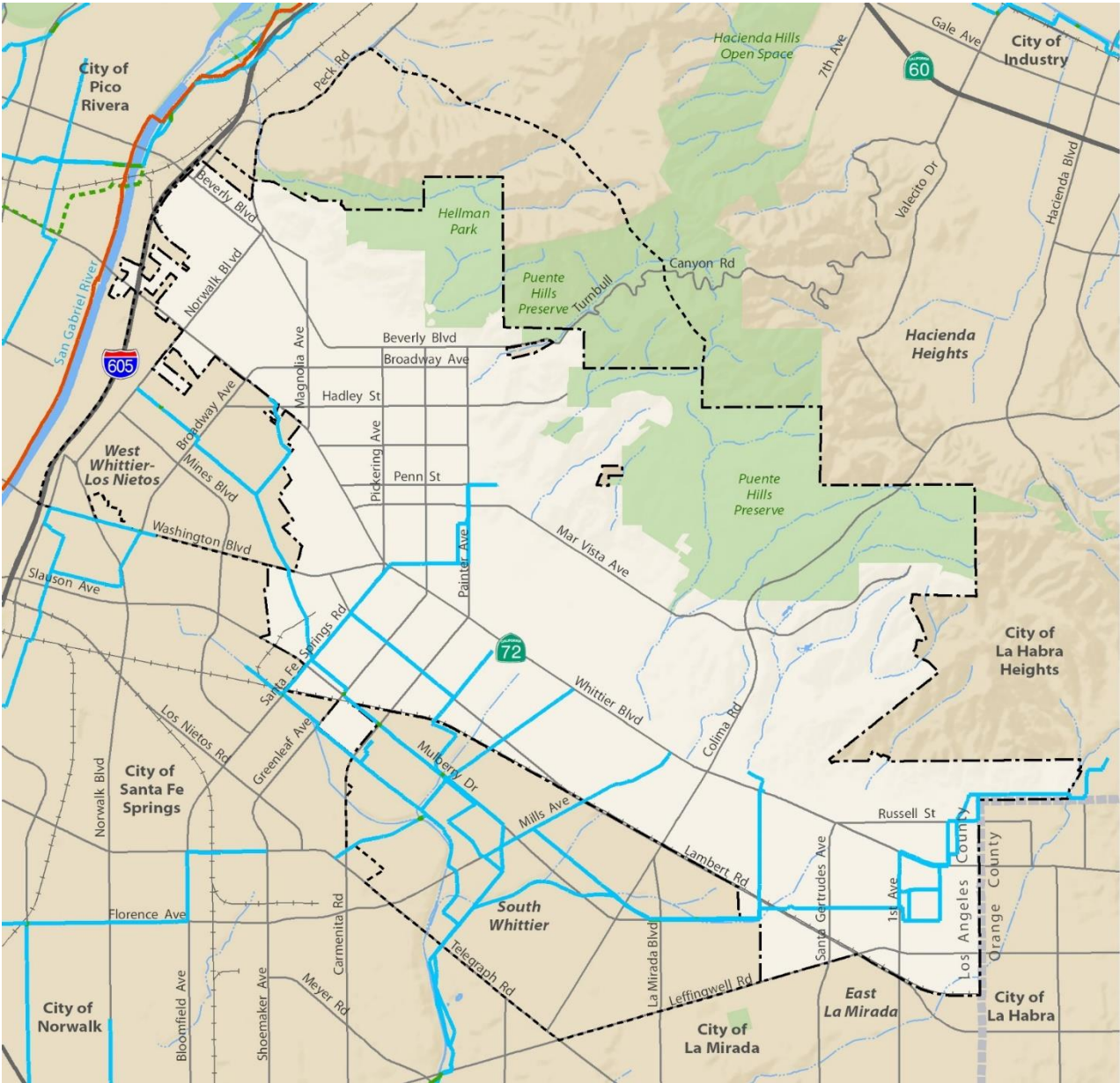
goals and policies

Goal 10: Safe and reliable potable and recycled water storage and distribution systems that meet current and future needs

- MI-10.1: Identify funding for and implement the planned water system improvements identified in the City's 2018 Water System Master Plan. Update the Master Plan as needed in response to changing conditions; consider the unique needs of the Disadvantaged Communities.
- MI-10.2: Minimize leaks in the City's water distribution system through regular monitoring, maintenance, and mitigation.
- MI-10.3: Maintain the City's water system to ensure adequate fire flows.
- MI-10.4: Maintain and operate the City's water storage and distribution system to provide for rapid recovery and reliable and sufficient emergency water supplies in the event of a disaster.
- MI-10.5: Ensure the Suburban Water Systems, Orchard Dale, and the Cal Domestic Water Company implement improvements to their systems that provide high-quality services to the Whittier Planning Area customers.



Figure MI-4:
Water Districts



Sewer Trunk Lines (LA County Sanitation Districts)

- In Service Gravity
- In Service Siphon / Suction
- Outfall (San Gabriel River)
- - - Out of Service Gravity / Siphon

Base Map Features


- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Waterbodies
- Open Space/Natural Areas

Source: City of Whittier and Los Angeles County Sanitation Districts, 2013.
Prepared by MIG, July 2017.



Note: This map does not include the small City-owned parcel in the Whittier Narrows area.

MOBILITY AND INFRASTRUCTURE ELEMENT

- MI-10.6: Support water reclamation agencies' efforts to provide reclaimed water service throughout Whittier.
-  MI-10.7: Use reclaimed water to irrigate parks, decorative fountains, and other public open space areas.

Goal C11: Reliable local wastewater collection facilities that support established needs, as well as the City's economic development goals and plans for new housing (Figure MI-5)

- MI-11.1: Identify funding for and implement the planned sewer system improvements identified in the City's 2018 Sewer System Master Plan. Update the Master Plan as needed in response to changing conditions, including the addition of Accessory Dwelling Units (ADUs) and the unique needs of the Disadvantaged Communities.
- MI-11.2: Prioritize planned sewer system improvements in areas where they system has the most need and where growth will be focused.
- MI-11.3: Conduct a study to determine how new development is to pay its fair share of sewer system improvements.
- MI-11.4: Proactively conduct system inspection and cleaning.
- MI-11.5: Minimize groundwater infiltration and inflow to the wastewater collection system to maintain sufficient peak wet-weather capacity.

Goal 12: An integrated local stormwater management system that guards against urban flooding and provides for the "greening" of Whittier (Figure MI-6)

- MI-12.1: Maintain the capacity and condition of local storm drains to accommodate all but extreme weather events.
- MI-12.2: Ensure the ability of regional stormwater collection facilities to accommodate flows from Whittier's stormwater collection system through coordination with the Los Angeles County Department of Public Works.



Bioswale design illustrative



Pervious pavement design illustrative



- MI-12.3: Incorporate Low Impact Development (LID) approaches into the design and upgrades of public stormwater infrastructure, including bioswales and pervious surfaces.

Goal 13: Reliable, unobtrusive, and eco-friendly energy systems



- MI-13.1: Ensure improvements to and maintenance of electric power and natural gas transmission and distribution systems are performed in a manner that maintains safety and reliability and that implements City environmental goals.
- MI-13.2: Focus on purchasing electricity from renewable sources through continued participation in appropriate organizations and alliances.
- MI-13.3: Accommodate alternative energy infrastructure (such as wind and solar) as new technology evolves.
- MI-13.4: Ensure pipeline owners protect and maintain underground high-pressure pipelines consistent with applicable laws through coordination and working with responsible federal and State agencies.
- MI-13.5: Require new development projects underground utilities and provide utility upgrades/replacements, as appropriate.

Goal 14: Communications technologies that facilitate efficient and affordable access for everyone in Whittier, provide broad benefits, and integrate well into the urban environment



- MI-14.1: Ensure residents, businesses, and institutions in Whittier have choices regarding communications service providers.
- MI-14.2: Explore ways to provide easy access to wireless communications services in public spaces.
- MI-14.3: Identify local Disadvantaged Communities that may be underserved by wireless communications services due to cost or poor service coverage; work with service providers and others to improve that access.
- MI-14.4: Minimize the visual impacts of communications infrastructure.
- MI-14.5: Ensure that the City receives sufficient revenues and other benefits from the private use of public infrastructure and facilities for the installation of small cell and similar technologies.

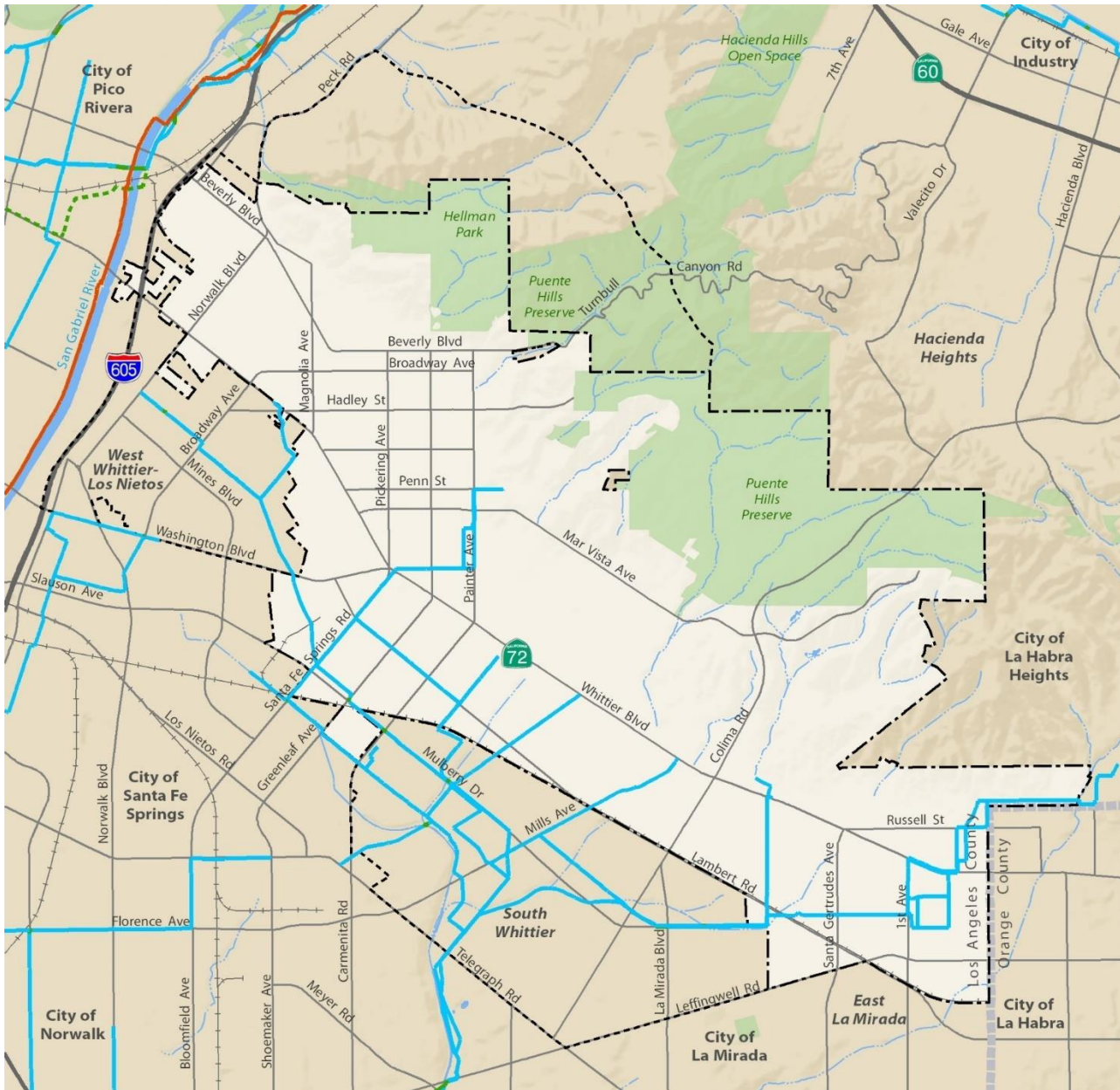


Figure MI-5:
Sewer Lines

Sewer Trunk Lines (LA County Sanitation Districts)

- In Service Gravity
- In Service Siphon / Suction
- Outfall (San Gabriel River)
- - - Out of Service Gravity / Siphon

Base Map Features

- Whittier City Boundary
- Whittier Sphere of Influence
- County Boundary
- Major Streets
- Freeways
- Railroads
- River and Creeks
- Waterbodies
- Open Space/Natural Areas

Source: City of Whittier and Los Angeles County Sanitation Districts, 2013.

Prepared by MIG, July 2017.



Note: This map does not include the small City-owned parcel in the Whittier Narrows area.

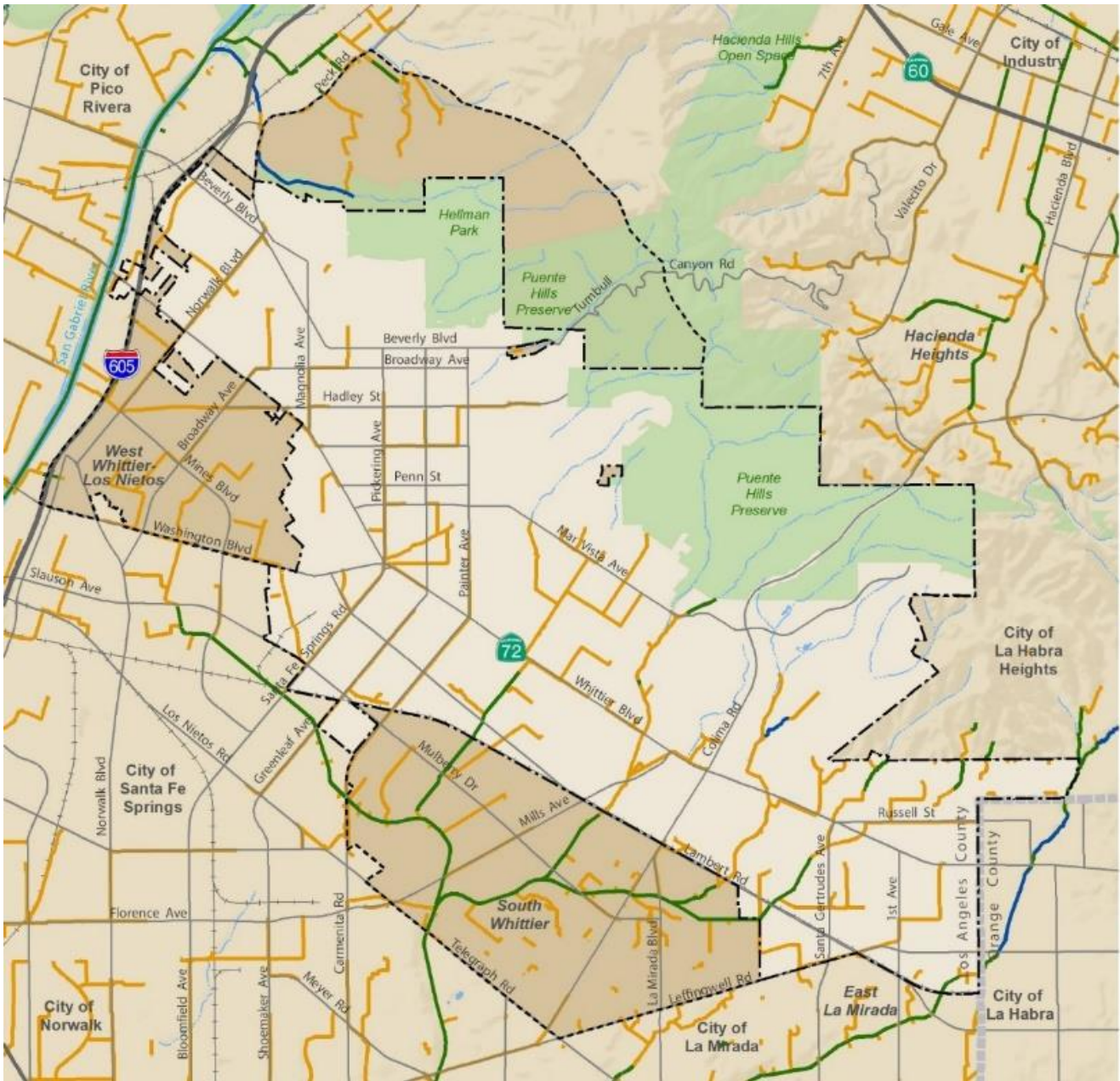


Figure MI-6:
Stormwater
Infrastructure

- Storm Drains**
 - Open Drainage Course
 - Natural Drainage Course
 - Gravity Main
- Base Map Features**
 - Whittier City Boundary
 - Whittier Sphere of Influence
 - County Boundary
 - Major Streets
 - Freeways
 - Railroads
 - River and Creeks
 - Waterbodies
 - Open Space/Natural Areas

Source: City of Whittier and Los Angeles County Public Works, 2013.
Prepared by MIG, July 2017.



Note: This map does not include the small City-owned parcel in the Whittier Narrows area.

MOBILITY AND INFRASTRUCTURE ELEMENT

Goal 15: “Smart” infrastructure that creates a connected, coordinated, and responsive City

- MI-15.1: Explore opportunities for using integrated technologies and infrastructure to:
 - Improve and enhance transportation, water delivery, sewage collection, streetlight, solid waste collection, and other urban systems
 - Connect residents and businesses with City services and programs
 - Promote economic development opportunities
- MI-15.2: Develop a “smart cities” strategy.