CITY OF
HERCULES
CIRCULATION ELEMENT

Adopted February 27, 2018

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SECTION 1.

INTRODUCTION & OVERVIEW

1. INTRODUCTION & OVERVIEW

A city's circulation network is one of its most valuable assets. The circulation network provides not only mobility, but also the city's largest form of public space, with immense communal, economic, and aesthetic value. Streets, bike ways, and pedestrian ways are conduits for the most basic needs of the community. They provide the means to accomplish ongoing travel to and from workplaces, schools, and for the procurement of basic needs. Communities rely on circulation for their economies, public safety, and the conduct of many aspects of social life. The circulation network knits together the unique physical, social, and economic fabric of communities like Hercules.

The purpose of the Circulation Element is to provide the City with a blueprint for accommodating and enhancing all modes of travel—vehicular, pedestrian, bicycle, and transit—over a minimum time frame of 20 years. The Circulation Element is one of the seven State-mandated elements of the General Plan, and provides the basis for decision-making regarding the continued development and enhancement of the transportation system for the City's residents, employees, and visitors; as well as for the community's changing residential and commercial needs, evolving technology, and future growth. The Circulation Element aims to enhance the mobility and safety of all transportation modes by supporting the implementation of a "Complete Streets" program, thereby ensuring adequate attention is given to all travel modes in planning, design, funding, and implementing the City's transportation network.

RELATIONSHIP TO STATE LAW

California Government Code Section 65302(b) requires cities to adopt a Circulation Element that consists of "the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan."

In 2008, Assembly Bill 1358, the California Complete Streets Act, established a "Complete Streets" requirement that all substantive revisions to a Circulation Element after January 1, 2011, must plan for a balanced, multi-modal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel, including bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors. This Circulation Element includes policies that promote the development of "Complete Streets" in the City.

PLANNING PROCESS

This Circulation Element comprehensively updates the city's previous Circulation Element adopted in 1998. An update of the Circulation Element was needed given the land use and regulatory changes that have taken place over the last 20 years within Hercules and the region, and in response to the ongoing evolution in transportation technology. In addition, recent State legislation requires increased emphasis in transportation planning on the "Complete Streets" concept, greenhouse gas reduction, and equitable access for all users. Upcoming changes to the State guidelines for determining environmental impacts will also replace automobile delay, which is generally determined through Level of Service (LOS), with Vehicle Miles Traveled (VMT) as the measure of impact to a city's transportation network. VMT is generally a measure of how many trips are generated or travel through the City's roadway network and the average length of trips.

The horizon year for this Circulation Element is 2040, and the forecasts of future travel patterns are derived from the Contra Costa Transportation Authority's (CCTA) regional travel model. Forecasts of population and employment used by the CCTA model were reviewed and updated to ensure consistency with the recent development activity as well as anticipated future projects.

RELATIONSHIP TO GENERAL PLAN POLICIES

The Hercules General Plan consists of an introduction and nine separate elements. The introductory chapter of the General Plan contains several policies relevant to the Circulation Element, listed below.

- *C.2.e. A major criteria for the design of residential streets will be the number of housing units to be served by that street.*
- *C.2.f. The City will actively participate in cooperative efforts to provide effective public transit to the City and adjacent communities.*
- *C.2.g. The City will promote the establishment of riding and hiking trails throughout the community and coordinate with other agencies in the planning of trail systems in the area and region.*
- *C.2.j The City will consider noise intrusion from major streets and freeways in reviewing plans for new housing developments.*

The following sections discuss the relationship between the Circulation Element and the other nine elements of the General Plan.

LAND USE ELEMENT (ADOPTED 1998)

The Land Use Element establishes permitted land uses in each area of the City, which in turn drive the demand for transportation infrastructure and services. State law requires consistency between each element of the General Plan, including the land use and circulation elements. Several policies in the Land Use Element are relevant to transportation:

- **Policy 3A.** Develop transportation facilities to provide access to the region, particularly public transit systems (buses, ride sharing, rail transit, as well as potential over-water transit).
- **Policy 3B.** The Land Use Element and Circulation Element need to be closely coordinated to ensure that traffic from new development will not overwhelm the carrying capacity of the circulation system.
- **Policy 3C.** Reasonable traffic flow and direct access between neighborhoods should be provided or preserved, where feasible.
- **Program 7A.1.** Provide landscaping along major regional streets and highways. This landscaping should soften the appearance of traffic and parking along these routes, while allowing view corridors to retail and other businesses.
- **Policy 11B.** Participate in regional and sub-regional planning and traffic issues to better address the potential regional impacts upon the community.
- **Policy 14A.** Develop trail systems, open space, and other amenities that benefit the quality of life in the community.
- **Program 14 A.1** Establish a strong and continuous system of trail links between the hills in the southeastern end of Refugio Valley and San Pablo Bay.
- **Program 14A.2** Establish a trail linkage between Pinole and Rodeo as part of the regional bay access trail; this trail may encroach upon private property or bluffs within the Hercules industrial area.

SAFETY (ADOPTED 1998, AMENDED 2015)

The Safety Element identifies emergency evacuation routes within the City, including San Pablo Avenue, Highway 4, Interstate 80, Sycamore Avenue, Refugio Valley Road, Falcon Way, Turquoise Avenue, and Pheasant Drive. The Safety Element also discusses how San Pablo Avenue and Willow Avenue would serve as alternative routes in the event of blockages of Interstate 80 and State Route 4, respectively. In addition, the Safety Element specifies that emergency vehicle access shall be evaluated as part of subdivision and planned development plan application review.

HOUSING ELEMENT (ADOPTED 2015)

The Housing Element focuses on the community's housing needs and strategies for meeting those needs.

- **Policy 3.5** Allow flexibility within the City's standards and regulations to encourage a variety of housing types.
- **Program 3a** Provision of Adequate Sites– Encourage sustainable development patterns by continuing to offer reductions in Traffic Facilities Impact Fee for projects that are located within one-half mile from a transit station and for mixed-use projects where 50 percent or more of the building space is used for residential purposes.
- **Policy 5.2** Provide equal access to housing for special needs residents such as the homeless, elderly, and disabled.
- **Policy 6.3** Utilize site planning techniques to allow passive energy efficiencies through solar access, landscaping and building orientation.

OPEN SPACE & CONSERVATION ELEMENT (ADOPTED 1998)

The Open Space and Conservation Element identifies the location of the San Francisco Bay Trail though Hercules.

- **Objective 13.** Preserve and enhance scenic views within the community.

NOISE (ADOPTED 1998)

The Noise Element identifies traffic on freeways, highways, and major local roadways as the most substantial source of noise in the City, and documents the range of noise levels on a noise contour map. The traffic projections prepared in conjunction with this Circulation Element update will be useful in a future update of the City's Noise Element.

HAZARDOUS WASTE MANAGEMENT PLAN (ADOPTED 1990)

The Hazardous Waste Management Plan recognizes that transportation of hazardous waste and materials occurs on all major transportation corridors in and near the City of Hercules.

ECONOMIC DEVELOPMENT (ADOPTED 1991)

The Economic Development Element summarizes the findings of the Economic Development Strategy Planning Task Force. This Element directs the City to periodically update modeling of traffic operations on local streets as was done for this Circulation Element update.

GROWTH MANAGEMENT (ADOPTED 2013)

The Growth Management Element was developed to comply with the countywide Measure J Growth Management Program, as discussed under Countywide Planning, below. Traffic level of service standards for "Basic Routes," which are referred to in the Growth Management Element, are established in this Circulation Element update.

AMENDMENTS TO GENERAL PLAN

A number of land use development proposals have been approved and developed since the last comprehensive update of the General Plan Land Use Element in 1998. The improvements to the transportation network required to mitigate impacts of this development, as specified in the respective Environmental Impact Reports, have been assumed as in place as part of the future 2040 scenario for this Circulation Element update, unless otherwise specified. The future scenario includes all existing development within the City of Hercules plus all specifically-defined approved projects that have not yet been developed as of the date of the preparation of this Circulation Element. The following projects were included in the future scenario:

- Hercules New Town Center – 2008
- Hill Town and Sycamore Crossing – 2009
- Hercules Bayfront Project – 2011

RELATIONSHIP TO OTHER CITY PLANS

CENTRAL HERCULES PLAN & REGULATING CODE (CHP)

Chapter 28 of the Hercules Zoning Code incorporates by reference the Central Hercules Plan (CHP) Regulating Code which was adopted in 2001. The Plan identifies form-based code street standards in Chapter II of the document under its Palette of Street Types. Pages II-2 and II-3 of the plan show an overall Hierarchy of Street Types map. With the adoption of this Circulation Element, the circulation chapter of the CHP will be pre-empted and follow the illustrative Figures 3-2 through 3-8 for the majority of the town, with the exception of the Waterfront District, which is governed by its own master plan.

As projects come forward, new traffic impact analyses are being conducted to review the circulation needs and consider refinements to the street cross-sections as determined by the impacts of the various development proposals. At the same time, when the City is upgrading any section of roadway, it is ensuring that old policies that may not be consistent with Complete Street requirements are incorporated to rectify inconsistencies of multiple Plans and the built environment. Any changes to these policies that are incorporated into an approved Development Agreement must be mutually agreed upon by all parties to the Development Agreement before modifications can be made.

WATERFRONT DISTRICT MASTER PLAN

In 2008 the City's Waterfront District Master Plan was modified by the Council based on an initiative that was being proposed to reflect the developer's vision for the area. The resulting Hercules Waterfront District Master Plan (HWDMP) adoption in 2008 and subsequent modification in 2012 and 2016 pre-empts those sections of the above discussed CHP and this Circulation Element where overlapping occurs within the undeveloped Waterfront District.

The Street and Circulation Standards chapter of the (HWDMP) establishes regulations for Streets and Circulation for the undeveloped portion of the Historic Town Center, Transit Village, and Hercules Point Sub-District of the HWDMP. The standards delineate approximately eight street types and two exclusive pedestrian types of street standards. Page 4-3 of the Plan shows the overall Street and Circulation Regulating Plan for the undeveloped portions of the Waterfront District (a copy of which is included herein as **Figure 3-9)**. The form-based codes show cross sections of each street or pedestrian facility, where it is located, the overall width, lane configurations, edges, and intersections. Any changes to these policies must be mutually agreed upon by both the property owner and the City before modifications can be made. Depending on proposed adjacent building heights, Fire Code requirements may impact the cross-sections.

REFUGIO CREEK WATERSHED VISION PLAN

In 2010 the City Council adopted Resolution 10-022 establishing the "Refugio Creek Watershed Vision Plan" as guiding policy for the Refugio Creek Watershed within the City of Hercules. The Plan was put together by Restoration Design Group following a series of six public workshops and one walking tour with residents, other agencies, stakeholders, and the general public over eight months. A number of existing trails, informal trails, and proposed trails were identified on pages 7, 8, and 17 of the document and most have been incorporated into the draft Pedestrian Facilities Map of this Circulation Element. Policies listed in the document that tie into the City's trail system that feed into the pedestrian facilities discussion are as follows:

ACCESS GOAL

Provide connected biking and pedestrian opportunities throughout the watershed to improve health, provide alternatives to driving, create an appreciation for the watershed, and make central Hercules, on both sides of Interstate 80, feel connected.

PROPOSED ACTIONS

Watershed Trails

- Create an access point to the Bay Area Ridge Trail and Fernandez Ranch at the top of Refugio Valley Road.
- Create a creek access point at the parking pull out across from Hanna Ranch Elementary School.
- Improve the cross walk (lighting and stop signs) at Refugio Valley Road and Carson Street by Hanna Ranch Elementary School.
- Identify and highlight access points to Ohlone Creek trails.
- Maintain the trail across from the lower exit of Hercules Middle High School so that it does not erode into the creek.
- Create a boardwalk near the Bayside community between the John Muir Parkway and Tsushima Avenue and another to the west of San Pablo Avenue to provide pedestrian access between John Muir Parkway and Sycamore Avenue.
- Build a pedestrian bridge from South Front Street in Bayside to John Muir Parkway/Alfred Nobel Drive.
- Complete the creek trails down to the Bay and San Francisco Bay Trail.
- Create a loop trail in the middle of the watershed by connecting the existing trail between Refugio Valley Road with an informal trail on the other side of creek (connect at Teen Center and upstream of Country Run).
- Connect existing trails (and provide legal access) to create a loop trail along the ridges of the upper watershed starting at Falcon Way and Refugio Valley Road.
- Construct a boardwalk through the ponds in the lower watershed to connect the Bayside neighborhood to the future Sycamore Park/School site.
- Consider using boardwalks to access sensitive areas in the creek.

Improving Connections through Central Hercules

- Improve bike and pedestrian access under I-80 and railroad tracks along the culvert to link the upper creek with the lower creek.
- Beautify and integrate creeks and trails to create a better pedestrian experience when walking between Refugio Valley Park and San Pablo Avenue.

Creek Access

- Provide better access to the creek in Refugio Valley Park.
- Better connect the trails with the creek.
- Formalize and limit access points into the creek to protect habitat.
- Include interpretive signs at formal creek access points.

RELATIONSHIP TO OTHER PLANS

Regional Planning

The Association of Bay Area Governments (ABAG) is responsible for overseeing planning efforts in the nine-county Bay Area region. ABAG prepares growth forecasts, establishes housing needs allocations, and informs regional transportation planning and funding. Individual jurisdictions, including the City of Hercules, provide input to ABAG with respect to their growth potential in population, housing units, and employment. In turn, ABAG and other regional agencies prepare plans that consolidate the input from the individual jurisdictions. Each jurisdiction needs to work to ensure consistency between local plans and polices and regional planning efforts. The primary regional planning efforts relevant to Hercules' Circulation Element update include the following:

PLAN BAY AREA

Plan Bay Area is the nine-county Bay Area's Regional Transportation Plan (RTP) and incorporates a Sustainable Communities Strategy (SCS) as required by Senate Bill (SB) 375. An RTP is the mechanism used in California by Regional Transportation Agencies to conduct long-range integrated land use and transportation planning in their regions to achieve regional and State goals. SB 375, enacted in 2008, requires each of the State's metropolitan areas to develop an SCS to address the greenhouse gas reduction target established for each region by the California Air Resources Board.

Plan Bay Area was developed by ABAG, the Metropolitan Transportation Commission (MTC), the Bay Area Air Quality Management District (BAAQMD), and the Bay Conservation and Development Commission (BCDC) with local and regional partners, and adopted in 2013. It is the Bay Area's region-wide multi-modal transportation plan for addressing the future transportation needs of the Bay Area as determined by ABAG's regional growth forecasts. To meet the goals of SB 375, Plan Bay Area directs more future development in areas that are or will be walkable and bike-able and close to public transit, jobs, schools, shopping, parks, recreation and other amenities. The plan provides a strategy for meeting 80 percent of the region's future housing needs in Priority Development Areas located within walking distance of frequent transit, and specifies how anticipated transportation funding will be allocated to maintain the existing transportation network while expanding transit, roadways, and bridges.

Priority Development Areas (PDAs) are places identified by Bay Area communities for investment, new homes and job growth in order to accommodate regional growth in a sustainable manner. There are three designated PDAs in Hercules. The Central Hercules PDA is designated as a Transit Neighborhood generally containing the new Town Center, Hilltown site, Creekside Shopping Center, and the government complex. The Waterfront District generally contains transit-oriented development and considers a Transit Town Center generally bounded by San Pablo Avenue and San Pablo Bay between the Research and Development Business Park and the historic home district. The West Contra Costa Transportation Advisory Committee has designated San Pablo Avenue, including in Hercules, as a Mixed-Use Corridor PDA.

State and federal laws require that the RTP be updated by the MTC every two to four years. The most recent update, Plan Bay Area 2040, has the same horizon year as this Circulation Element update and was adopted by MTC and ABAG in 2017.

REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM

The Regional Transportation Improvement Program (RTIP) is an implementation program for the RTP and SCS. It is federally mandated and defines the regionally significant transportation projects that are to be funded over the next four years in the Bay Area. The RTIP must include all projects that will receive federal funds and other projects deemed to be regionally significant even if no federal funds are required for their implementation. The projects programmed in the RTIP must be consistent with the RTP. The MTC, in cooperation with County Congestion Management Agencies (CMA) and Caltrans, approved the 2017 RTIP in the fall of 2016 and forwarded the documents for Federal approval. The 2017 RTIP provides about $6.3 billion for new projects in the nine-county MTC region over the four-year period.

Countywide Planning

In Contra Costa County, the Contra Costa Transportation Authority (CCTA) manages the county's Measure J growth management and sales tax program, and oversees countywide transportation planning. CCTA is also the county's designated Congestion Management Agency.

COUNTYWIDE COMPREHENSIVE TRANSPORTATION PLAN (CTP)

The CTP provides the overall direction for achieving and maintaining a balanced and functional transportation system within Contra Costa while strengthening links between land use decisions and transportation. It outlines the Authority's vision for Contra Costa and it establishes goals, strategies, specific projects, and other actions for achieving that vision. The most recent CTP was adopted in 2009 with an updated version adopted in fall 2017.

CONGESTION MANAGEMENT PROGRAM

State law requires that each county develop a Congestion Management Program (CMP) to qualify for state transportation funds. The CMPs must establish levels-of-service standards for roadways, set transit service standards, develop trip-reduction and travel demand management (TDM) programs, perform land-use impact analyses, formulate capital improvement programs, and monitor conformance in the County with the CMP. CCTA has prepared a draft 2017 update to the CMP which is essentially a compilation of the current Action Plans. Future updates of the CMP will reflect the status of Hercules' Circulation Element policies and implementation measures.

COUNTYWIDE BICYCLE AND PEDESTRIAN PLAN

The CTP outlines strategies that support pedestrian-friendly developments and encourages a connected, coordinated network of bicycle facilities. The Authority has adopted its Countywide Bicycle and Pedestrian Plan (CBPP) to help carry out these strategies. The first CBPP was adopted in 2003 and updated in 2009. The plan includes existing and proposed facilities within and connecting to Hercules. An updated version of the Countywide Bicycle and Pedestrian Plan is expected to be complete by the end of 2017 and the City is coordinating with CCTA regarding local plans.

Measure J Transportation and Growth Management Program

The Measure J Growth Management Program (GMP) requires local jurisdictions to adopt a Growth Management Element and participate in a cooperative, multi-jurisdictional planning process, among other requirements. As part of the multi-jurisdictional planning process, jurisdictions work with Regional Transportation Planning Committees (RTPCs) to develop Action Plans for routes of regional significance. The intent is that jurisdictions work together to ensure that the transportation impacts of local land use decisions are planned for and mitigated on a countywide basis. The RTPC that Hercules participates in is the West Contra Costa Transportation Advisory Committee (WCCTAC).

WEST COUNTY ACTION PLAN FOR ROUTES OF REGIONAL SIGNIFICANCE

The West County Action Plans establishes overall goals, sets performance measures (called Multi-modal Transportation Service Objectives, or MTSOs) for designated Routes of Regional Significance, and outlines a set of projects, programs, measures, and actions that will support achievement of the MTSOs. A draft final plan was published by WCCTAC in 2014, with formal adoption pending completion of environmental review. The 2014 Action Plan lists a number of projects and policies relevant to Hercules. The Circulation Element incorporates the MTSOs established in the West County Action Plan for Routes of Regional Significance.

SECTION 2.

CIRCULATION CHARACTERISTICS

2. CIRCULATION CHARACTERISTICS

BACKGROUND

Hercules is located in northwest Contra Costa County along the southeast shore of San Pablo Bay. Originally founded in 1881 as the company town of the Hercules Powder Company and later incorporated in 1900, the city now extends approximately four miles inland along the axis of the Refugio Valley along Refugio Creek. Where the original key transportation network consisted of water and railroad connections, the city is now traversed by regional highways. Interstate 80 (I-80) bisects the city from southwest to northeast and State Route 4 (SR-4) terminates at John Muir Parkway.

Given its location along the I-80 and SR-4 corridors, the City historically developed as a suburban bedroom community. The first wave of suburban development occurred east of I-80 on the hilly terrain along upper Refugio Creek valley. More recent development of a denser urban character has concentrated in the western half of the city on sites closer to the City's historic center.

From a small town of only a few hundred people in the 1970s, the population of Hercules has increased to an estimated 25,675 as of January 2017[1]. In its 2013 Projections, the Association of Bay Area Governments (ABAG) estimates a population of 39,500 for Hercules by 2040.[2] In 2018, ABAG's population projection and Regional Housing Needs Analysis numbers will not be accomplished by the City's build out. The traffic generation was not based on this projected number but based on traffic that could be generated based on the existing land use designations.

source: www.ci.hercules.ca.us

1 State of California, Department of Finance, E-1 *Population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2016 and 2017*. Sacramento, California, May 2017.

2 Association of Bay Area Governments. *Plan Bay Area Projections 2013*.

COMMUTE TRAFFIC PATTERNS

Roughly 93 percent of Hercules residents work outside of the city, with 58 percent working outside of the county.[3] These weekday commuters are dependent on I-80 and SR 4, which experience congestion during commute hours. As shown in **Table 2-1**, the automobile was the predominant mode used for workers living in Hercules at roughly 85 percent with public transport at about 10 percent and smaller percentages for other modes. An even greater percentage of workers commuting to jobs located in Hercules used the automobile, as shown in **Table 2-2**.

Table 2-1. Commute Characteristics for Workers Living in Hercules

Subject	Estimate	Margin of Error
Workers 16 years and over	12,584	+/-449
MEANS OF TRANSPORTATION TO WORK		
Car, truck, or van	85.2%	+/-1.9
Drove alone	67.2%	+/-3.1
Carpooled	18.0%	+/-2.7
In 2-person carpool	11.7%	+/-2.6
In 3-person carpool	4.9%	+/-1.5
In 4-or-more person carpool	1.4%	+/-0.7
Workers per car, truck, or van	1.14	+/-0.02
Public transportation (excluding taxicab)	10.8%	+/-1.8
Walked	0.5%	+/-0.4
Bicycle	0.0%	+/-0.3
Taxicab, motorcycle, or other means	1.6%	+/-0.8
Worked at home	1.8%	+/-0.9
PLACE OF WORK		
Worked in state of residence	99.8%	+/-0.2
Worked in county of residence	42.1%	+/-3.4
Worked outside county of residence	57.7%	+/-3.4
Worked outside state of residence	0.2%	+/-0.2
Living in a place	100.0%	+/-0.3
Worked in place of residence	7.3%	+/-1.7
Worked outside place of residence	92.7%	+/-1.7

Source: U.S. Census Bureau. Commuting Characteristics by Sex, 2011-2015 American Community Survey 5-Year Estimates

3 U.S. Census Bureau. Commuting Characteristics by Sex, 2011-2015 American Community Survey 5-Year Estimates.

Employers

The main industries within Hercules are industrial research & development, and services. Total employment for the city is about 3,100. The largest employers within Hercules according to the City's 2009 CAFR[4] are:

- Bio Rad – 1,717 employees
- Mechanics Bank – 250 employees
- Hercules Middle/High School – 150 employees
- City of Hercules – 135 employees
- Home Depot – 126 employees

The remaining employers have fewer than 100 employees each.

Table 2-2. Commute Characteristics for Workplaces in Hercules

	Estimate	Margin of Error	Percent
Car, truck, or van -- drove alone	4,014	+/-485	76%
Car, truck, or van -- carpooled	790	+/-237	15%
Public transportation	103	+/-75	2%
Other Modes	374		7%
Total (Workers 16 and over)	5,281	+/-602	
Other Modes	374		7%

Source: U.S. Census Bureau. Commuting Characteristics by Sex, 2011-2015 American Community Survey 5-Year Estimates

CIRCULATION PATTERNS

Hercules is physically separated by the I-80 and SR 4 freeways, with connections between east and west Hercules only occurring along Sycamore Avenue and at the Willow Avenue interchange, with Willow Avenue providing the only connection across SR 4.

Because the only access in and out of Hercules is provided by San Pablo Avenue, I-80, and SR4, the majority of regional and commute traffic is concentrated at the I-80 and SR 4 interchange and the intersections of San Pablo Avenue/ Sycamore Avenue and Sycamore Avenue/Willow Avenue.

Separated recreational bicycle and pedestrian travel is available on paved trails along Refugio Creek east of I-80 and on portions of the San Francisco Bay Trail as well as informal sections. Bike lanes allow bicycle commuters to safely travel along portions of San Pablo Avenue, Sycamore Avenue, Willow Avenue, and Refugio Valley Road. However, there are critical gaps in the network as depicted in **Figure 3-4** in the Existing Conditions section.

4 City of Hercules Comprehensive Annual Financial Report, 2009

COMPLETE STREETS

Hercules adopted Complete Streets policies in 2014 and has begun to "complete" its streets by implementing best practices for multimodal transportation into the design of circulation system improvements, such as the Refugio Valley Road corridor. As defined by the National Complete Streets Coalition, Complete Streets are streets designed and operated to enable safe access for all users—not only vehicles, but pedestrians, bicyclists, motorists, and transit riders of all ages and abilities must be able to safely move along and across a complete street. Each Complete Street is unique, but common components include pedestrian walkways, bicycle lanes, special bus lanes, comfortable and accessible transit stops, frequent pedestrian crossing opportunities, and design elements for pedestrian safety such as median islands and curb extensions.

SECTION 3.

CIRCULATION NETWORK

3. CIRCULATION NETWORK

This section identifies existing facilities and approved transportation projects for the circulation modes relevant to Hercules. The circulation system modes and topics addressed include: vehicle, pedestrian, bicycle, and public transit networks; rail; truck routes, transportation demand management programs; parking; emergency access; and scenic routes.

ROADWAY NETWORK

Automobile travel remains the primary transportation choice within Hercules as seen in **Table 2-1** and **Table 2-2**. Vehicle circulation concerns in Hercules primarily relate to congestion, multi-modal connectivity, and safety, especially during peak commute periods.

The City's roadway network serves to connect land uses and facilitate movement of persons and goods to and from, within, and through the city. The city's hierarchy of roadways identifies roadways to accommodate traffic and goods movement at higher speeds and roadways serving neighborhoods with smaller cross-sections at lower speeds. The roadway network for Hercules, illustrated in **Figure 3-1**, is based upon connecting the residential communities to the downtown and waterfront commercial areas as well as to the regional connectors: I-80, SR4, and San Pablo Avenue. These regional connectors represent the only routes into or out of Hercules by motor vehicle. I-80 and SR-4 are Caltrans-owned and -controlled and provide regional connections to Solano County (north), Concord (east), and Alameda County and San Francisco (south).

A General Plan functional classification system provides the framework for the design and operation of the roadway system. The functional classification system used by Hercules is illustrated in **Figure 3-1**. The West County Action Plan identifies the following classification, which is consistent with the road classification system used in this Circulation Element:

Route of Regional Significance

Routes of Regional Significance (Regional Routes) are defined by the West County Action Plan and provide for inter-community, statewide, and interstate travel. Planning of these facilities rests largely with agencies other than the City. In Hercules, both I-80 and SR 4 are considered Routes of Regional Significance as well as freeways. San Pablo Avenue is also identified as a Route of Regional Significance and serves as a truck route, however it is not a state highway within the City limits.

All roadways within the City limits that are not identified as Routes of Regional Significance are considered Basic Routes and are classified as shown in **Figure 3-1.**

The standards below may be utilized in lieu of older adopted Public Works standards to the extent they are inconsistent, with the approval by the City Engineer. The Roadway Network shown in **Figure 3-1** and these cross sections supersede the Central Hercules Regulating Code. However, this Circulation Element does not supersede the Hercules Waterfront District Masterplan, which has its own Circulation Map shown for reference in **Figure 3-9** and its own cross-sections that must take fire codes into consideration. The actual adopted map is incorporated herein by reference.

The roadway classification map and figures illustrate where and how transportation facilities may occur across from existing or proposed development. The cross sections attempt to conform to existing streets but may vary based on assessment from the City Engineer and based on field conditions and fire codes. The blue diagonal shading represents the ability to be flexible in how multimodal facilities are provided.

Arterial

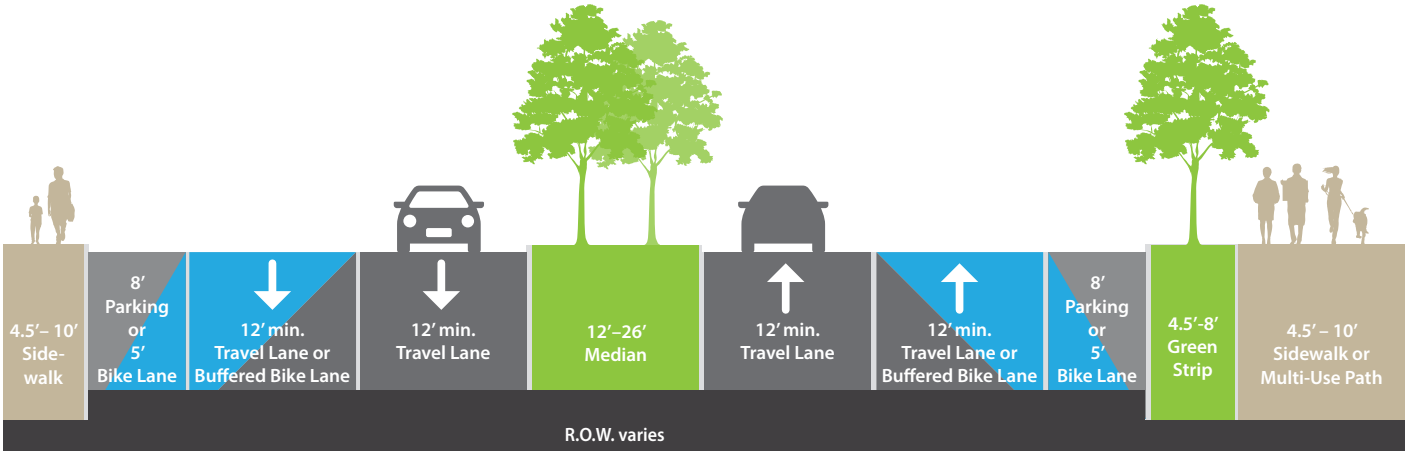
Arterial streets primarily serve intra-city travel, carrying traffic from collector streets to and from other parts of the city or to regional routes. Access to abutting property is subordinate to the primary function of moving traffic between residential neighborhoods and the Downtown and Waterfront Districts or the Routes of Regional Significance. Planning practice has been to minimize the number of direct access driveways on arterial streets. Arterials within Hercules include Bayfront Boulevard, John Muir Parkway, Refugio Valley Road, Sycamore Avenue west of Palm Avenue, and Willow Avenue.

Several design standards exist for arterials based on the associated neighborhood plan, adjacent land use and right of way constraints. There are three standard arterial types identified throughout Hercules:

DIVIDED ARTERIAL STREET

Divided arterials are mainly characterized by a landscaped, grade-separated median dividing the travel lanes in each direction. They have one or two travel lanes in each direction and bike facilities that either take the form of a Class I multi-use path or a 5' Class II bike lane. They may or may not have an 8' parking lane on either side. Side treatment should include a 4.5'-8' parkway strip separating the roadway from a sidewalk or path unless the surrounding side treatment is a monolithic sidewalk directly adjacent to the roadway. Curb to curb width ran ges depending on the travel lanes included with a total right of way width generally between 100' and 110'. Portions of Hercules Avenue, John Muir Parkway, San Pablo Avenue, Sycamore Avenue, Willow Avenue, and Refugio Valley Road are Divided Arterials. The standard cross section is provided below.

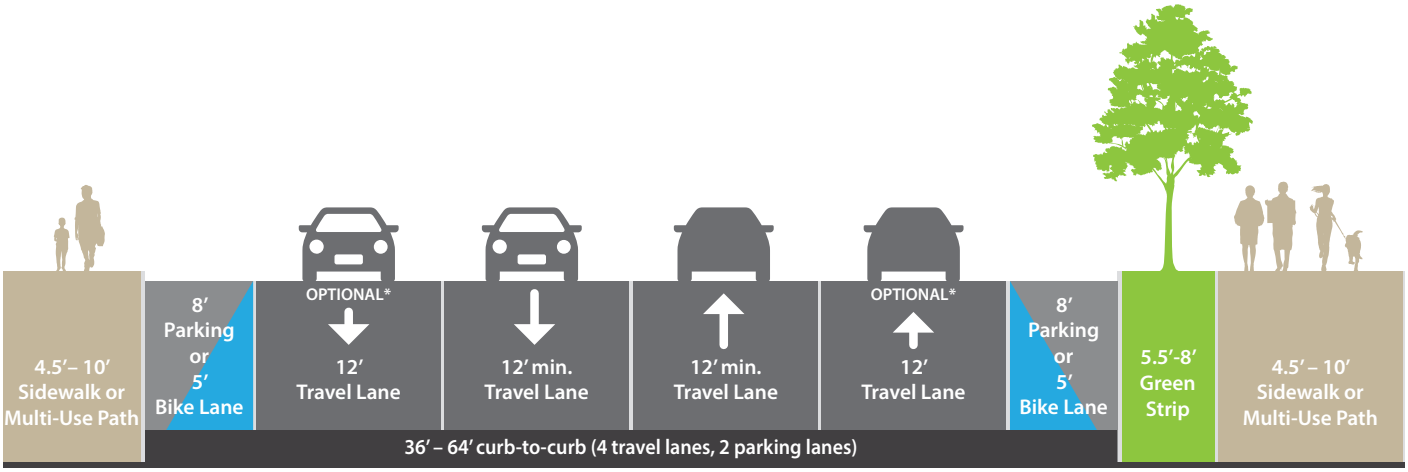
Figure 3-2. Divided Arterial Street



UNDIVIDED ARTERIAL STREET

Undivided arterials have one or two travel lanes in each direction, based on traffic analysis, and bike facilities that either take the form of a Class I multi-use path or a 5' Class II bike lane. These streets may or may not have an 8' parking lane on either side. Side treatment should include a 4.5'–8' parkway strip separating the roadway from a sidewalk or path unless the surrounding side treatment is a monolithic sidewalk directly adjacent to the roadway. Curb-to-curb width ranges from 34'-64' with a total right of way width of 73'–100'. Portions of John Muir Parkway, Sycamore Avenue, and Willow Avenue are Undivided Arterials. The standard cross section is provided below.

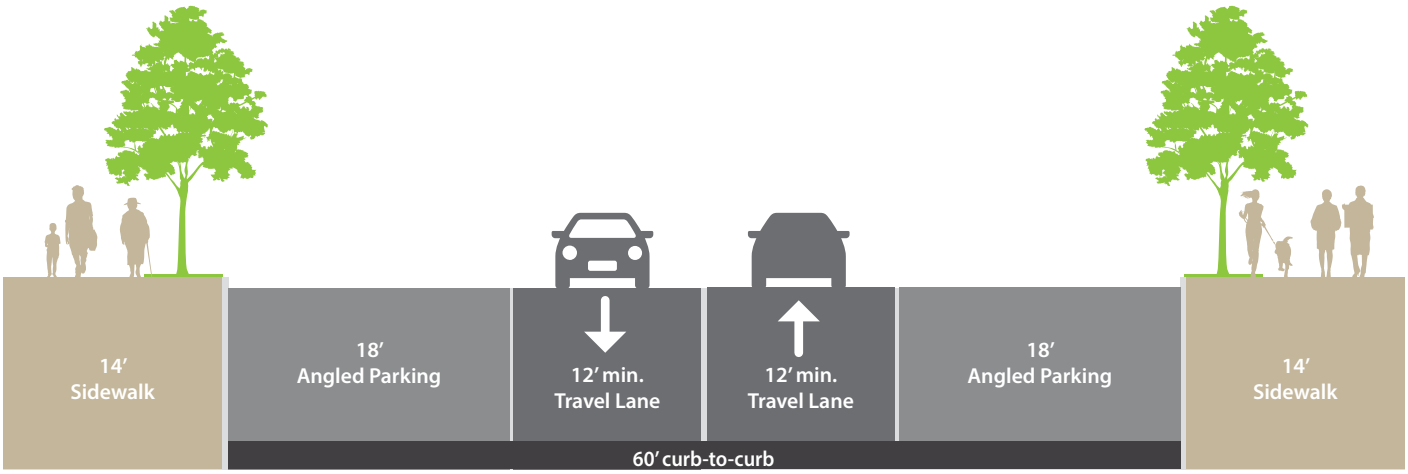
Figure 3-3. Undivided Arterial



ANGLED PARKING ARTERIAL STREET

Angled Parking arterials are characterized by 18' angled parking facilities on both sides of the roadway with one travel lane in each direction, Bike facilities would be Class III bike routes within the travel lane. Side treatment should include a 14' sidewalk with 5' x 5' tree grates. Curb to curb width would be 60' with a total right of way width of 88'. Angled parking arterials are found on Bayfront Boulevard between Railroad Avenue and Refugio Creek Bridge and on Sycamore Avenue between South Front Street and Tsushima Street. The standard cross section is provided below.

Figure 3-4. Arterial with Angled Parking

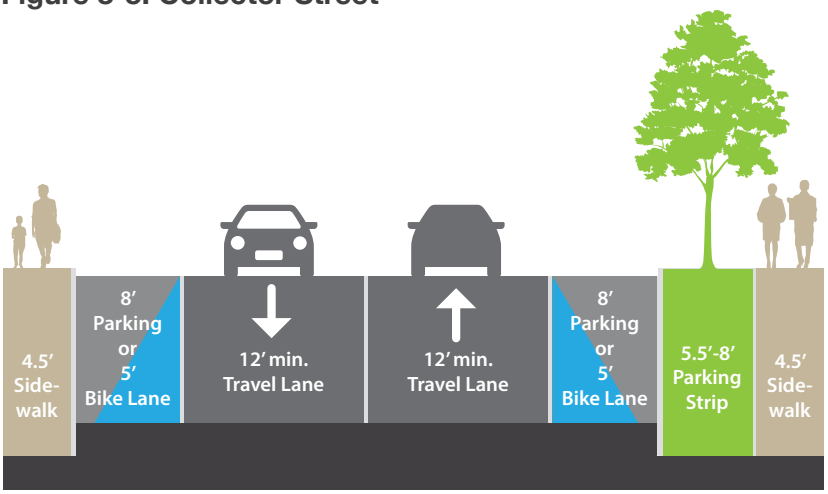


Collector

Collector streets directly or indirectly link local streets with arterials and are designed to primarily serve residential, business, and commute traffic. This traffic may include trips between adjacent neighborhoods, but collectors are not intended to handle cross-town traffic. Collectors within Hercules include Alfred Nobel Drive, Canterbury Drive, Carson Road, Coronado Street, Hercules Avenue, Linus Pauling Drive, Lupine Road, Palm Avenue, Pepperwood Street, Pheasant Drive, Santa Fe Avenue, Sycamore Avenue east of Palm, Railroad Avenue, Redwood Road, Titan Way, Tsushima Street, Turquoise Drive, Valley Run, Victoria Crescent West, Village Parkway, and Violet Road.

Typical design standards for Collector streets provide for two lanes (one travel lane in each direction) with an 8' parking lane or 5' Class II bike lane on both sides of the street. Side treatment should include a 5.5'-8' parkway strip separating the roadway from a sidewalk unless the surrounding side treatment is a monolithic sidewalk directly adjacent to the roadway. Curb to curb width ranges from 34'-40' with a total right of way width from 43'-60'. The standard cross section is provided below.

Figure 3-5. Collector Street



Local Road

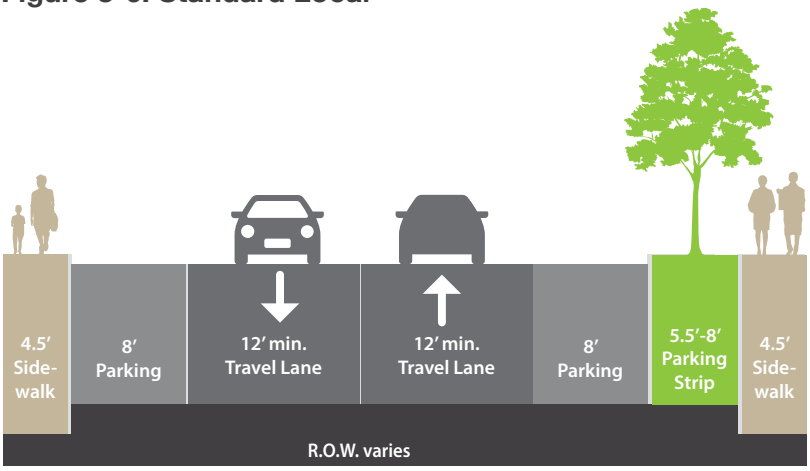
Local roads are intended to provide direct access to abutting land uses. Existing roads in Hercules not designated as Collector, Arterial, or Routes of Regional Significance are classified as Local Roads based on their current design and usage. Future roads, not included in one of the above categories, will be planned as Local Roads.

Several design standards exist for local streets depending on the land use, height, and setbacks of adjacent buildings. Where indicated by anticipated lower traffic volumes and speeds, and as determined by the City Engineer, they can be narrower.

STANDARD LOCAL STREET

Standard Local streets predominately have one 12' travel lane in each direction with room for 8' of parking and 4.5' sidewalks on both sides of the roadway. Striping is based on needs as determined in the field. Curb-to-curb width would generally be 40' with a total right of way width of 56'. The standard cross section is provided below.

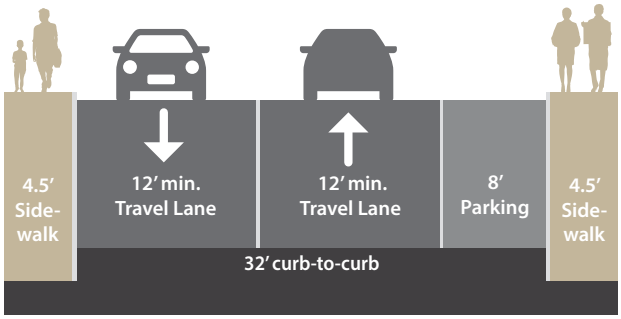
Figure 3-6. Standard Local



MODIFIED LOCAL STREET AND CUL DE SAC

Modified Local Street and Cul de Sacs have one 12' travel lane in each direction with an 8' parking lane allowed on one side of the street only. 4.5' sidewalks are on both sides of the roadway. Curb-to-curb width would be 32' with a total right of way width of 41'. The standard cross section is provided below.

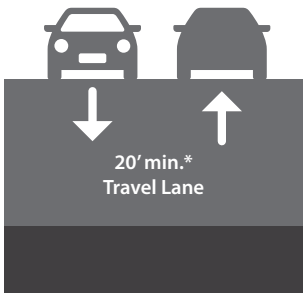
Figure 3-7. Modified Local and Cul de Sac



LANE/ALLEY

Several roadways throughout Hercules, occurring internal to residential areas, provide access to garages but would not be used for regular travel or primary emergency vehicle access. They are characterized by a bi-directional 20' travel lane without any side treatment, and do not have an official functional classification. The standard cross section is provided below.

Figure 3-8. Lane/Alley



*Depending on Fire Code &

TRAFFIC CONDITIONS

Level of Service

Level of Service (LOS), as defined in the Highway Capacity Manual (HCM), is a quantitative measure describing operating conditions within a traffic stream. It is generally described in terms of service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. The LOS evaluation indicates the degree of congestion that occurs during peak travel periods and is the principal measure of roadway and intersection performance. LOS for signalized and all-way stop intersections is based on the average delay experienced for all approaches while LOS for two-way stop-controlled intersections is based on the worst delay experienced by one of the stop controlled approaches. LOS can range from "A," representing free-flow conditions, to "F," representing extremely long delays. LOS D is typically considered acceptable for a peak hour in cities and towns. LOS E is approaching capacity and LOS F represents conditions at or above capacity.

Estimates of level of service (LOS) for key intersections within Hercules are provided in **Table 3-1** for average weekday peak-hour conditions based on traffic counts taken in 2016 at the first 25 listed intersections. LOS at the study intersections was calculated using a traffic operational model. The table also provides estimates of expected peak-hour LOS for the year 2040. The location of the study intersections and existing traffic signals are shown in **Figure 3-10**.

Performance Standards for Basic Routes

The City's policy is to maintain LOS D as the desired level of service on intersections along all Basic Routes, which includes all arterials, collectors, and local roads that are not Regional Routes. One exception to this standard is the City's policy that Collector Roads operating worse than LOS D are not considered deficient if the intersection does not meet a Caltrans signal warrant. This avoids over-signalizing intersections with low side-street volumes.

Performance Standards for Regional Routes

The West County Action Plan defines the following standards for the Regional Routes within the City limits:

- I-80: Delay Index[1] of 3.0 or less
- I-80: HOV lane usage 10% greater than 2013 usage
- SR 4: Delay Index of 2.0 or less
- San Pablo Avenue: LOS of "E" for signalized intersections. Unsignalized intersections on San Pablo Avenue are subject to the LOS standard for the intersecting roadway.

The Delay Index is a measure of delay experienced by motorists on a roadway segment during a peak hour in a single direction. The Delay Index is calculated by measuring the time it takes to travel a segment of road during congested conditions, and comparing it to the time it takes to travel the same segment during uncongested, free-flow conditions. For example, a roadway segment that takes 20 minutes to traverse during congested conditions and 10 minutes during free-flow conditions would have a delay index of 2.0. The Contra Costa Transportation Authority is responsible for monitoring the Delay Index and other MTSOs on the Routes of Regional Significance.

Other Performance Standards

The City has also defined Multimodal Transportation Service Objectives (MTSOs) for operation and design of the city roadways and trails for interaction with non-automobile modes as shown in **Table 3-2**.

1 Delay Index is defined as the ratio between observed travel time and free flow travel time.

Determination of Significant Impact for CEQA Purposes

The LOS and MTSO performance standards as contained in the preceding sections shall constitute the threshold for the purpose of determining whether a proposed project being evaluated under CEQA has a "Significant Impact" on the environment. If the LOS and MTSO performance standards are exceeded and are not able to be mitigated below the required LOS and/or MTSO threshold, then a finding of "Overriding Considerations" will be necessary as required under CEQA.

Peak-Hour Traffic

During weekday peak commute periods, congestion occurs at intersections along San Pablo Avenue and Sycamore Avenue at the I-80/SR 4 interchange as is indicated in **Table 3-1**. This is due to high commute traffic volumes and a lack of alternative routes in and out of the City. The congestion reduces access to the transportation system and increases delay for residents and visitors. Traffic congestion also frustrates drivers which produces more aggressive and riskier driving behavior and that generally increases the collision rate.

Table 3-2. Multimodal Transportation Service Objectives

Facility Type	Applicable MTSOs
Arterial Road	Bicycle facilities should be available within the road right-of-way
	Transit routes that serve more than an average of 500 passengers daily should have shelters at least once a mile along non-express portions of the route
	Transit routes should have controlled pedestrian crossing opportunities within 250 feet of a stop
Collector Road	Sidewalks should be available within the road right-of-way
Local Road	Exclusive pedestrian facilities are available within facility right-of-way
	At unsignalized crossings, average wait time for bicyclists and pedestrians to cross safely is less than 30 seconds

Safety

Safety is a concern in Hercules for travelers by all modes. There are gaps in the roadway network where pedestrians and bicyclists do not have separate facilities and must use portions of the roadways or their shoulders. For example, there is less than two feet between the traveled way and the railroad bridge structure where westbound Sycamore Avenue approaches Willow Avenue. In addition, pedestrian crossing at intersections with high volumes of right-turning vehicles, such as the intersection of San Pablo Avenue and Sycamore Avenue, can be challenging because of high right-turn-on-red volumes over multiple lanes.

Crash data were collected for roadways throughout the City of Hercules for a five-year period, 2012-2016[2], and the data available for 2017 at the time this Element was written. There were a total of 650 crashes recorded within City limits during this time period, including two crashes resulting in a fatality and 23 resulting in a severe injury. More than half of the crashes occurred on Routes of Regional Significance with 304 crashes occurring on I-80, SR 4, or freeway ramps and 58 along San Pablo Avenue. Along City arterials, there were 108 crashes with 54 occurring along Sycamore Avenue, 26 along Refugio Valley Road, 25 along Willow Avenue, and 3 along John Muir Parkway. The location with

2 Statewide Integrated Traffic Records System *(SWITRS)*

the highest number of crashes was at the intersection of San Pablo Avenue and Sycamore Avenue with 12 crashes. Sycamore Avenue and Refugio Valley Road had 5 crashes, and all other locations had 3 or fewer crashes. Of the 650 crashes, there were 24 crashes involving a pedestrian and six crashes involving a bicycle. None of the pedestrian or bicycle involved crashes resulted in a fatality in this five year time frame, however three of the pedestrian crashes and one of the bicycle crashes resulted in severe injuries.

To address safety concerns, several policies address the pedestrian and bicycle network and improvements to the bicycle, pedestrian, and vehicle circulation systems are proposed. These are listed in Table 5-1 and in policy sections 1.C.5, 4.D.1 and 4.D.4. Specifically to address the intersection of San Pablo Avenue and Sycamore Avenue, which has the highest number of crashes of any intersection in Hercules, the pedestrian crossing on the north approach (crossing two turning lanes) is proposed to be removed and a multi-use path along the entire Market Hall site added as listed in Table 5-1.

Greener Vehicular Transportation

Alternative fuel vehicles and super-compact cars are becoming increasingly popular and can be seen driving and parked throughout the city's commercial and residential areas. Various incentives, especially those established to achieve State of California mandated greenhouse gas reduction targets, have led to the development and sale of these vehicles throughout California. Clean air vehicles and other improvements allow for convenient circulation that is less polluting than full-sized gas-powered cars. The Circulation Element supports and encourages these forms of "greener vehicular transportation" (for which technology and trends should be expected to change through the planning horizon of 2040) through goals and policies, such as requiring electric vehicle charging stations as part of parking requirements.

Truck Routes

In addition to vehicular trips associated with commuting, an important aspect of Hercules traffic is the significant number of large trucks using the same routes, specifically along heavily traveled corridors including Palm Avenue, portions of Refugio Valley Road, San Pablo Avenue, Sycamore Avenue, and Willow Avenue. Trucks that use these routes affect visibility, overall speed, and volume characteristics, especially when present in concentrations and overlapping with commute traffic. Truck routes are shown in **Figure 3-11**.

PEDESTRIAN FACILITIES

Existing and planned pedestrian facilities are illustrated in **Figure 3-12**.

As discussed in the Contra Costa County Bicycle and Pedestrian plan, bicycle and pedestrian infrastructure are increasingly seen as key components of the circulation network. Key reasons to support pedestrian and bicycle circulation include congestion reduction, economic competitiveness, environmental stewardship, public safety, social equity, and community health. Maximizing these benefits will require a comprehensive and connected network of bicycle and pedestrian facilities.

Pedestrian infrastructure typically includes shared-use trails, pedestrian-only trails, bicycle and pedestrian bridges, sidewalks, and other public spaces. The Americans with Disabilities Act Accessibility Guidelines (ADAAG) established the minimum design parameters for pedestrian facilities in the public right-of-way, and requires a minimum clear width of 36 inches. Pedestrian facilities in Hercules include: sidewalks adjacent to most public roadways; multi-use paths such as Refugio Valley Trail; constructed portions of the San Francisco Bay Trail, the Creekside Trail, and Pinole Creek Trail; trails defined or constructed by the City or other outside agencies; and informal trails.

Sidewalks and Walkways

Sidewalks are continuous in most neighborhoods of Hercules, but some key gaps remain. In particular, the north side of Sycamore Avenue between the Creekside Center and Willow Avenue lack pedestrian facilities along one or both sides of the street, as do the northwest side of San Pablo Avenue between Tsushima Street and John Muir Parkway, northeast side of San Pablo Avenue between John Muir Parkway and Victoria Crescent West, Willow Avenue between the Hercules Transit Center and Palm Avenue, and Palm Avenue between Willow and Sycamore Avenue. These gaps result in a lack of connectivity for pedestrians among different sectors of the city. The City recently received grant funding to construct sidewalks that will provide safe pedestrian access under the railroad trestle at Palm Avenue, connecting Sycamore Avenue with the Hercules Transit Center (also known as BART Park and Ride and WESTCAT facilities) on Willow Avenue. Construction is anticipated to begin in 2018.

Multi-Use Paths

The following is a brief summary of existing/planned multi-use paths serving pedestrians and cyclists within Hercules:

- **San Francisco Bay Trail.** Portions of this planned 500-mile regional trail have been completed within Hercules. A new section adjacent to the southern city limits is expected to be under construction soon by the City and the remaining center section will be constructed with the Waterfront development. This trail will ultimately run almost 2 miles through Hercules.
- **Refugio Valley Park Path.** This paved multi-use path runs for approximately 2.5 miles from Bonaire Avenue at its eastern end along Refugio Valley Road and through the Refugio Valley Park to the western end of the path at Sycamore Avenue and Refugio Valley Road.
- **Creekside Trail and Boardwalk.** The Creekside Trail along Sycamore Avenue from Refugio Valley Road to San Pablo Avenue will require significant grading and the construction of a large retaining wall under the railroad trestle and highway bridge piers. At the intersection of San Pablo and Sycamore Avenues, the Boardwalk is planned for the westerly half of San Pablo between Sycamore and John Muir Parkway. This boardwalk would then tie into the Creekside Trail which generally runs along John Muir Parkway and/or Refugio Creek from San Pablo Avenue to the bay. In the next year, the existing 6' sidewalk would be expanded to a 10' multi-use path along the segment from San Pablo Avenue to the newly constructed Creekside Trail at the North Channel/Linus Pauling alignment. The new Creekside Trail runs from the North Channel to Bayfront Boulevard. A temporary segment has been constructed from Bayfront Boulevard to the San Francisco Bay Trail, but is anticipated to be permanently installed along the creek in the future.
- **Pinole Creek Trail.** This 1.5-mile-long trail travels from a point on Pinole Valley Road just west of Interstate 80 out to the shoreline of San Pablo Bay. Only small portions of the paved trail are within the City limits of Hercules. The trail intersects with the San Francisco Bay Trail near the currently closed segment of Railroad Avenue.

Trails

Existing and proposed trails in and around Hercules are improved or planned to be improved in some fashion (usually remaining as a dirt or gravel base) and are identified on either City or outside agency maps. Within Hercules this would include the Upper Watershed Loop Trail, Creek Loop Trail, East Bay Municipal Utility District (EBMUD) trails (which are accessible by permit only) and John Muir Land Trust trails.

Informal Trails

Informal trails have been identified by the community as points of access, and may or may not occur on City-owned property. In some cases these trails consist of hardscape paths through neighborhoods to encourage walkability, and in other cases, they are just a foot trail along the hillsides. **Figure 3-12** does not encompass all informal trails. The City

is not promoting the creation of additional footpaths along hillsides.

BICYCLE FACILITIES

Existing and planned bicycle facilities are illustrated in **Figure 3-13**.

The existing and proposed bicycle network consists of both on-street and off-street facilities, including multi-use trails. Bicycle networks can include the following types of facilities:

- **Multi-Use Path (Class I).** An off-street bike path that provides a separate right-of-way for two-way travel by bicyclists, pedestrians, and other non-motorized users. Multi-use paths are typically paved, but can also use decomposed granite (DG) material or natural materials where appropriate. Existing and planned multi-use paths are identified in the Pedestrian Facility discussion above. The most difficult and costly segment will be along Sycamore Avenue between Refugio Valley Road and San Pablo Avenue.
- **Bike Lanes (Class II).** An on-street bike lane where a striped and signed lane is provided for travel on a street or roadway. Class II bicycle lanes exist: along San Pablo Avenue from Hercules Avenue to the City boundary at Willow Avenue in Rodeo, along most of Refugio Valley Road between Pheasant Drive and Redwood Road, and on Sycamore Avenue between San Pablo Avenue and South Front Street and from Tsushima Avenue to Willett Street and from Palm Avenue to Refugio Valley Road. New bike lanes are planned for John Muir Parkway from San Pablo Avenue to Bayfront Boulevard and along Willow Avenue from Sycamore Avenue to Mariners Point.
- **Bike Routes (Class III).** Typically referred to as a bike route where bicyclists and vehicles share the roadway with no dedicated right-of-way for the bicyclist. Signage is provided establishing the bike route. Bike routes typically are used to connect between Class I and Class III facilities where right-of-way is limited or the context doesn't require a Class II facility. There are some newly designated 'sharrow' segments along narrow portions of Refugio Valley Road and on Sycamore Avenue between South Front Street and Tsushima Street.
- **Cycle Tracks (Class IV).** A facility exclusively for bicycles that is separated from adjacent vehicular traffic. The separation may be achieved through various means such as grade separation, flexible posts, or on-street parking. This type of bicycle facility is not currently found in Hercules.

TRANSIT

Transit Service

WestCAT operates most of the bus service for Hercules. In 2017, the fixed route and express bus one-way fare for adults was $1.75, Dial-A-Ride was $4.00, and Lynx Transbay was $5.00, with discounts for seniors, disabled, and Medicare cardholders. Nine bus lines serve Hercules and are described below. Details on bus service are subject to change over time, thus information provided here may not always reflect the most current schedules or routes. Descriptions below and the fixed routes depicted in **Figure 3-14** are as of July 2017.

- **Route 10: Gems and Birds.** This route serves the "Gems and Birds" neighborhood in the southeast quadrant of the city, departing from the Hercules Transit Center via Willow and Sycamore Avenues and returning along Refugio Valley Road. Operations in Hercules run generally between 6:10 AM and 7:30 PM, with headways of 45 minutes. Supplementary service operates on school days between Hercules Middle/High School and the Hercules Transit Center.

- **Route 12: Trees and Flowers.** This route serves the "Trees and Flowers" neighborhood in the southeast quadrant of the city, departing from the Hercules Transit Center via Willow Avenue, Sycamore Avenue and Refugio Valley Road. Operations in Hercules run generally between 5:30 AM and 8:00 PM, with headways of 45 minutes. Supplementary service operates on school days between Hercules Middle/High School and the Hercules Transit Center.
- **Route 15: Viewpointe.** This route connects the Viewpoint neighborhood in the northeast quadrant of the city with the Hercules Transit Center via Willow and San Pablo Avenues. After early morning, the employment centers along Linus Pauling and Alfred Nobel Drives are also served. Operations in Hercules run generally between 6:00 AM and 7:30 PM, with headways of 45 minutes.
- **Route 19: Hilltop/Hercules.** This route links the Hilltop Mall in Richmond with the Hercules Transit Center via San Pablo and Willow Avenues. Operations in Hercules run generally between 8:00 AM and 8:00 PM, with headways of 40 minutes to one hour.
- **Route 30Z: Martinez Link.** This route serves the Hercules Transit Center and locations in Martinez including the Amtrak train station via SR 4. Operations in Hercules run generally between 6:15 AM and 7:15 PM, with headways of a half hour during commute periods and longer midday.
- **Route C3: Contra Costa College.** This route runs between the Hercules Transit Center and Contra Costa College via San Pablo Avenue. Operations in Hercules run generally between 7:30 am and 8:00 pm, with headways of 30 minutes.
- **Route JR/JL: Hercules/BART.** This route connects the Hercules Transit Center to the El Cerrito Del Norte BART station via San Pablo Avenue and I-80. Operations in Hercules run generally between 4:45 AM and 12:30 AM on weekdays, with headways of twenty minutes. Saturday service runs from about 6:00 AM to 11:00 PM with headways from forty minutes to an hour. Sunday service operates from about 7:20 AM to 9:00 PM with 40 minute headways.
- **Route JX/JPX: Hercules/BART.** Routes JPX and JX also connect the Hercules Transit Center to the El Cerrito Del Norte BART station. Some JPX buses also stop at the Richmond Parkway Transit Center where connections with AC Transit buses can be made. Operations in Hercules run generally between 5:20 AM and 8:00 PM, with headways of 5 to 10 minutes.
- **Lynx.** Direct transport is provided to San Fransisco's Transbay terminal for commuters Monday to Friday between 5:00 AM and 9:00 PM. From 5:00 AM to 8:30 AM and from 4:00 PM to 7:00 PM, headways are 15 minutes. Off-peak headways range from 30 to 60 minutes. It is anticipated that three double-decker buses will be added in 2018 to keep up with ridership.

In addition to bus service, WestCAT offers Dial-A-Ride service for disabled citizens living within the WestCAT service area. Travel to the Richmond and San Pablo areas for medical appointments or other special needs is also available between the hours of 9 AM until 3 PM and trips are provided on a space-available basis.

TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) focuses on influencing travel behavior as well as informing travelers about available mobility choices. The public purpose of TDM is to reduce traffic congestion and associated air emissions. TDM measures cover a broad spectrum, including subsidies for use of alternatives to the solo occupant vehicle, parking and road pricing, work scheduling alternatives, car sharing programs, and many others. The West Contra Costa Transportation Advisory Committee manages the TDM program for West Contra Costa County. Funding for TDM programs are supported through grant funding provided by the FHWA Congestion Mitigation and Air Quality Improvement (CMAQ) program, the SF Bay Area Transportation Fund for Clean Air (TFCA), and Measure J.

TDM and Hercules

TDM program services offered relevant to Hercules include the following (programs and details may change over time):

- Countywide Guaranteed Ride Home Program
- Outreach (website/511 Info)
- Employer/Community
- Commute Trip Reduction Activities

PARKING

Parking standards and availability affect economic development, the character and use of the built environment, the design and cost of new development, and mode share. When parking is not adequate, overflow into other neighborhoods can result. When excessive parking is provided, land is used less efficiently, vehicle trips are encouraged, and the design of the associated development is often degraded by over-emphasis on the space and functional needs of automobile storage. As a means of reducing traffic generation for certain projects, the City may consider requiring fewer parking spaces than required by the City Zoning Ordinance. The Central Hercules Regulating Code and the Hercules Waterfront District Master Plan include some reduced parking standards that can apply to developments abiding by these plans. Parking standards also accommodate loading zones and should be modified to include motorcycles, bicycles, and electric vehicles.

Parking Facilities

The following off-street public parking areas and facilities are located in Hercules and are owned or maintained by the City or other public entities:

- **Transit Centers.** These include parking at the Hercules Transit Center (HTC) and planned parking at the Regional Intermodal Transportation Center (RITC).
- **School Parking Lots.** These include drop-off and pick-up, teacher, and staff parking, as well as student parking at Hercules Middle & High School.
- **Recreational Facility Parking Lots.** These include those providing access to Duck Pond Park and Refugio Valley Park.
- **City Hall and Library Parking Lots.**

Off-street parking requirements are established in the Hercules Zoning Code to ensure that new development accommodates its own needs. Private parking areas in Hercules primarily consist of the following:

- **Commercial Development.** In general, commercial development includes shopping centers with shared parking areas, and major employment centers along Alfred Nobel and Linus Pauling Drives which provide parking for employees and visitors.
- **Residential Development.** Residential land use in Hercules consists primarily of single-family homes, with on-site parking as well as street-side spaces in most neighborhoods. Multi-family apartments and condominiums also provide parking for residents and guests. Along the City's waterfront, the approved Bayfront Project is regulated by wording in the Waterfront District Master Plan (last updated in 2012) that calls for joint public/private sharing of parking facilities. The goal is for commercial and residential uses to be able to share parking facilities, thereby maximizing the utilization of existing parking facilities.

All of the above facilities (with the exception of single family residential properties) include parking spaces pursuant to the Americans with Disabilities Act. Many of the above parking areas also provide parking for bicycles, as do the school parking lots.

EMERGENCY ACCESS

The City of Hercules has planned for emergencies and hazards including wildfire, terrorism, or earthquake. The City follows adopted emergency operation procedures and makes determinations for responses on a case-by-case basis. In the event that evacuation would be required, the city is served by major state highways, and there are five routes out of town: San Pablo Avenue north and south, I-80 north and south, and State Route 4. Primary and secondary evacuation routes are provided in **Figure 3-15**. Additional discussion of emergency access and hazards can be found in the Safety Element of the General Plan.

Challenges for Emergency Access

There are limited routes into and out of Hercules and many of them pass through single intersections, such as San Pablo Avenue and Sycamore Avenue. If these roads or intersections are closed or so badly congested during an emergency that traffic does not move, emergency access or egress can be lost for large portions of the population and businesses. Almost all of the evacuation routes are dependent on structures including bridges, railroad undercrossings, and freeway structures and would be vulnerable to closure in case of structural failure.

Similarly, many residential developments have only one collector road linking homes to San Pablo Avenue or Willow Avenue. If anything blocks the road during an emergency, access or egress for the residents will be significantly restricted.

Also note that SR 4 and San Pablo Avenue pass within close proximity of refineries, which might themselves be the cause of an evacuation. Under such conditions, these routes might also become impassable.

If WETA ferry service is added to the future RITC, this will provide a secondary egress point for Hercules, taking advantage of the City's proximity to San Pablo Bay for water-borne evacuation for non-water-based emergency events.

SECTION 4.

GOALS & POLICIES

4. GOALS & POLICIES

This section of the Circulation Element presents goals, policies, and implementing actions. The goals and policies respond to the analysis contained in the preceding sections and are intended to support the vision of a multimodal transportation system that provides safe and convenient mobility to the residents, visitors, and workers of Hercules.

The Circulation Element should be considered a dynamic document that provides the underlying basis for the City's current and future transportation network. The improvements outlined in this "Policies section" of the Circulation Element are intended to accommodate existing and future travel needs generated as the city continues to grow and evolve. The Element should be periodically evaluated and updated to take into account changes in development patterns and evolving transportation trends and technologies.

GOAL 1. MAINTAIN AND ENHANCE THE CITY'S MULTIMODAL CIRCULATION SYSTEM

It is the City's goal to continue to maintain and enhance its circulation system, while retaining the flexibility to expand the circulation system as necessary to accommodate projected future demand while recognizing the need to balance the available right-of-way to serve users of all modes, expand transit opportunities, and accommodate future changes in transportation and technology.

POLICY 1.A: TRANSPORTATION PERFORMANCE STANDARDS

For the City to be able to evaluate how well its circulation system is functioning, measurable operating standards for the City's circulation system must be set. Establishing operating standards for various modes of travel also gives the City the ability to evaluate proposed development projects in order to determine if specific circulation improvements are needed to maintain operating standards. It is the City's policy that all roads within the City limits are required to meet specific performance standards as identified in this policy, hereafter referred to as "Multimodal Transportation Service Objectives" (MTSOs). These MTSOs shall also be utilized by the City as significance criteria for the purpose of conducting environmental analysis under CEQA.

MTSOs applicable to roads identified as Routes of Regional Significance (RRS) are shown in **Table 4-1**, below. The Routes of Regional Significance and their associated MTSOs have been established through the implementation of Measure J, and more specifically in Action Plans adopted by each Sub-region of the County. The RRS as designated in the West County Action Plan located within the City of Hercules, along with their corresponding MTSOs, are shown in **Table 4-1**.

Table 4-1. Operational Multimodal Transportation Service Objectives (MTSOs) for Routes of Regional Significance

Regional Routes	Applicable MTSOs
Interstate 80	Delay Index[(1)] of 3.0 or less HOV lane usage 10% over 2013 levels
State Route 4	Delay Index of 2.0 or less
San Pablo Avenue	Signalized Intersection LOS E

[(1)] The Delay Index is the ratio of congested travel time to "free-flow" travel time

All transportation facilities (roadways, bicycle facilities and pedestrian trails) in the City that are not classified as RRS are considered Basic Routes and are classified as either arterial roads, collector roads, local roads, or trails of local significance. Each jurisdiction in the County has the authority to adopt its own standards for Basic Routes. The City has identified the Functional Classification of the Basic Routes as shown in **Figure 3-1** of this Circulation Element. The MTSO applicable to all intersections located along Basic Routes is LOS D, representing an average delay of greater than 55 seconds per vehicle for signalized intersections or an average delay of greater than 35 seconds per vehicle for unsignalized intersections. The City has identified the MTSOs and significance criteria based on functional classification in **Table 4-2.**

Implementation Actions

1.A.1 Transportation Studies Required. Based on criteria established by the City and/or the Contra Costa Transportation Authority (CCTA), a transportation study will be required to evaluate a development project's transportation impacts if:

- The project generates 100 or more new peak hour vehicle trips; or
- The project has sufficient local or community interest as determined by the Planning Director

The transportation study will assess the project's impacts on the City's circulation system and will evaluate the project's compliance with the required MTSOs for both Regional Routes of Significance and Basic Routes. The scope of the traffic analysis and the methodology and assumptions used in performing the traffic analysis will be determined by the City's Public Works and Planning Directors.

Table 4-2. Operational Multimodal Transportation Service Objectives (MTSOs) and Significance Criteria

Facility Type	Applicable MTSOs	Significance Criteria
Arterial Road	Intersection LOS D	If intersection LOS worsens from LOS D or better to LOS E or LOS F
		If an intersection is already at LOS E or worse and average delay increases by more than 4.0 seconds
Collector Road	Intersection LOS D	If intersection LOS worsens from LOS D or better to LOS E or LOS F and a Caltrans signal warrant is met
		If an intersection is already at LOS E or worse and average delay increases by more than 4.0 seconds
Local Road	Intersection LOS D	If intersection LOS worsens from LOS D or better to LOS E or LOS F and a Caltrans signal warrant is met
		If an intersection is already at LOS E or worse and average delay increases by more than 4.0 seconds
	At unsignalized crossings, average wait time for bicyclists and pedestrians to cross safely is less than 30 seconds	If average wait time increases more than 30 seconds

Table 4-3. Design Operational Multimodal Transportation Service Objectives (MTSOs)

Facility Type	Applicable MTSOs
Arterial Road	Bicycle facilities are available within facility right-of-way
	Transit routes that serve more than an average of 500 passengers daily will have shelters at least once a mile
	Transit routes will have controlled pedestrian crossing opportunities within 250 feet of a stop
Collector Road	Exclusive pedestrian facilities are available within facility right-of-way
Local Road	Exclusive pedestrian facilities are available within facility right-of-way
Trail of Local Significance	Meet the buffer and multi-path widths shown in Figure 3-2 and Figure 3-3

[1] Caltrans Highway Design Manual, Topic 1003 Bikeway Design Criteria.

1.A.2 Requirement to Comply with MTSO Standards. A development project must comply with the City's established MTSOs as specified in **Tables 4-2 and 4-3** of Policy 1.A. Appropriate mitigation will be required of a project as determined by the City, to ensure compliance with required MTSO standards. The City may approve a project that exceeds established MTSO standards if the City can make appropriate findings identifying significant community benefit(s) associated with the project that the City determines are sufficient to offset the project's impacts.

1.A.3 Requirement to Assess Vehicle Miles Traveled (VMT). As a component of any required transportation analysis, the City may at the discretion of the Public Works or Planning Director require an analysis of the total VMT in addition to LOS generated by the project. VMT may be used to assess a project's air quality impacts as well as determine transportation impacts per the changes to the California Environmental Quality Act as prompted by SB 743.

POLICY 1.B: IMPLEMENTATION OF NEEDED CIRCULATION IMPROVEMENTS

Specific road, pedestrian, bicycle, and transit improvements are identified in Section 5 of this Circulation Element as necessary to improve the functioning of the City's circulation system. It is the City's policy to implement these improvements through the following Implementation Actions. In addition, other circulation improvements requiring implementation may be identified through a required transportation analysis as specified under Policy 1.A.

Implementation Actions

1.B.1 Transportation Impact Study. The transportation analysis prepared to determine the transportation impacts resulting from a specific development project shall evaluate the amount of traffic that is projected to use needed road, bike, or pedestrian improvements, specifically those improvements identified in Section 5 of this Circulation Element. Project mitigation shall be determined based on the project's "fair share" impact on the needed circulation improvements. The City may require that a development project fund the full cost of a critically needed circulation improvement, contingent upon a benefit district, reimbursement district, or other financial mechanism being established by the City so that future development benefiting from the circulation improvement will reimburse the development project funding the full cost of the needed circulation improvement.

1.B.2 Transportation Impact Fee. The City will update its Transportation Impact Fee (TIF) applicable to new development for mitigation of the impact of new development on the City's circulation system. This fee will be formulated

to ensure that new development pays for the "fair share" of improvements needed to offset its impact on all modes of the City's circulation system. In determining this fee, the City will consider the cost of the improvements needed to improve the City's circulation system. This fee shall be updated by the City on a regular basis, with a goal of updating this fee a minimum of once every four years.

1.B.3 Capital Improvement Program. The City will continue to use the Capital Improvement Program (CIP) to implement needed circulation improvements as funding becomes available. The CIP will identify needed improvements to the City's circulation system, prioritize the implementation of the needed improvements, and schedule specific projects for construction.

1.B.4 Grants and Other Funding Sources. The City will continue to proactively apply for grant funding (such as SB1, Measure J, WCCTAC, STMP, Tiger, CMAZ, STIP, TCRP, and the like) to secure the resources necessary to fund needed circulation improvements benefiting all modes of travel.

1.B.5 Right of Way Preservation. The City shall take appropriate steps as necessary as part of the development review process or other means to acquire through dedication or otherwise protect and preserve the right of way needed to accommodate planned improvements to the City's circulation network. The City may waive or reduce the right of way reservation if the City determines 1) that the reservation of the right of way would have a significant negative impact on the viability of successfully developing the property in question, and 2) that the circulation improvement for which the right of way is necessary is not anticipated to be implemented due to a lack of a viable funding source and/or insufficient traffic/user demand within the reasonably foreseeable future.

1.B.6 Funding Maintenance Costs. For all new development projects, the City, as provided for by law, will consider for taking the steps necessary to establish Street Light and Landscape Maintenance District(s) or other appropriate financial mechanisms, so that new development will fund the ongoing costs of maintaining streetlights and streetscape landscaping, and other eligible improvements.

POLICY 1.C: COMPREHENSIVE PEDESTRIAN AND BICYCLE SYSTEM

The City will continue to actively support and promote the establishment of a comprehensive system of interconnected pedestrian and bicycle trails throughout the City that link residential areas to destinations such as transit, schools, parks and recreation areas, civic buildings, retail centers, as well as to job-generating uses such as office and light industrial development. Connections to regional trails and bicycle facilities shown in the Countywide Bicycle Plan will be included as a priority. The goal is to implement the network of pedestrian and bicycle trails shown in **Figure 3-12** and **Figure 3-13** at a minimum. Additional facilities should connect key destinations to this pedestrian and bicycle network.

Implementation Actions

1.C.1 Gaps in Existing Bicycle/Pedestrian Network. The City will continue to identify opportunities for connecting gaps or enhancing connectivity on both sides of the road in the existing pedestrian and bicycle network where appropriate and will prioritize the improvements. Funding for such improvements may be allocated as part of the Capital Improvement Program (CIP), with possible funding sources including impact fees, grant funding, gas tax, or other sources.

1.C.2 New Development to Incorporate Bicycle/ Pedestrian Facilities. New development shall include sidewalks, paths, and other pedestrian/bicycle facilities to provide safe and convenient pedestrian/bicycle access within that development, as well as pedestrian/ bicycle connections to the surrounding community. Such improvements shall also include pedestrian/bicycle access to any nearby transit facilities, as well as on- and off-site connections to the local and regional bicycle and pedestrian networks.

1.C.3 Intersection and Traffic Signal Upgrades Needed to Serve Pedestrians and Bicyclists. New development shall modify/upgrade existing traffic signals for pedestrian/bicyclist actuation or provide a signal dedicated for pedestrian use as determined by the City based on the existing demand and need created by the project. The need for Americans with Disabilities Act (ADA) compliant accessible ramps at curbs or other related safety and accessibility measures shall be addressed as part of this development review process.

1.C.4a Bicycle/Pedestrian Linkage to Schools, Parks, and Trails. The City will work to ensure the provision of safe and convenient pedestrian and bicycle facilities to schools and parks. The City will continue to participate in and support the “Safe Routes to School” Program. The City will also prioritize linking existing trail systems to provide a comprehensive pedestrian/bicycle recreational trail system such as that envisioned in the Refugio Creek Watershed Vision Plan.

1.C.4b Bicycle/Pedestrian Linkage to Key Destinations. The City will prioritize safe and convenient pedestrian and bicycle facilities to key destinations including regional transit hubs [e.g. Regional Intermodal Transportation Center (RITC), Hercules Transit Center (HTC)] and major employment centers, such as BioRad and the Creekside Shopping Center.

1.C.5 Minimize Conflicts between Pedestrian, Bicycles, and Vehicular Traffic. The circulation system shall be designed to minimize, to the extent practical, physical conflicts between pedestrians/bicyclists and vehicular traffic, including designing streets and intersections to maximize safety without impeding mobility.

POLICY 1.D: PARKING REQUIREMENTS

The City will continue to implement its Parking Standards that establish the numbers and dimensions of parking spaces required for a specific type of use within the different zones. The Parking Standards should be updated to set standards established for automobiles, motorcycles, and bicycles, as well as address the need for loading/unloading spaces for relevant use types, along with requirements and standards for shared parking and off-site parking.

The City's Preferential Parking District Ordinance has allowed for the formation of the City's first parking district adjacent to the Aventine building on Sycamore Avenue. Future parking districts may be formed via City Council Resolution when petitioned for by property owners or initiated by the City Council. Additionally, the Waterfront District Master Plan discusses the formation of a public/private parking district within the Waterfront for efficient parking purposes.

Implementation Actions

1.D.1 Periodic Update of Parking Standards. The City shall strive to update it's Parking Ordinance on a regular basis as needed to address the changing and evolving nature of transportation. To accommodate multiple modes of transportation, for every 20 required vehicle parking spaces, there should be at least one bicycle rack, and for every 100 vehicle parking spaces there should be at least one motorcycle space and one electric vehicle charging station. Transit-Oriented Developments shall provide 10% on-street bike racks and 20% onsite secured bike storage of the total residential unit count.

1.D.2 Shared Used of Public and Private Parking. Parking availability is critical to the success of the commercial component of higher density mixed-use commercial/residential development. In order to ensure such availability in the Bayfront Project, located within the Waterfront District Master Plan area, the City has required, as part of the entitlement process, that an agreed upon amount of parking located within private development be available for the use of the general public, to be determined through a Parking Master Plan for the area. The City may consider the implementation of similar parking programs in other areas of the city as determined to be appropriate by the Public Works and Planning Directors with City Council approval of a Preferential Parking District.

1.D.3 Parking Demand for the RITC. The City will perform a comprehensive, multimodal parking demand study to determine the amount of parking needed to serve users of all modes at the RITC, and secure sufficient parking on- and off-site to serve the identified demand.

POLICY 1.E: ACCOMMODATE EMERGENCY SERVICE PROVIDERS

Emergency Fire District vehicles have specific design requirements in terms of street width, the bearing capacity of the street, curve radii at corners, and access requirements. Projects and related circulation improvements shall be designed to provide appropriate access for all emergency response vehicles.

Implementation Actions

1.E.1 Coordinate with Emergency Service Providers. The City will continue to work closely with all emergency service providers to ensure both new and existing developments in Hercules are accessible so they can be effectively served by those providers.

1.E.2 Development Review Process. Development proposals will continue to be reviewed by emergency service providers as part of the development review process.

1.E.3 Standard Plans. The City will coordinate with emergency service providers to ensure that the City's standard plans reflect and are consistent with the road and access design requirements of emergency service providers. Such Public Works standards or form-based codes shall be updated on a regular basis by the City to ensure the plans do not become out of date or conflict with one another.

1.E.4 Evacuation Routes. The City will maintain, and update as needed, emergency operational procedures, including the identification of safe zones and evacuation routes to be used in the event of earthquake, flooding, or other emergency event. Evacuation routes are shown in **Figure 3-15**.

1.E.5 Maintain Emergency Vehicle Preemption. The City will implement emergency vehicle signal preemption capabilities at any new or updated signalized intersections and at any existing signalized intersections as deemed necessary by the City Engineer.

POLICY 1.F: GOODS MOVEMENT

The City will provide for safe and efficient movement of goods to support commerce and industry.

Implementation Actions

1.F.1 Designated Truck Routes. The City will facilitate the movement of trucks on designated routes (as shown in **Figure 3-11)**, by providing easily accessible information on the network of truck routes in Hercules and installing and maintaining signage to clearly designate truck routes.

1.F.2 Minimize Conflicts between Trucks and Pedestrian/Bicycle Facilities. Truck routes with pedestrian/bicycle facilities will be designed to provide improved separation between traffic and pedestrians and cyclists where feasible.

1.F.3 Minimize Conflicts between Truck Loading/ Unloading and Pedestrian/Bicycle Access. Development proposals will avoid the placement of truck loading/unloading access points that interfere with pedestrian/bicycle access points.

POLICY 1.G: ACCESSIBILITY

It is the City's policy that the various modes of transportation will be accessible to all members of the community in concurrence with ADA requirements.

Implementation Actions

1.G.1 Accessibility of New Circulation Improvements. The City will ensure, as part of its review of plans for new development projects and new circulation improvements, that ADA requirements are met.

1.G.2 Accessibility of Existing Circulation Facilities. The City as part of its ongoing capital improvement program or through funding secured by grants or similar programs will work to retrofit existing circulation facilities to ensure they meet ADA requirements.

1.G.3 Accessibility and Intersection Design and Bicycle/Pedestrian Use. As part of the development review process, the City will require new development to upgrade any impacted circulation facilities to ensure that ADA requirements are met. This could involve the installation of ADA compliant ramps, pedestrian actuated signals, or other improvements.

GOAL 2. LAND USE AND INFRASTRUCTURE

The circulation network should be designed to maximize accessibility of Hercules' citizens to economic and social opportunities and destinations using existing transportation infrastructure and targeted transportation investment throughout the City as needed and within Priority Development Areas as noted in their relevant planning documents.

POLICY 2.A: DESIGNATION OF PRIORITY DEVELOPMENT AREAS (PDAS)

The following areas have been identified as PDAs and are shown in **Figure 4-2** of this Circulation Element.

- Waterfront District
- San Pablo Avenue Corridor
- Central Hercules

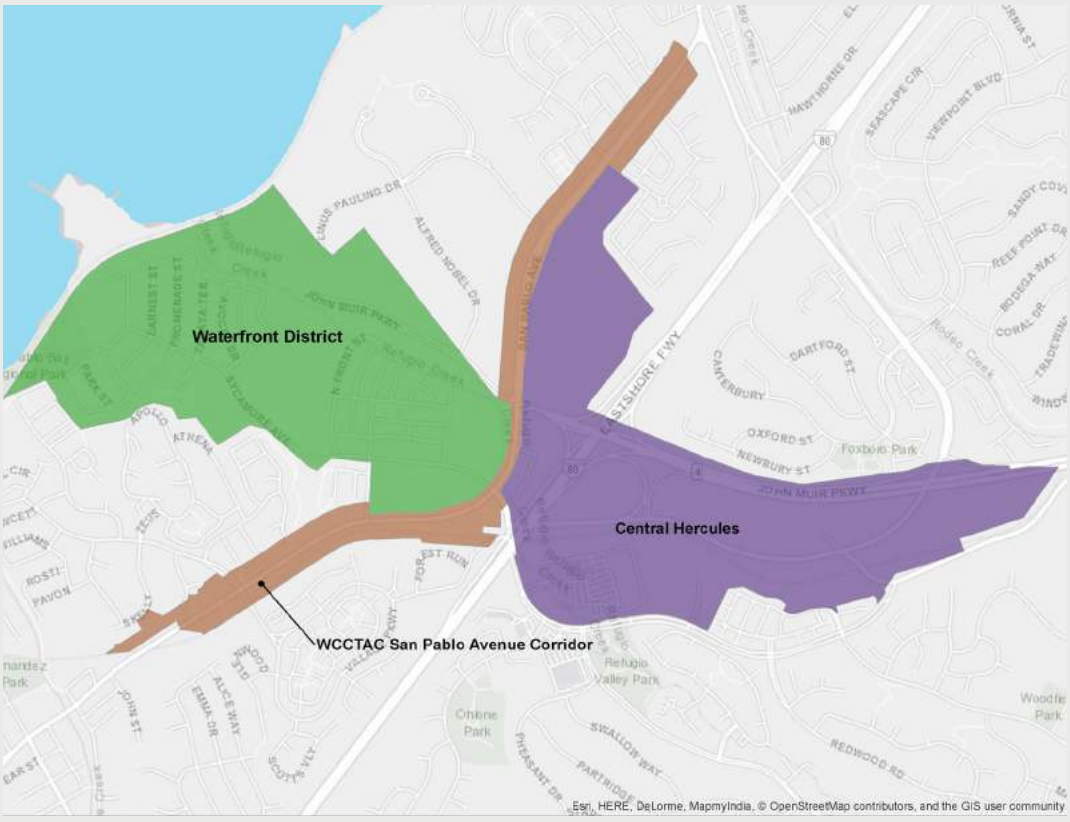
The City will continue to focus on these areas for targeted circulation improvements, new homes, and job growth.

Implementation Actions

2.A.1 Availability of Grant Funding. The City will continue to apply for and seek funding provided by regional agencies, such as the Metropolitan Transportation Commission, Association of Bay Area Governments (ABAG), Contra Costa Transportation Authority (CCTA), West Contra Costa Transportation Advisory Committee (WCCTAC), and others prioritized for infrastructure and other improvements within PDAs.

2.A.2 PDA Planning Documents. The City will update planning documents and participate in regional corridor planning for the three PDAs within Hercules city limits when deemed necessary.

Figure 4-2. Priority Development Areas



GOAL 3. PRESERVE AND ENHANCE COMMUNITY CHARACTER

It is the City's goal to appropriately balance the circulation needs with preservation and enhancement of the City's aesthetic and visual character. The design and configuration of a City's road system is an important component in creating and defining distinct neighborhoods within the City. The City recognizes that how a community is perceived is determined to a significant extent by the view and experience from its roadways.

POLICY 3.A: ROADS AND NEIGHBORHOOD CHARACTER

Roads will be designed and located to the extent feasible to help strengthen and define neighborhoods.

Implementation Actions

3.A.1 Through Traffic. Residential neighborhoods and the roads serving those neighborhoods will be designed to minimize vehicular traffic "short cutting" through the neighborhood.

3.A.2 Multimodal Connections. Pedestrian and bicycle travel between adjacent neighborhoods will be facilitated with sidewalks or multi-use paths wherever possible.

3.A.3 Traffic Calming. The City will consider traffic calming measures, such as adding landscaped medians, parkway strips, intersection bulb outs, or striping and similar devices, as a tool to utilize in both existing and new neighborhoods, with the primary goal of reducing traffic speeds on local residential streets within funding constraints.

3.A.4 Minimize Curb Cuts. Access points/curb cuts on Routes of Local Significance, and on Arterial and Collector roads shall be minimized. When feasible, the number of existing street and driveway curb cuts should be reduced where appropriate in order to improve traffic flow.

3.A.5 Roundabouts. In accordance with Caltrans Intersection Control Evaluation (ICE) procedures, the City will consider roundabouts as an alternative to signalization when evaluating intersection control options to minimize delay along arterial and collector streets (such as Palm at Sycamore), improve safety for traffic, bicycles, and pedestrians, and as an opportunity to provide space for landscaping and public art.

POLICY 3.B: AESTHETICS OF ROAD DESIGN

Streets are an important visual component of a community, as the visual impression of both residents' and visitors' is shaped to a significant extent by the appearance of the community's streetscape. Appropriately designed landscaping, walls or fences, signage, street lighting, and other street furniture is critical to creating a visually attractive streetscape.

Implementation Actions

3.B.1 Designation of Scenic Routes. The following roads within the City of Hercules are currently classified as "Scenic Routes" for City purposes:

- State Route 4 between I-80 and the eastern border of Hercules, near Franklin Canyon;
- San Pablo Avenue between Pinole Valley Road and Willow Avenue;
- Refugio Valley Road between Sycamore Avenue and Falcon Road.

3.B.2 New Development and Scenic Routes. The design and site layout of new development on or in close proximity to a Scenic Route shall take into account the visual impact of the development on the Scenic Route, and any impact on existing vistas from the Scenic Route.

3.B.3 Scenic Views. Key 'public' views visible from Scenic Routes, as determined by the City, shall be preserved to the extent practical.

3.B.4 Sound Walls, Fences Adjacent to Streets. All sound walls or other walls/fences that "back on" or "side on" to a public street shall be built of masonry or heavy wood construction, or equivalent material in order to ensure an attractive appearance over the long term, and allow for reduction of noise when appropriate, with the design of any such fences and walls and materials used being subject to City approval.

3.B.5 Topography. Roads in hilly areas shall be designed to conform to the existing terrain to the extent feasible in order to minimize the disturbance of the land, and to reduce the amount of cut and fill necessary to construct the road.

3.B.6 Utility Boxes, Transformers. Utility boxes, transformers, and infrastructure related mechanical equipment located on or near a road shall be placed and/or screened in such a manner, or placed underground to minimize their visibility from the street.

3.B.7 Entryway Signage. Entryway signage should be added to key City entry points.

GOAL 4. REDUCE THE RELIANCE ON THE AUTOMOBILE

The City will continue to implement the goal of ensuring that Hercules is served by an efficient, fully integrated, multimodal transportation system that reduces its residents' reliance on the automobile. Progress toward this goal will be met by making alternative modes of transportation more accessible, convenient, and attractive, while ensuring that such alternative transportation modes are fully accessible to all members of the public. It is the City's goal to achieve a measurable increase in bicycle and pedestrian mode share to a minimum of 5% of commute trips by the year 2040 and maintain a transit mode share of 10% as shown in **Table 2-1**. The current mode share for the City as reported in the 2009 Contra Costa Bicycle and Pedestrian Plan is 2% commute mode share for pedestrians and bicycles combined.

POLICY 4.A: REGIONAL INTERMODAL TRANSPORTATION CENTER (RITC)

The City will continue to actively support the Hercules Regional Intermodal Transportation Center (RITC) by working closely with all transit service providers, including rail, ferry, and bus, while proactively continuing to work to secure the permit approvals and funding needed to construct the RITC facility.

Implementation Actions

4.A.1 RITC Construction. The cost of constructing the entire envisioned RITC as planned is significant. The City will continue to work to secure the necessary funding to construct the RITC. While the preferred outcome is to secure sufficient resources to build the entire RITC at one time, it is anticipated to be built in four phases. Phase 1 (completed in 2015) extended the Bay Trail and made room for rail expansion by installing large retaining wall structures on the northerly portion of town. Phase 2 (completed in spring 2016) extended John Muir Parkway and constructed Bayfront Bridge to connect to the existing Bayfront Boulevard in order to allow new bus service on the west side of Hercules by WestCAT. Phase 3 requires relocating oil and fiber optic utility lines, installing additional rail sidings, and constructing the platform and kiosk as well as a pedestrian rail cross-over to accommodate rail service in the near term. Construction of infrastructure tied to ferry service would be a final long-range Phase 4. The City's goal construction schedule is contingent on securing the required funding and necessary authorization, including the commitment of the rail provider to serve the facility.

4.A.2 Bus Service to RITC. The City will work closely with WestCAT to coordinate bus service on an interim basis to the site in close proximity to where the RITC is proposed until the construction of the RITC.

4.A.3 Rail Service to RITC. The City will continue to work closely with the Capitol Corridor and San Joaquin Valley Joint Powers Authorities to secure their commitment to provide rail passenger service (currently operated by Amtrak) to the RITC. The City will continue to work to secure the necessary funding and approvals to implement the improvements needed to accommodate passenger rail service to the RITC, including the Hercules Rail Station and parking structure.

4.A.4 Water Emergency Transportation Agency (WETA) and Ferry Service to RITC. The City will continue to work with WETA to locate a mutually agreeable ferry terminal site that minimizes the need for dredging required to run traditional catamaran ferry service. The City will concurrently explore with WETA potential sources of construction funding for the ferry terminal, while addressing the issue of the operational costs to run ferry service to Hercules. It is very likely that rail and bus service to the RITC will occur in advance of any ferry service.

4.A.5 Alternative Ferry Service to the RITC. In addition to working with WETA, the City will continue to work with potential alternate ferry service providers, whose business model relies on the use of smaller vessels, which can serve terminal sites shallower than those required by traditional ferry service.

POLICY 4.B: BART EXTENSION

The City will continue to work closely with BART staff and BART decision makers concerning the timing and location of any potential BART extension to Hercules, given the transit benefits of a BART extension to the City, and the importance of the BART station location being supportive of the City's land use and economic vision for the Central Hercules PDA. An initial costa assessment included in the High Capacity Transit Study adopted in 2017 by the West Contra Costa Transportation Advisory Committee (WCCTAC) shows current costs for a BART extension to Hercules ranging from $3.6 to $4.2 Billion to construct versus approximately $51 million to complete the Regional Intermodal Transportation Center along the existing Amtrak Capitol Corridor Line.

Implementation Actions

4.B.1 Location of a BART Extension. The City will work proactively with BART and permitting agencies to ensure that any BART extension to Hercules will be located to conveniently serve City residents, while also accommodating the City vision for the successful development. An initial cost assessment included in the High Capacity Transit Study adopted in 2017 by the West Contra Costa Transportation Advisory Committee (WCCTAC) shows current costs for a BART extension to Hercules ranging from $3.6 to $4.2 Billion to construct versus approximately $51 million to complete the Regional Intermodal Transportation Center along the existing Amtrak Capitol Corridor Line.

4.B.2 Bus Service to a BART Extension. The City will work closely with WestCAT to secure its commitment to provide bus service if there is an eventual development of a BART extension where it does not currently exist.

4.B.3 Future Status of Hercules Transit Center. The City will continue to work with BART regarding the continued operation of the existing BART-owned bus station/park-and-ride currently served by WestCAT. This coordination will address the possible need to relocate the Willow Avenue bus station and park-and-ride as a result of the eventual development of the New Town Center area and a BART extension.

POLICY 4.C: BUS SERVICE

WestCAT currently provides the majority of bus service to the older, more established parts of Hercules as well as Martinez, El Cerrito Del Norte BART, and San Francisco. The City will continue to work closely with WestCAT with the objective of WestCAT enhancing and expanding the bus service provided to the community as appropriate.

Implementation Actions

4.C.1 Future Extension and Expansion of Bus Service. Currently the western portion of the City, due in large part to the historic timing of residential development in the City, does not have the same level of bus service as other parts of the City. As the western portion of the City continues to develop, the City will continue to work with WestCAT and the residents living in the area to explore the possible expansion of fixed route and/or commuter bus service west of I-80, including the developing areas near the waterfront, as well as to the surrounding developed residential neighborhoods.

4.C.2 New Development and Bus Service. The City will continue to provide WestCAT staff with an opportunity to review and provide input regarding proposed development projects. Improvements needed to accommodate bus service attributable to a proposed development project may be required as determined by the City and WestCAT. These improvements could include such items as bus stops, bus shelters, bus pullouts, and related facilities.

4.C.3 Bus Service and the RITC. The City will continue to work proactively with WestCAT to ensure the provision of an effective level of bus service to the RITC when it becomes operational.

4.C.4 Transit Signal Priority for Buses. The City will work with WestCAT to explore implementing traffic signal priority along San Pablo Avenue, Sycamore Avenue, and Willow Avenue for transit as a means of reducing travel time and increasing the efficiency of buses and other transit vehicles serving the City.

4.C.5 Enhance Existing Transit Facilities. The City will work with WestCAT to explore the possible implementation of improvements to enhance the function of existing transit facilities in the City. An example of such an enhancement would be installing electronic signage that provides real time bus schedule and arrival times at bus stops.

POLICY 4.D: PEDESTRIAN/BICYCLE

The City will continue to support walking and bicycling, not only as an alternative to driving but to improve health, create appreciation for the Refugio Creek watershed, and provide connections across I-80 in central Hercules. Improvements to the existing pedestrian/bicycle network will be considered for priority funding given the importance of increasing the community's use of the pedestrian/bicycle system.

Implementation Actions

4.D.1 Complete Streets Program. The City will continue to participate in and comply with the "Complete Streets" program as specified by AB1358 and its own Complete Streets policy to ensure roads in the City adequately serve all applicable modes of transportation in the interest of increasing the safety and convenience of all users, and to create a connected network of facilities within and across jurisdictional boundaries. This will include the incorporation of Complete Streets infrastructure into existing streets as well as throughout the planning and design stage of proposed transportation projects as shown in Figures 3-11, 3-12, and 5-1.

4.D.2 Bike Parking for Commercial Development. New commercial and office developments shall provide an appropriate amount of bicycle parking such that a maximum of 85% occupancy is maintained.

4.D.4 Bicycle/Pedestrian Safety and Road Capacity. New road improvements or modifications to existing roads will be designed to give priority to enhancing pedestrian/bicycle safety while implementing improvements needed to increase road capacity.

4.D.5 Funding Needed to Improve Bike/Pedestrian Trail System. Funding needed to improve and expand the City's existing pedestrian/bicycle system, not related to new development projects, will be addressed as part of the City's Capital Improvement Program, as well as by grant funding and other similar funding programs.

4.D.6 Lighting for Bicycles/Pedestrian Trail System. Lighting as needed for safety purposes, as determined by the City, will be provided for pedestrian and bicycle facilities. New pedestrian and bicycle facilities should include lighting. The City will determine the need for lighting for existing pedestrian and bicycle facilities, which will be funded as a condition of a development project, or if unrelated to a new development by developer fees, capital improvements funds, or some other source.

4.D.7 Traffic Calming. Traffic calming measures will be considered by the City as a mechanism to address conflicts between vehicular traffic flow and pedestrian and bicycle facilities. This can be used in combination with a speed survey to achieve target speed limits or to encourage diversion of cut-through or regional traffic to avoid local roads.

4.D.8 Evaluation of Cost and Funding of Bicycle/Pedestrian Trail Maintenance. The City will evaluate the cost of maintaining pedestrian and bicycle facilities when addressing the maintenance needs of roadways. To obtain funding for identified maintenance needs or improvements, the City, as allowed for by law, may require new development to fund the ongoing costs of maintaining pedestrian and bicycle trails that serve new development, through the creation of a Landscaping and Streetlight Maintenance District or alternative funding mechanism.

4.D.9 City Map of Bicycle/Pedestrian Trail System. The City will make available to the public a map depicting the location of existing and proposed pedestrian and bicycle routes within the City, and shall post a copy of the map on the City's web site. The City will update the map as needed to reflect changes and improvements to the system.

GOAL 5. REDUCE VEHICULAR TRAFFIC GENERATION AND GREENHOUSE GAS EMISSIONS IN HERCULES

It is the City's goal to explore and implement as appropriate programs to reduce the amount of vehicular traffic and greenhouse gas emissions generated by both existing and proposed uses in Hercules.

POLICY 5.A: TRANSPORTATION DEMAND MANAGEMENT (TDM)

The City will work with major employers within Hercules to encourage those employers to implement TDM programs with the goal of reducing the employers' total traffic generation.

Implementation Actions

5.A.1 TDM and Existing Major Employers. The City will help direct existing major employers in the City to agencies and websites that assist employers to implement an effective Transportation Demand Management Program to reduce peak hour traffic generation. TDM programs may include activities such as ridesharing programs, transit passes, vanpools, access to shuttle buses, and other incentives to participating employees.

5.A.2 TDM and Proposed Development. As part of the development review process for a project with a significant number of employees, the City has the discretion to require the implementation of a TDM program that is satisfactory to the City as a requirement of the entitlement process of such a project.

POLICY 5.B: FLEXIBLE PARKING REQUIREMENTS

The City may consider requiring fewer parking spaces than required by City code for a given development project as a tool to assist in achieving the City's goal of reducing traffic generation. An example of this is the Bayfront Project for which the City adopted a greatly reduced parking ratio to serve higher density development located in close proximity to the RITC, as a way of reducing dependence on the automobile for that specific project.

Implementation Actions

5.B.1 Reduced Parking Ratios. The City, as part of the development review process, may allow a proposed project to provide fewer parking spaces than required by City Code, with the exact amount of parking provided for a given project determined by the City.

5.B.2 Allocation of Parking. Parking that is allocated to specific residents or specific commercial tenants reduces the efficient utilization of available parking, and is to be avoided if reduced parking ratios are proposed.

5.B.3 Shared Parking Between Uses. The City will continue to encourage, where appropriate, the use of shared parking between differing types of uses, when the peak parking demands occur at differing times, as a means of reducing the total number of parking spaces needed.

5.B.4 Shared Public/Private Parking. In order to minimize the total number of parking spaces needed within certain areas of Hercules, the City will establish a program of shared parking between private development projects and public on-street parking, public parking lots, and public parking structures.

5.B.5a Zero-Emission Preferential Parking and Vehicle Charging for Existing Commercial Use. The City will work with existing businesses in the City with the goal of encouraging those businesses to provide preferential parking and/or charging stations for zero-emission vehicles.

5.B.5b Zero-Emission Preferential Parking and Charging for Proposed Development. As part of the development review process for a commercial or residential project, the City has the discretion to require preferential parking and/or charging stations for zero-emission vehicles greater than the amount required in the building code.

5.B.6 Ride-Sharing Parking for Proposed Development. As part of the development review process for a commercial or residential project, the City may, at its discretion, provide credits against trip generation with the inclusion of car-sharing parking spaces.

5.B.7 Private-Employer Shuttle Use of Public Parking lots. The City will work with private employers providing shuttle service to local employees to provide access to public parking space for commuters when feasible and supported by demand.

GOAL 6. COOPERATIVE MULTIJURISDICTIONAL PLANNING

POLICY 6A: COOPERATIVE MULTIJURISDICTIONAL PLANNING

The City will continue to work closely to coordinate its transportation planning efforts with all relevant agencies within the county, the Bay Area, and the state.

Implementation Actions

6.A.1 Coordination with Regional Agencies. The City will continue to coordinate its transportation planning efforts with Metropolitan Transportation Commission (MTC), Association of Bay Area Governments (ABAG), and Contra Costa Transportation Authority (CCTA), including the filing of bi-annual Measure J Growth Management Plan (GMP) Checklist reports.

6.A.2 West Contra Costa Transportation Advisory Committee (WCCTAC). The City will continue to work closely with WCCTAC concerning West County sub-regional transportation planning (including the collection of pass-thru Subregional Transportation Mitigation Program impact fees), including updating as necessary the West County Action Plan for Routes of Regional Significance.

6.A.3 Neighboring Agencies. The City will continue to work cooperatively with neighboring agencies to coordinate improvements to the Routes of Regional Significance that run between communities to enhance the traffic flow and connectivity on those regional routes. Of particular concern is the need to relieve congestion on San Pablo. The City will also work cooperatively with West Contra Costa Unified School District and John Swett Unified School District as well as with local schools to reduce the effect of school drop-off and pick-up on congestion on the circulation network.

6.A.4 Transit Agencies. The City will continue to work proactively with WestCAT, AC Transit, BART, WETA, Amtrak, and other transit agencies to coordinate the provision of transit service to Hercules.

6.A.5 CALTRANS. The City will continue to coordinate with CALTRANS concerning the configuration and operation of both State Route 4 and I-80 to maximize the operational capacity of both freeways to reduce the amount of traffic that is diverted onto local Hercules streets. The City will continue to work with CALTRANS on the design and future implementation of alternatives to the existing freeway on- and off-ramps for I-80 and SR-4 as necessary.

GOAL 7. RETAIN FLEXIBILITY TO ADAPT TO FUTURE CHANGES

The Circulation Element has a horizon year of 2040. Transportation technology and services continue to change at a rapid pace with the increasing use of electric vehicles and their required charging infrastructure, mobile ride-sharing and ride-hailing applications, private-employer-based shuttle services, and the recent introduction of consumer-available hydrogen powered cars, as just a few examples. The advent of autonomous vehicle (AV) technology will have as yet unforeseen impacts on travel behavior and land uses. Some analysts see autonomous vehicles reducing transit usage and increasing VMT while others predict that AVs may reduce the need for parking and will complement public transit. Demographic trends will also affect the transportation infrastructure and services needed. For example, younger people are showing less propensity for obtaining drivers' licenses while an aging population will require more support to retain mobility.

At the same time, the State of California has continued to introduce and adopt policies (such as Senate Bill (SB) 375 and SB 743) to reduce greenhouse gas emissions throughout the state. The City needs to be flexible to proactively address and accommodate these and other unexpected changes.

POLICY 7.A: REGULAR REVIEW OF CIRCULATION ELEMENT

To ensure that the City's Circulation Element keeps pace with changes in transportation technology and demand, the City will update the Circulation Element on a schedule to be coordinated with the Contra Costa Countywide Transportation Plan updates.

POLICY 7.B: FLEXIBILITY OF OPERATIONAL AND DESIGN STANDARDS DUE TO CHANGING TECHNOLOGY

The City will amend Policy 1.A as needed to meet changes in CEQA policies and requirements.

POLICY 7.C: FLEXIBILITY OF PARKING REQUIREMENTS DUE TO CHANGING TECHNOLOGY

As changing vehicle technologies are developed and introduced to the public, the City will amend Policy 5.B and the developmental review process at its discretion to encourage the use of emerging vehicle technology.

SECTION 5.

CIRCULATION SYSTEM IMPROVEMENTS

5. CIRCULATION SYSTEM IMPROVEMENTS

The infrastructure improvements necessary to implement the vision of this Circulation Element have been derived from several sources. First, improvements required as part of adopted General Plan amendments have been included to maintain the operational standards and accommodate planned growth. Other improvements, such as filling in the bicycle and pedestrian networks, are based on policies contained in this Circulation Element and input received at a public workshop. Finally, projects such as the Regional Intermodal Transportation Center, which are regional in scope but are located in Hercules, have been included.

A list of improvement projects by mode is provided in **Table 5-1**. Where specific improvement projects have been proposed, they are presented in one of the following categories:

- **Near-Term Improvements.** These improvements consist of funded improvements that are currently or will be soon under construction[1]. These improvements include projects that are nearing approval, or that can be implemented as part of routine maintenance projects, or that are priorities for the community.
- **Mid- and Long-Term Improvements.** The need for these improvements has been identified but funding sources have not been secured. Prioritization will be required as details for these projects are established.
- **Conceptually Defined Improvements.** These improvements have been defined at the conceptual level but will require further study to produce planning level designs.

Figure 5-1 provides an overview of improvements to the roadway system. Planned pedestrian and bicycle improvements are shown on **Figure 3-12** and **Figure 3-13** respectively.

The need for these improvements should be periodically re-evaluated in conjunction with updates to the Circulation Element. Additional needed improvements may also come to light as practical, environmental, fiscal, and social conditions and constraints evolve.

ENVIRONMENTAL IMPLEMENTATION

Any future circulation system improvement projects that are brought forward, including projects that might be recommended in the Circulation Element, would be required to comply with General Plan policies and objectives, City Standard Plans/Design Standards/Standard Specifications, and the laws and regulations in effect at that time. In addition, the following environmental implementation program addresses paleontological resource issues for any of these future circulation system improvement projects:

- **Potential for Disturbance of Paleontological Resources.** During the City's review process for future circulation system improvement projects, the City shall assess the possible presence of paleontological resources, and may require a range of measures to protect such resources, such as an education program combined with monitoring by a qualified paleontologist. If subsurface paleontological resources are encountered, a paleontologist representing the City will determine and the City will require appropriate steps to recover and catalog any such specimens.

1 As of the date of preparation of this Circulation Element (summer of 2017).

Table 5-1. Transportation Improvement Projects

Map Reference	Mode	Type	Standard or Policy	Project Description	Timeframe
Figure 5-1 (S1)	Auto	Intersection	1.A.1	Signalize San Pablo Avenue and Tsushima Street; allow full access to Tsushima Street	near-term
Figure 5-1 (R1)	Auto	Intersection	1.A.1	Reconfigure Sycamore Avenue cross section between Willow Avenue and San Pablo Avenue to 7 lanes	long-term
Figure 5-1 (R2)	Auto	Roadway	1.A.1	Double right turn lanes from NB San Pablo Avenue to SR-4 and I-80 ramps	long-term
Figure 5-1 (S2)	Auto	Intersection	1.A.1	Signalize intersection of San Pablo Avenue and Linus Pauling Drive; add turn lanes	long-term
Figure 5-1 (S3)	Auto	Intersection	1.A.1	Signalize WB SR-4 ramp and Willow Avenue	long-term
Figure 5-1 (R3)	Auto	Ramp	1.A.1	Relocate EB SR-4 ramps at Willow Avenue further east	long-term
Figure 5-1 (R4)	Auto	Roadway	1.A.1	Widen Willow Avenue to 4 travel lanes; intersection improvements at Willow Avenue and Palm Avenue	long-term
Figure 5-1 (INT1)	Auto	Roadway	1.A.1	Intersection improvements at Willow Avenue and Palm Avenue	long-term
Figure 5-1 (S4)	Auto	Intersection	1.A.1	Signalize or roundabout at Intersection of Sycamore Avenue and Palm Avenue	long-term
Figure 5-1 (S5)	Auto	Arterial/ Intersection	1.A.1, 1.C.3	Signalize intersection of Willow Avenue and Canterbury; include pedestrian phase	long-term
Figure 5-1 (R5)	Auto	Ramp	1.A.1	Relocate EB I-80 offramp to exit at Sycamore Avenue and Creekside Center driveway	long-term
Figure 5-1 (INT2)	Auto	Intersection	1.A.1	Retime signal at intersection of relocated EB I-80 off ramp; upgrade curb ramps to ADA standards	long-term
Figure 5-1 (INT3)	Auto	Roadway	1.A.1	Willow Avenue and Sycamore Avenue intersection improvements	long-term
Figure 5-1 (INT4)	Auto	Intersection	1.A.1	Add third stacking through lane to San Pablo Avenue and Sycamore Avenue along NB San Pablo Avenue approach	near-term
n/a	Auto	Traffic Calming	3.A.3	Evaluate local and collector streets with a history of speed-related collisions for traffic calming measures	long-term
Figure 5-1 (INT5)	Bicycle/ Pedestrian	Safety	4.D.4	Pedestrian-activated signal phase at Market Hall driveway across San Pablo Avenue	near-term
n/a	Bicycle/ Pedestrian	ADA	1.G.2	Update curb ramps to ADA standards at all marked crosswalks	long-term
Figures 3-12, 3-13	Bicycle/ Pedestrian	Bicycle/ Pedestrian	1.C.1	Hercules Creekside Trail and Boardwalk along Refugio Creek between Sycamore Avenue and RITC	near-term

Table 5-1. Transportation Improvement Projects

Map Reference	Mode	Type	Standard or Policy	Project Description	Timeframe
Figures 3-12, 3-13	Bicycle/ Pedestrian	Complete Streets	4.D.1	Add multi-use path along San Pablo Avenue and Sycamore Avenue at Market Hall site	near-term
Figures 3-12, 3-13	Bicycle/ Pedestrian	Connectivity	1.C.4.b	Improve pedestrian and bicycle access under BNSF railway via Palm Avenue	conceptually defined
Figure 3-12	Bicycle/ Pedestrian	Connectivity	1.C.1	Complete Bay Trail through Hercules	near-term
Figure 3-13	Bicycle/ Pedestrian	Connectivity	1.C.4a	Expand bicycle network to serve all elementary schools and major employment centers; fill in gaps in bicycle network	long-term
Figure 3-12	Bicycle/ Pedestrian	Connectivity	1.C.4b	Add/improve pedestrian facilities on Willow Avenue to connect to HTC	long-term
Figure 3-12	Bicycle/ Pedestrian	Connectivity	1.C.1	Extend pedestrian connections to Rodeo	near-term
Figure 3-12	Bicycle/ Pedestrian	Connectivity	3.A.2	Create better network of sidewalks and pedestrian connections between neighborhoods as appropriate funds become available or as identified by specific projects	varies
Figure 3-13	Bicycle/ Pedestrian	Connectivity	1.C	Complete bicycle facilities on Willow Avenue between Hercules Transit Center and Mariner's Pointe	near-term
Figures 3-12, 3-13	Bicycle/ Pedestrian	Safety	4.D.5	Add lighting as needed for safety along Refugio Valley Trail and San Francisco Bay Trail	long-term
Figures 3-12, 3-13	Bicycle/ Pedestrian	Safety	1.C.5, 4.D.4	Remove crosswalk over San Pablo Avenue from north approach for safety	near-term
Figure 3-12	Bicycle/ Pedestrian	Safety/ Community	4.D.1	Install patterned or enhanced crosswalks	near-term
Figure 5-1 (BP1)	Bicycle/ Pedestrian	Connectivity	1.C.1	Gap closure project to add/improve pedestrian facilities on Sycamore Avenue to Willow Avenue to connect to HTC.	long-term
Figure 3-14	Transit	Amenity	4.C.5	Provide shelters along WestCAT Route J line on San Pablo Avenue with real-time arrival signs as development occurs	varies
n/a	Transit	Connectivity	4.C.4	Transit signal priority along San Pablo Avenue, Sycamore Avenue, and Willow Avenue	long-term
Figure 3-14	Transit	Rail/Rapid Transit	4A	Parking for Intermodal Transit Center	long-term
Figure 3-14	Transit	Transit Facility	4A	Complete Intermodal Transit Center/Rail Station	near-term
Additional bicycle and pedestrian improvements are depicted in Figures 3-12 and 3-13.					

LARGE FIGURES AND TABLES

Figure 3-1. Roadway Network

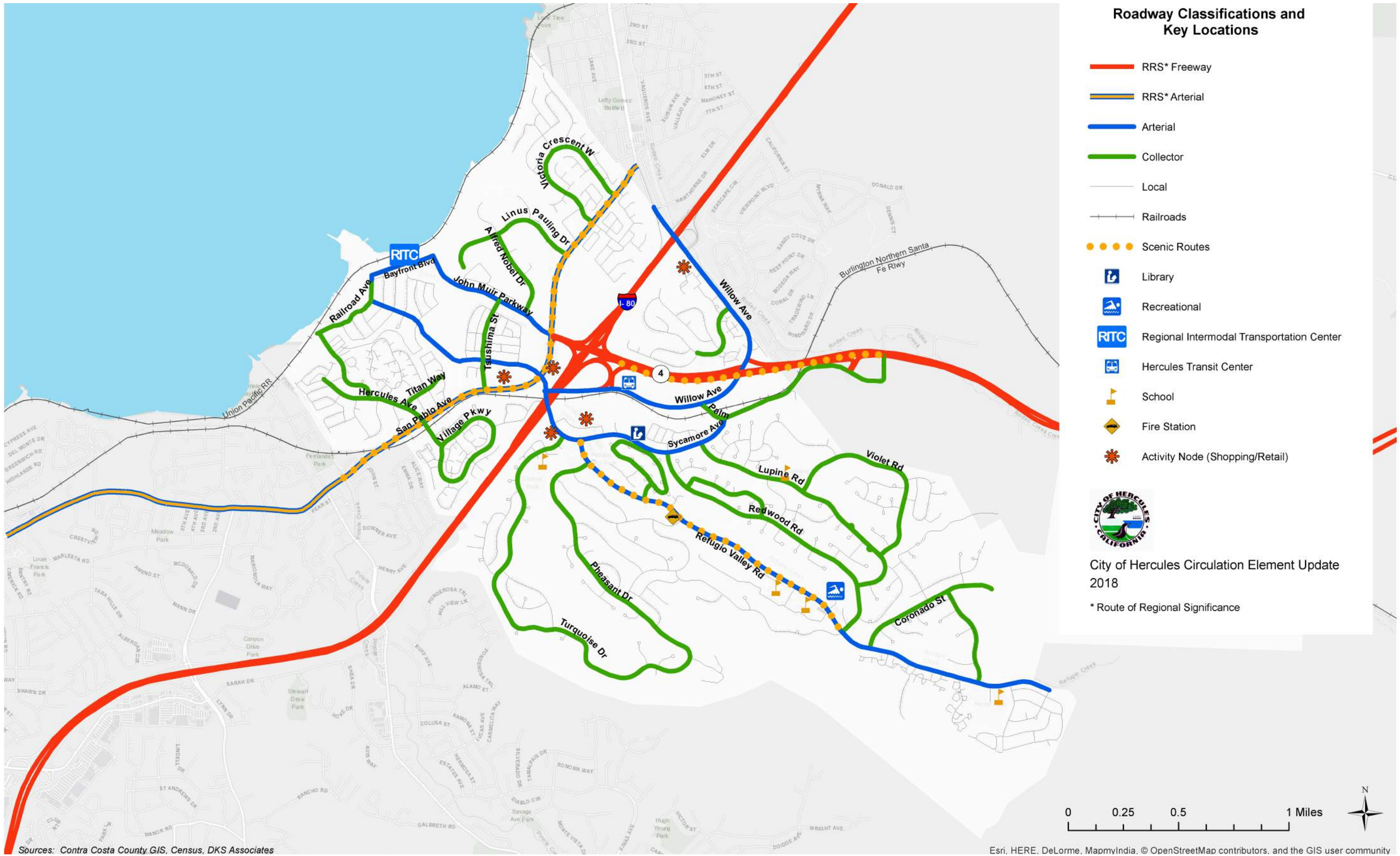


Figure 3-9. Hercules Waterfront District Masterplan Circulation Map

Street Type Hierarchy

- Main Street
- John Muir Parkway
- Town Center Street I
- Neighborhood Street I **
- Neighborhood Street II
- Edge Street I
- Walk Street
- Transit Loop Drive
- Refugio Creek Crossing
- Access Alley
- Rear Access Alley
- Paseo
- Cascade

highest (primary) … lowest (secondary)

Primary and Secondary Streets

The Street Types above are listed in a hierarchical manner with streets at the top of the list being higher and streets at the bottom of the list being lower. If a block fronts on multiple streets, the street that is higher on the list will be the primary street and all other streets will be secondary streets. If a block fronts only onto one street, that street is the primary street regardless of its location within the heirarchy. The Main Street, John Muir Parkway, and Town Center I Street Types will always be treated as primary streets (i.e., both streets frontages at the intersection of John Muir Parkway and Bayfront Boulevard are to be treated as primary streets)

General Key

- Historic Buildings
- Railroad ROW
- Existing Street Type (per HWDMP)
- Regional Bike/Pedestrian Path
- Above-Grade Railroad Crossing*
- Future Marina Access*

** *Street type not shown on plan*

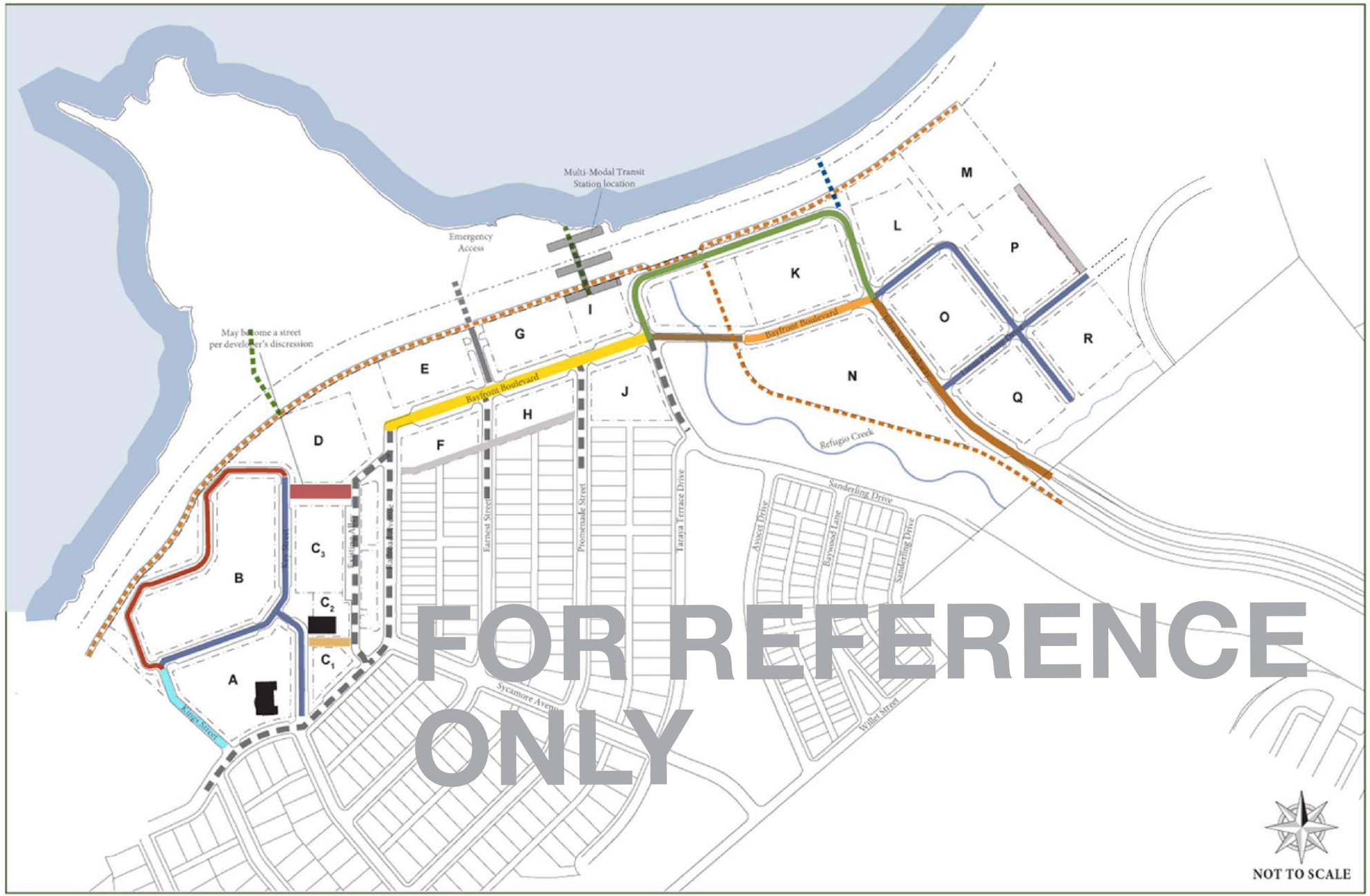


Figure 3-10. Study Intersections

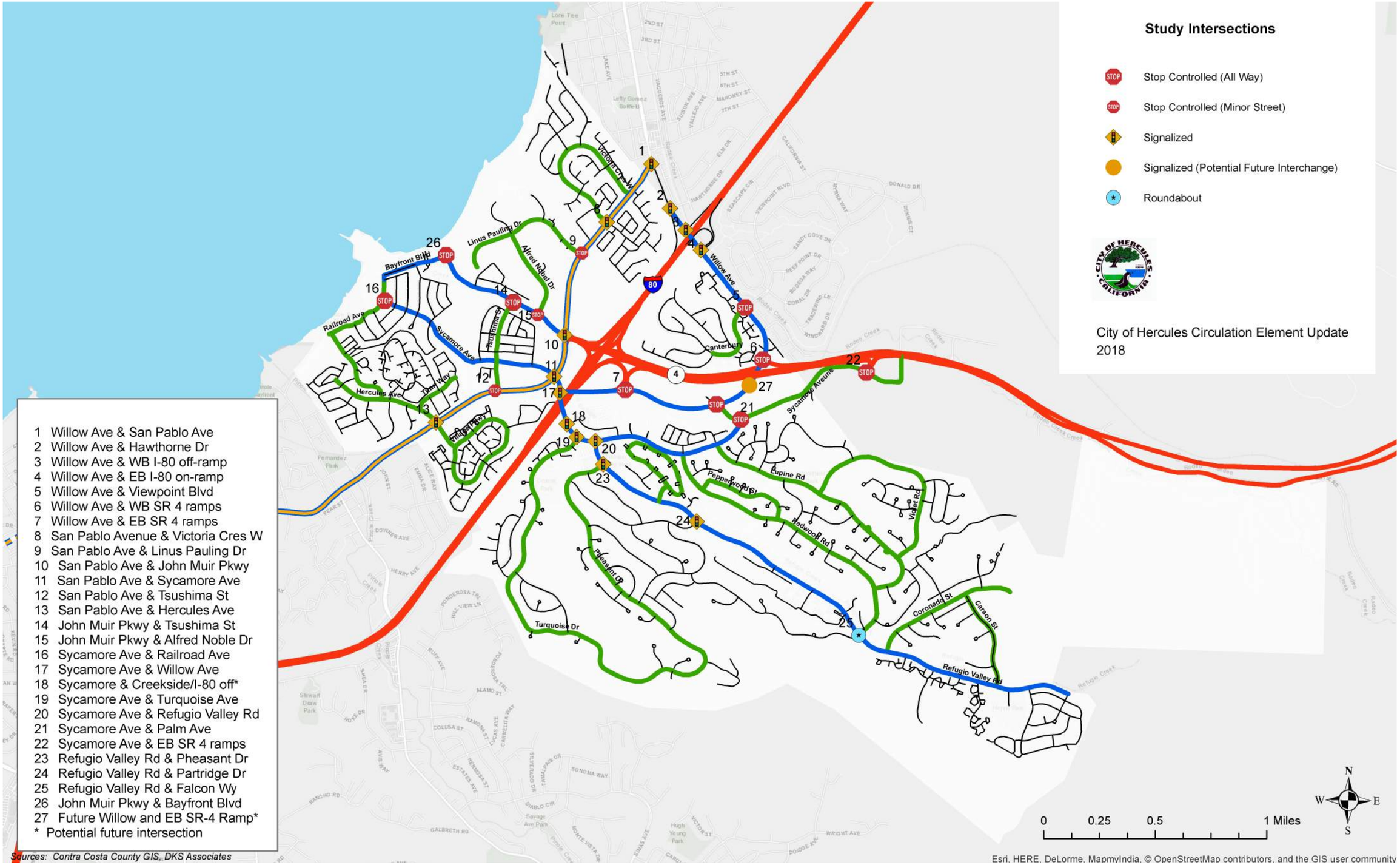


Table 3-1. Existing and Forecast Intersection Level of Service

		Existing					2040 Forecast[1]				
			AM Peak Hour		PM Peak Hour			AM Peak Hour		PM Peak Hour	
ID #	Intersection Name	Control Type	LOS[2]	Delay[3]	LOS[2]	Delay[3]	Control Type	LOS[2]	Delay[3]	LOS[2]	Delay[3]
1	Willow Ave & San Pablo Ave	Signalized	B	14.0	B	14.6	Signalized	C	20.1	B	16.9
2	Willow Ave & Hawthorne Dr	Signalized	B	11.2	A	8.3	Signalized	A	8.7	A	7.8
3	Willow Ave & WB I-80 off-ramp	Signalized	A	7.4	A	6.3	Signalized	A	7.7	A	7.0
4	Willow Ave & EB I-80 on-ramp	Signalized	B	12.3	B	17.3	Signalized	B	12.8	C	21.3
5	Willow Ave & Viewpoint Blvd/ Canterbury	Stop (all way)	C	16.3	B	12.7	Signalized	A	6.0	A	4.7
6	Willow Ave & WB SR 4 off-ramp	Stop (all way)	B	11.1	B	12.7	Signalized	A	6.2	A	6.8
7	Willow Ave & EB SR 4 ramps	Stop (all way)	A	9.2	B	10.1	(Intersection replaced by #27)				
8	San Pablo Avenue & Victoria Cres W	Signalized	B	12.9	B	10.5	Signalized	B	13.1	B	10.0
9	San Pablo Ave & Linus Pauling Dr	Stop (2 way)	E	35.3	B	14.6	Signalized	A	10.0	A	9.2
10	San Pablo Ave & John Muir Pkwy	Signalized	D	37.9	D	37.4	Signalized	D	37.8	E	63.8
11	San Pablo Ave & Sycamore Ave	Signalized	C	30.4	C	31.7	Signalized	E	63.1	E	62.8
12	San Pablo Ave & Tsushima St	Stop (2 way)	B	12.5	B	11.0	Signalized	C	20.4	C	28.2
13	San Pablo Ave & Hercules Ave	Signalized	C	22.6	C	23.3	Signalized	D	54.8	C	28.1
14	John Muir Pkwy & Tsushima St	Uncontrolled	B	10.4	A	8.5	Stop (minor street)	C	15.2	A	9.2
15	John Muir Pkwy & Alfred Noble Dr	Stop (2 way)	B	11.7	B	11.4	Stop (minor street)	C	15.5	C	16.5
16	Sycamore Ave & Railroad Ave	Stop (all way)	A	7.3	A	7.2	Stop (all way)	A	8.2	A	8.8
17	Sycamore Ave & Willow Ave	Signalized	C	25.6	C	28.4	Signalized	C	29.2	C	29.0
18	Sycamore Ave & Creekside Ave	Signalized	A	9.9	B	14.8	Signalized	B	17.5	D	46.6
19	Sycamore Ave & Turquoise Ave	Signalized	B	17.6	B	14.2	Signalized	B	19.1	B	14.8
20	Sycamore Ave & Refugio Valley Rd	Signalized	C	25.9	C	20.6	Signalized	C	23.6	C	23.2
21	Sycamore Ave & Palm Ave	Stop (all way)	C	20.5	B	13.8	Signalized	A	3.7	A	2.9
22	Sycamore Ave & EB SR 4 ramps	Stop (all way)	B	12.9	A	9.0	Stop (all way)	A	9.1	A	8.7
23	Refugio Valley Rd & Pheasant Dr	Signalized	B	15.7	B	11.3	Signalized	B	16.6	B	11.4
24	Refugio Valley Rd & Partridge Dr	Signalized	A	7.2	A	5.2	Signalized	A	6.7	A	5.1
25	Refugio Valley Rd & Falcon Wy	Roundabout	B	11.6	A	6.4	Roundabout	B	12.9	A	6.5
26	John Muir Pkwy & Bayfront Blvd	(Intersection not open at time of data collection) (Planned future intersection)					Stop (all way)	A	8.9	A	9.0
27	Willow/Palm Ave & EB SR 4 ramps						Signalized	A	3.6	A	8.8

Source: DKS Associates 2017. [1] With planned improvements. [2] Level of Service. [3] Average delay per vehicle for signalized intersections; worst approach delay for stop-controlled intersections

Figure 3-11. Truck Routes

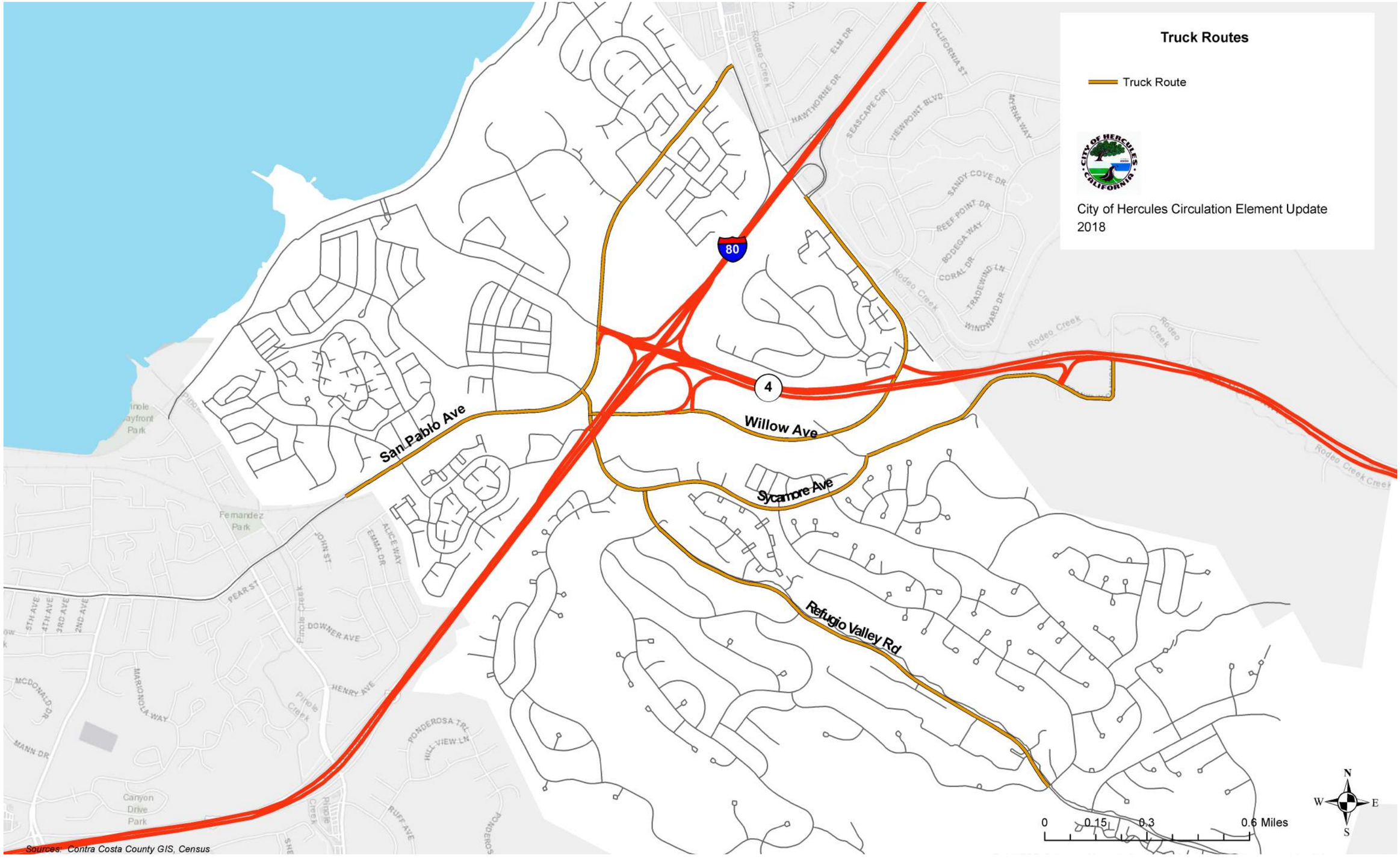


Figure 3-12. Pedestrian Facilities

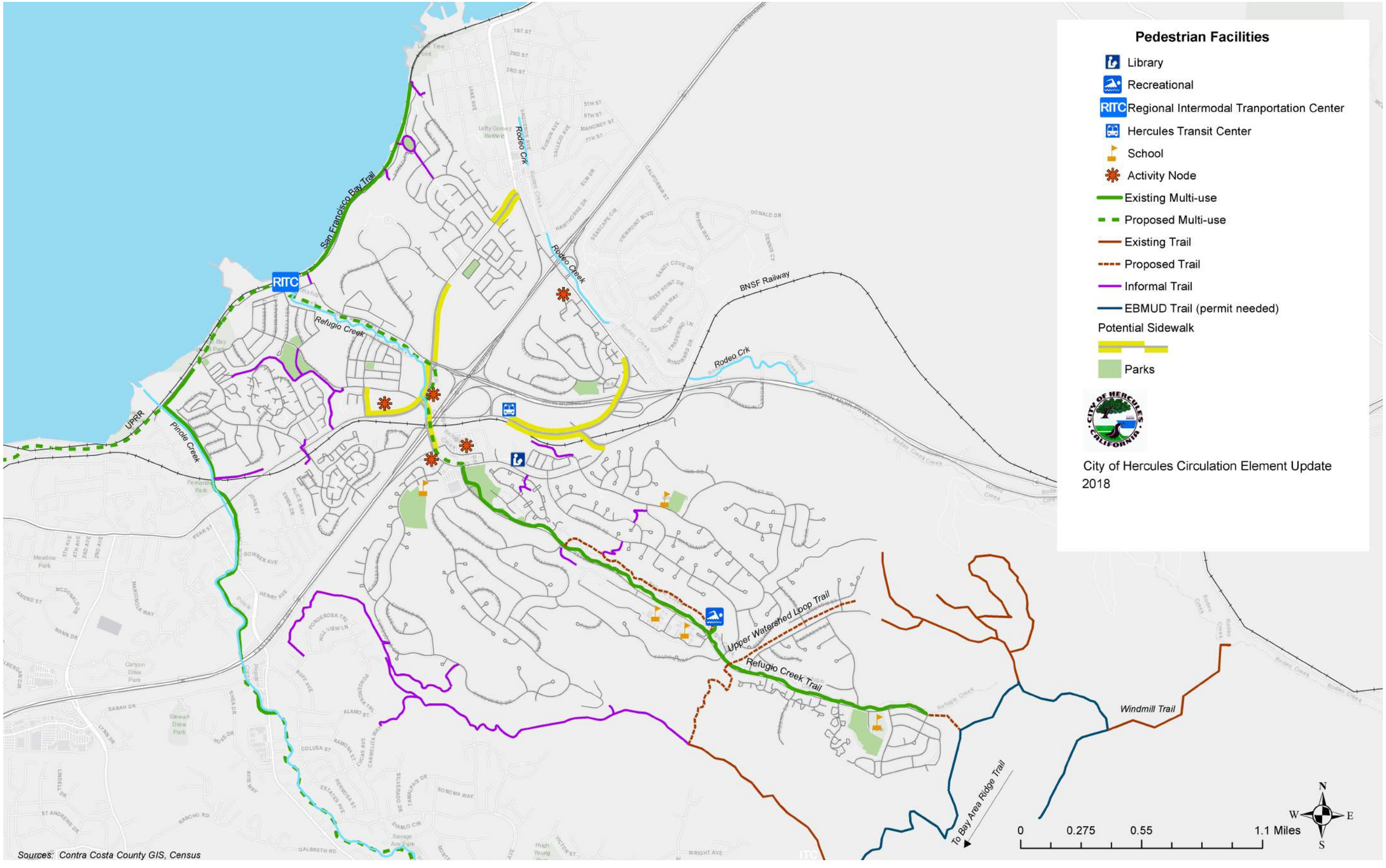


Figure 3-13. Bicycle Facilities

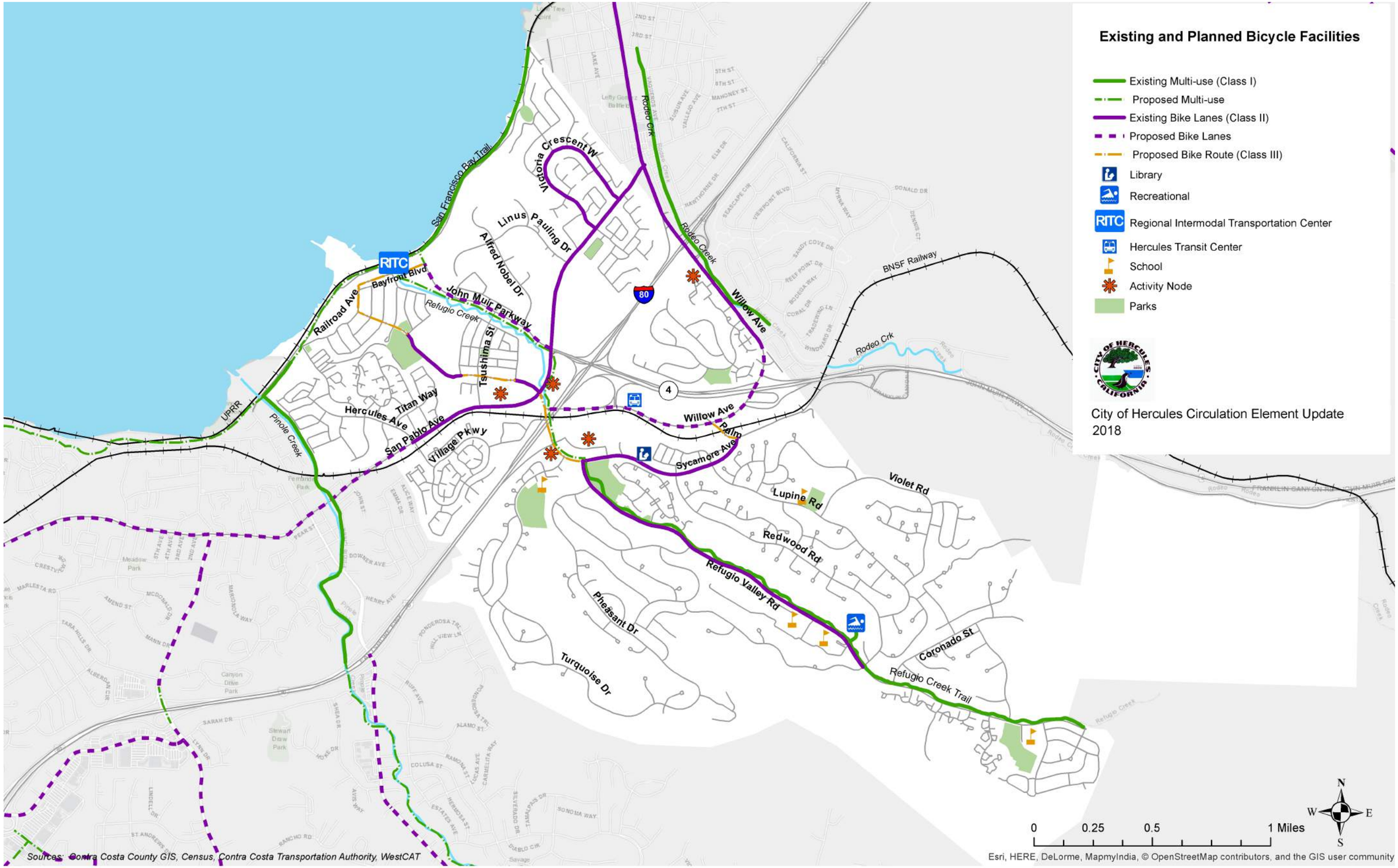


Figure 3-14. Existing Transit Routes

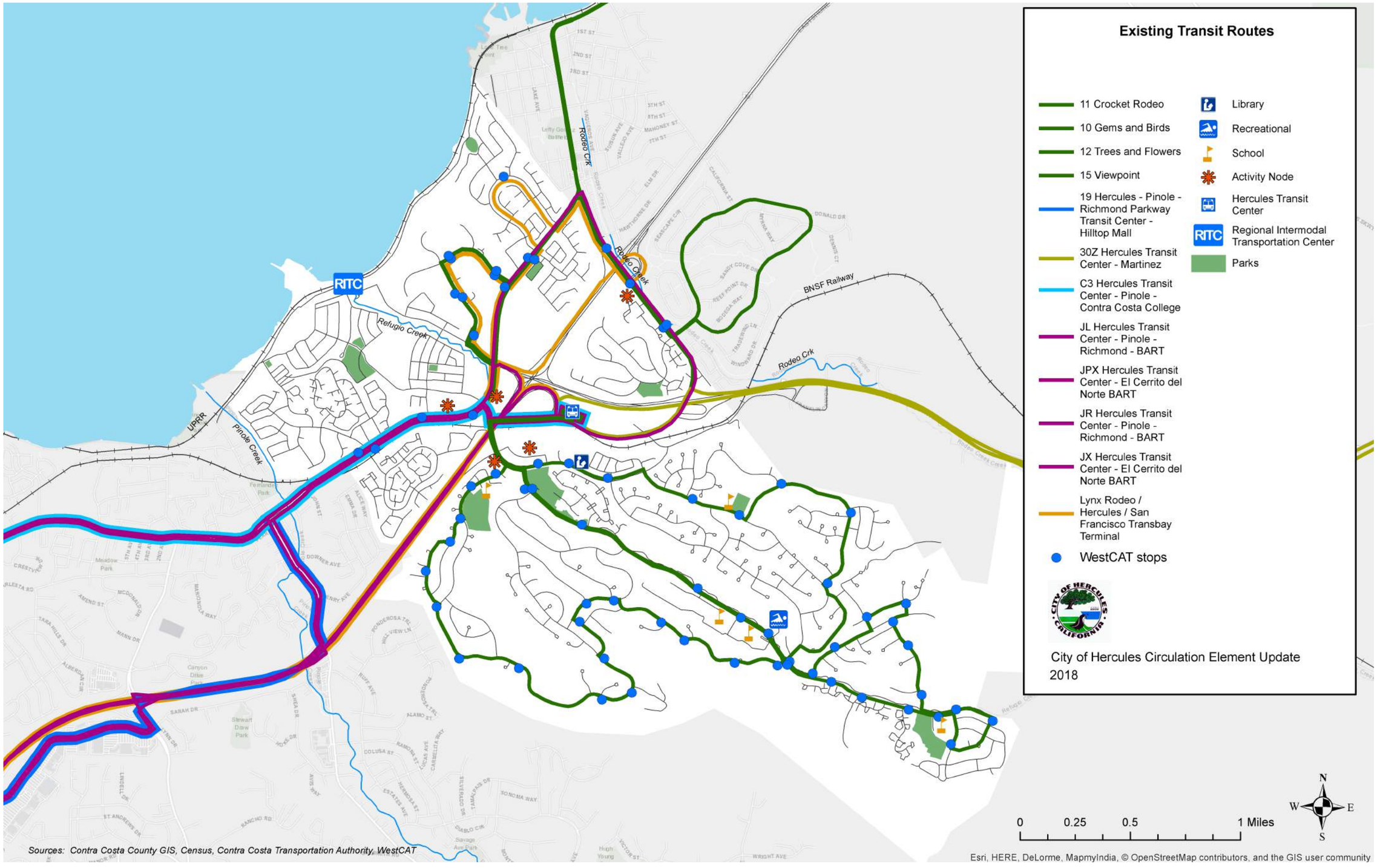


Figure 3-15. Emergency Access Routes

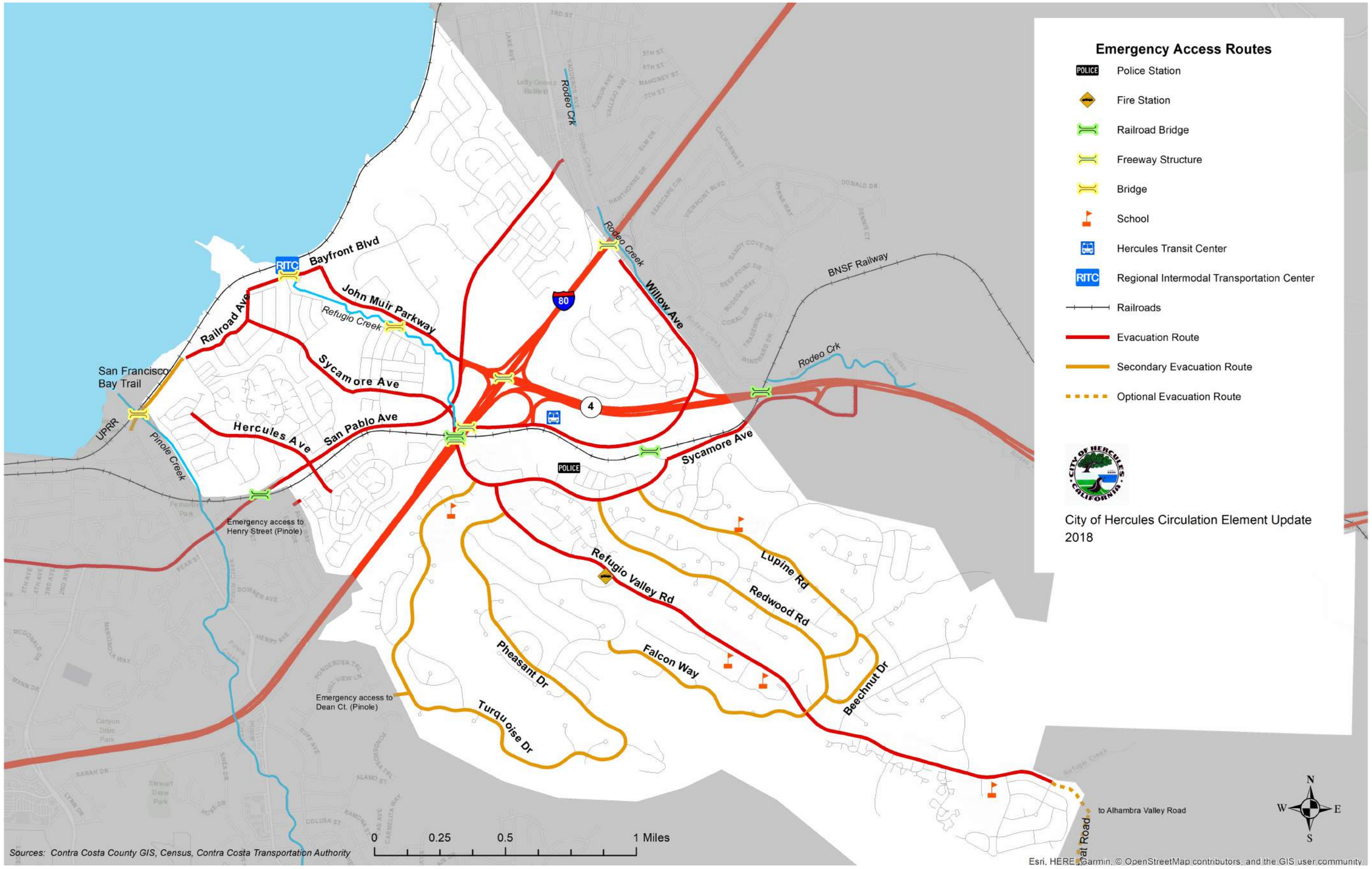


Figure 5-1. Planned Roadway Improvements/Future Roadway Network