

# Commercial/Imperial Corridor Master Plan



City of San Diego

## EXISTING CONDITIONS REPORT

August 2011

*Prepared by*

**DYETT & BHATIA**  
Urban and Regional Planners



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# 1 INTRODUCTION



This report explores existing conditions, opportunities, and challenges in the Commercial/Imperial corridor, which is located within the Southeastern San Diego Community Plan planning area. It addresses topics such as demographic characteristics, land use, urban form, mobility, and the environment. This report represents a first step toward development of a Master Plan for the corridor and, ultimately, integration into the Southeastern Community Plan update.





*Good transit access and proximity to Downtown make this corridor a good candidate for smart growth transit-oriented development.*

## 1.1 Background and Purpose

### Background

The San Diego Association of Governments (SANDAG) is the regional government agency in San Diego County responsible for developing a regional transportation plan and allocating funds for improvements. In 2008, as part of its most recent 2030 Regional Transportation Plan, SANDAG designated the Commercial/Imperial corridor as a potential “Mixed Use Transit Corridor.” The corridor was seen as a potential focus area for smart growth development because it contains both the Orange Line Trolley and high-frequency bus service.<sup>1</sup> The corridor was designated as “potential,” as opposed to “planned/existing,” since its current residential density and land use regulations do not permit SANDAG’s target of 25 dwelling units per acre. As a result, the City applied for and was awarded a “Smart Growth Incentive Program” grant to conduct a planning study to identify potential development opportunities that could propel the corridor into a true Mixed Use Transit Corridor.

### Objectives

As stated in the City’s grant application to SANDAG, the objectives of this planning study, known as the Commercial/Imperial Corridor Master Plan, are to:

- Reach out to the community and stakeholders to create a new long-range vision for the corridor.

<sup>1</sup> Smart growth development typically refers to medium- to high-density compact walkable communities, in this case organized around high quality transit service. Such development can have the benefit of providing a range of land uses, housing types, public facilities, and transportation options, thereby reducing the need for driving for all trips.

- Identify areas of transition and target areas for new mixed-use development through land use recommendations consistent with a smart and sustainable growth strategy.
- Develop urban design concepts and guidelines that will preserve the fabric and character of the community by guiding new development to establish a contextual relationship with the established neighborhood.
- Analyze the existing multi-modal mobility network of infrastructure to assess deficiencies in the system.

Improve mobility and express community identity through streetscape design concepts unique to the community.

Identify opportunities for strategic investment in public improvements to improve connectivity, safety, and pedestrian and bicycle connections to the 25th Street and Imperial Avenue, and 32nd Street and Imperial Avenue transit stops and surrounding homes and businesses and the Comm22 project.

### Public Outreach for Plan Preparation

Preparation of the Commercial/Imperial Corridor Master Plan is proceeding with an integrated community outreach and technical process. Through the planning process, community members will be offered a variety of opportunities to help develop a vision and plan for the corridor that reflects community’s most important values and priorities. Outreach activities include an advisory committee (the Project Working Group), community workshops, an interactive charrette, community character survey, and ongoing updates to the project

website: <http://www.sandiego.gov/planning/community/profiles/southeasternsd/index.shtml>. The input gathered through the planning process will inform the evolving plan. Community participation activities completed to date include:

- **Project Working Group #1.** The first meeting for the community advisory group was held on May 18, 2011. Members were introduced to the project, and brainstormed ideas and visions for the corridor.
- **Community Workshop #1.** The first community workshop was held on June 25, 2011, and was attended by over 60 community members. Participants were engaged in a visioning exercise, and also participated in mapping and visual preference exercises.

### Report Organization

This report represents one of the first steps toward development of the Commercial/Imperial Corridor Master Plan. It provides a summary of existing conditions, opportunities, and challenges related to land use, community design, public facilities, environmental issues, and transportation. (An analysis of market demand is being prepared separately.) This report is organized as follows:

- **Chapter 1: Introduction** provides an overview of the project, Planning Area, and discussion of the existing planning context, including adopted and ongoing planning efforts and policies.
- **Chapter 2: Land Use and Urban Form** analyzes land use, urban design, parks and public facilities and overall character and identity of the Planning Area.

- **Chapter 3: Environment and Collocation** describes three critical subjects affecting the Planning Area: air quality, noise, and hazardous materials.
- **Chapter 4: Mobility** evaluates existing conditions of transportation facilities and operations in the Planning Area from a multi-modal perspective, including vehicles, pedestrians, bicycles, and public transit.
- **Chapter 5: Planning Issues and Implications** summarizes key issues, opportunities, and constraints that were identified through the existing conditions. These issues will be addressed through the planning process and ultimately in the Commercial/Imperial Corridor Master Plan.

### Next Steps

Following publication of this report, the project team will work with the Working Group and other community members to develop goals for the Master Plan and land use and urban design principles, synthesizing concepts and objectives expressed during early community outreach activities and providing a framework for plan and policy development. Next, the planning team will prepare a Scenario Evaluation Report, analyzing up to three future land use, mobility, and urban design possibilities based on the opportunities and challenges identified in this report and direction from community outreach activities. Based on feedback about the alternatives and their relative impacts, a Preferred Scenario will be prepared, which will outline the preferred vision, land use, mobility, and urban design direction for the corridor. This Preferred Scenario may be one of the alternative concepts or some combination of two or more concepts. Finally, the project team will prepare the



*Community members will provide input and feedback throughout the planning process through workshops, surveys, and advisory committee meetings.*

FIGURE 1-1: Regional Location



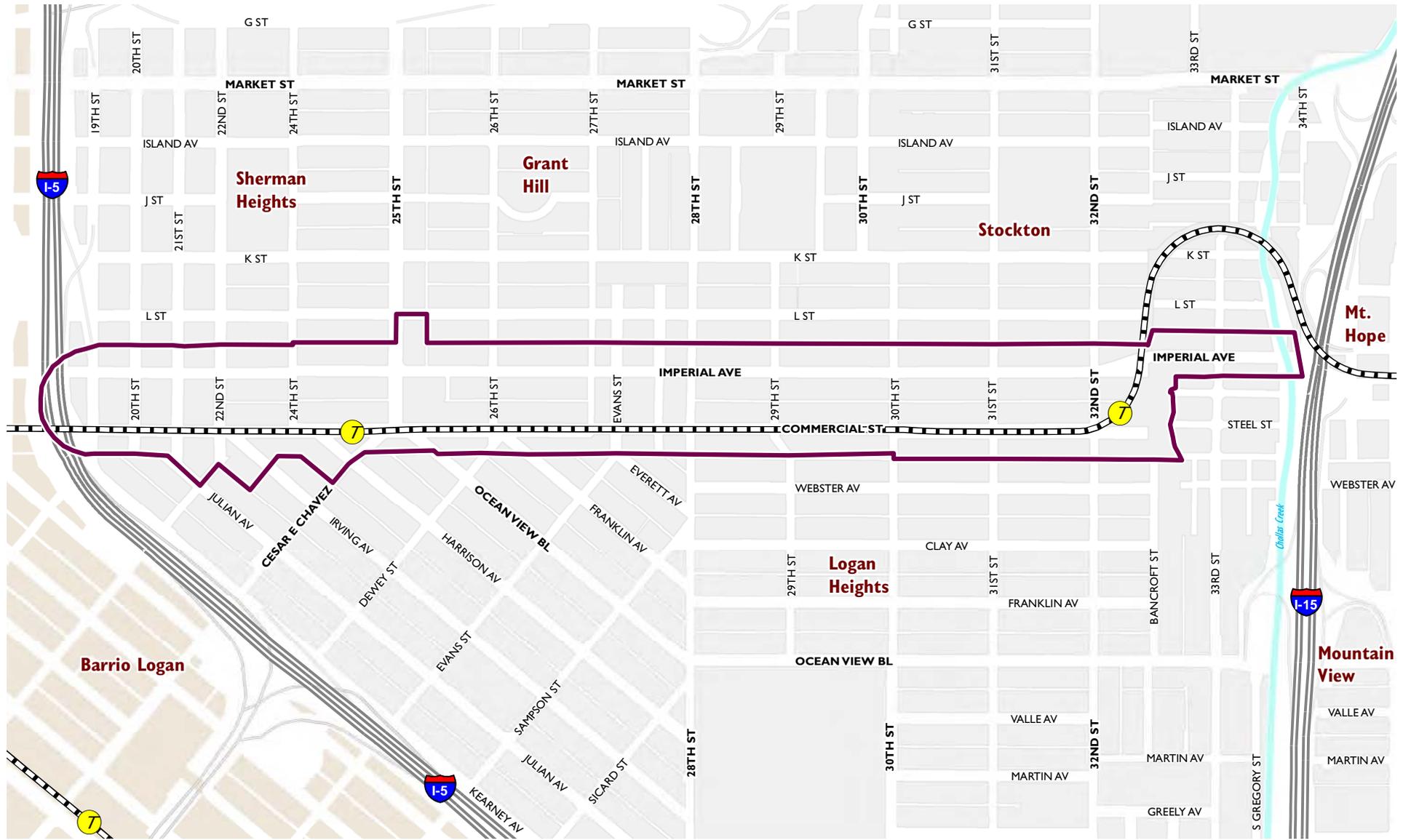
Commercial/Imperial Corridor Master Plan, which will provide land use, urban design, mobility, and economic strategies for the corridor. These strategies will be folded into the Southeastern Community Plan update, which is expected to be underway in early- to mid-2012.

## 1.2 Location and Planning Area

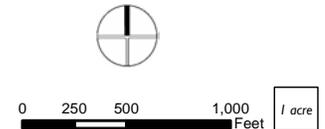
The Planning Area lies within Southeastern San Diego: a large urbanized and ethnically diverse community located adjacent to downtown San Diego. Southeastern San Diego lies south of Highway 94, west of Interstate 805, east of Interstate 5, and shares a border with National City, as shown in Figure 1-1.

The Planning Area for the Commercial/Imperial corridor extends from Interstate 5 in the west, Highway 15 in the east, Valley Place to the south, and alley between L Street and Imperial Avenue to the north, as shown in Figure 1-2. The corridor extends through several neighborhoods including Sherman Heights, Logan Heights, Grant Hill, and Stockton. Chollas Creek runs through the east end of the Planning Area, parallel to Highway 15. Balboa Park is located just over a mile to the north.

FIGURE 1-2: Planning Area



-  Trolley Stop
-  Light Rail
-  Planning Area



Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.

<b>TABLE 1-1: DEMOGRAPHICS FOR COMMERCIAL/IMPERIAL EXPANDED AREA AND SAN DIEGO</b>		
<b>CHARACTERISTIC</b>	<b>COMMERCIAL/ IMPERIAL EXPANDED AREA</b>	<b>CITY OF SAN DIEGO</b>
Households	5,185	479,759
Average Household Size	3.8	2.6
Hispanic of Latino by Origin Country (%)		
Mexican	80%	24%
Other Hispanic	4%	3%
Not Hispanic	16%	73%
Language Spoken at Home (%):		
English Only	22%	63%
Spanish or Spanish Creole	77%	22%
Other	<1%	16%
Poverty Status (income below poverty level within last year) (%)	37%	13%
Median Household Income	\$29,188	\$62,034
Education Attainment (Population Aged 25+) (%)		
Less Than High School Graduate	51%	14%
High School Graduate or GED	28%	17%
Some College (no degree)	11%	21%
Associate's, Bachelor's, Master's, Professional, or Doctorate Degree	10%	48%

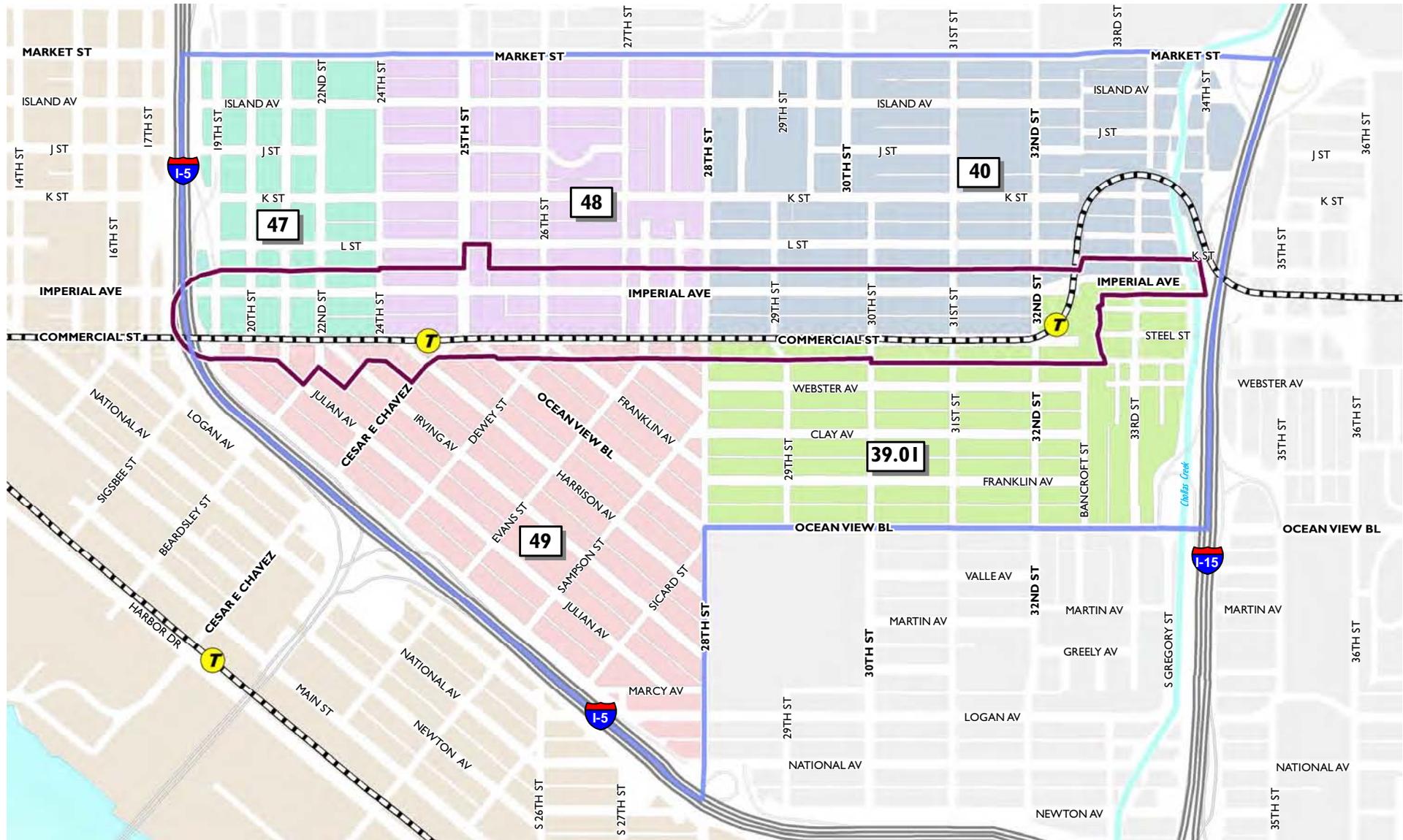
Source: American Community Survey, 2005-2009 Estimates. The "Commercial/Imperial Expanded Area" includes census tracts: 39.01, 40, 47, 48, and 49.

### Corridor Profile

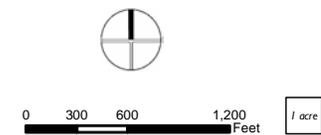
Table 1-1 provides a snapshot of demographic characteristics in the Commercial/Imperial corridor "expanded area" as well as the city as a whole for comparison purposes. This expanded area, as shown in Figure 1-3, extends about a half-mile north or south of the Planning Area and is used as a proxy for the corridor due to the scarcity of available corridor-specific Census information.

Compared to the city overall, the Commercial/Imperial corridor tends to have larger household sizes and more overcrowding within housing units. The Hispanic heritage of the Planning Area is exemplified by the 77 percent of households who speak Spanish at home. Approximately 80 percent of residents identify Mexico as their origin country. Households in the corridor have substantially lower incomes compared with the rest of San Diego's households, with 37 percent of households reporting incomes below the poverty level within a 12-month period and a median income of \$29,188. Education levels trend similarly, with 86 percent of San Diego residents having completed high school or even higher education, compared with only 49 percent of Commercial/Imperial residents.

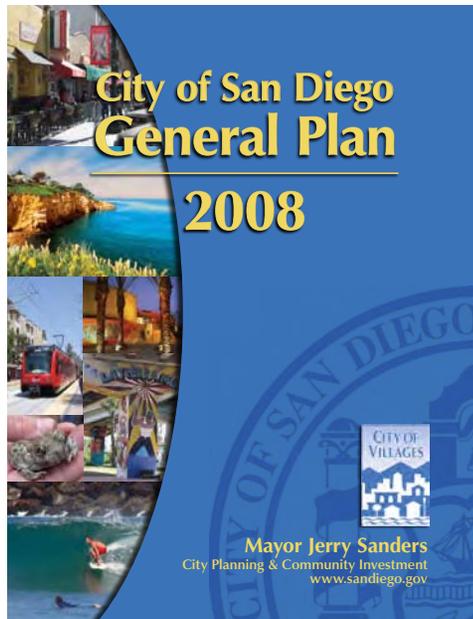
FIGURE 1-3: Census Demographic Profile



-  Trolley Stop
-  "Expanded Area" for Demographic Reporting Purpose
-  Light Rail
-  Census Tracts
-  Planning Area



Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.



### 1.3 Existing Plans and Policies

While the focus of the Commercial/Imperial Corridor Master Plan is to devise new strategies for the corridor’s future, the Plan must also consider current policies and programs that reflect the community’s values. The Master Plan may recommend amendments where City policies may need to be altered to meet Plan goals. This section summarizes existing City plans and programs that affect the Planning Area.

#### General Plan

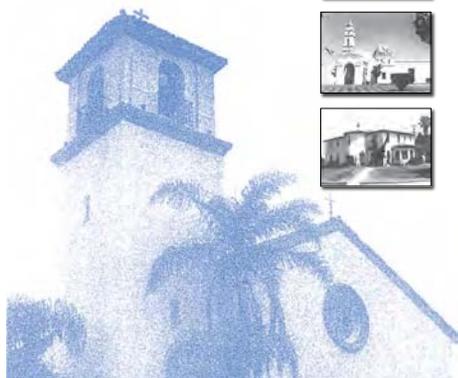
The San Diego General Plan, updated in 2008, is a comprehensive “blueprint” for San Diego’s growth over the next 20 years and the foundation for land use decisions in the city. It expresses the community’s vision and values through ten guiding principles. It also defines the City’s strategy for future land uses. Central to the plan is the “City of Villages” strategy which focuses growth into mixed-use activity centers that are pedestrian-friendly districts linked to an improved regional transit system. The Plan meets State requirements and creates a community vision through the following ten elements: Land Use and Community Planning; Mobility; Economic Prosperity; Public Facilities, Services and Safety; Urban Design; Recreation; Historic Preservation; Conservation; Noise; and Housing. (Planned transportation improvements identified in the General Plan, including transit and bicycle facilities, are described in Chapter 4.) Lastly, the General Plan identifies over 50 community planning areas in the city for which community plans will be developed or updated to provide more detailed plans and policies—including land use designation—to guide change and growth.

#### Southeastern San Diego Community Plan

The Southeastern San Diego Community Plan provides a framework to guide development in the Southeastern community. Originally adopted by City Council in 1969 and updated in 1987, the Plan is expected to be updated again in the next few years. The Plan identifies key issues, goals, and implementation actions for the 7,200-acre Southeastern area: south of State Highway 94, between Centre City and Lemon Grove, and north of National City and Skyline-Paradise Hills, as shown in Figure 1-4. The Commercial/Imperial Corridor Planning Area lies at the west end of the Community Plan.

The Plan addresses the following “key issues” in the community through its policies and regulations: need for employment opportunities and commercial shopping; concerns about density; community design and appearance; adequate public facilities; and the disproportionate number of assisted housing projects and social services in the community.<sup>2</sup> A central policy for addressing these issues is designating future Community Plan Land Uses, as shown in Figure 1-5. Within the corridor, the Plan designates most of Imperial Avenue as Multiple Use and Commercial Street as Industrial. The Plan’s Industrial Recommendations (to be codified as standards by the City Council) prohibit auto dismantling, junk yards, and recycling industries, and establish standards to improve the aesthetic and environmental quality of industrial uses through screening, landscaping, and prohibition of toxic materials. However, these recommendations have not yet been adopted into the Southeastern San Diego Planned District Ordinance.

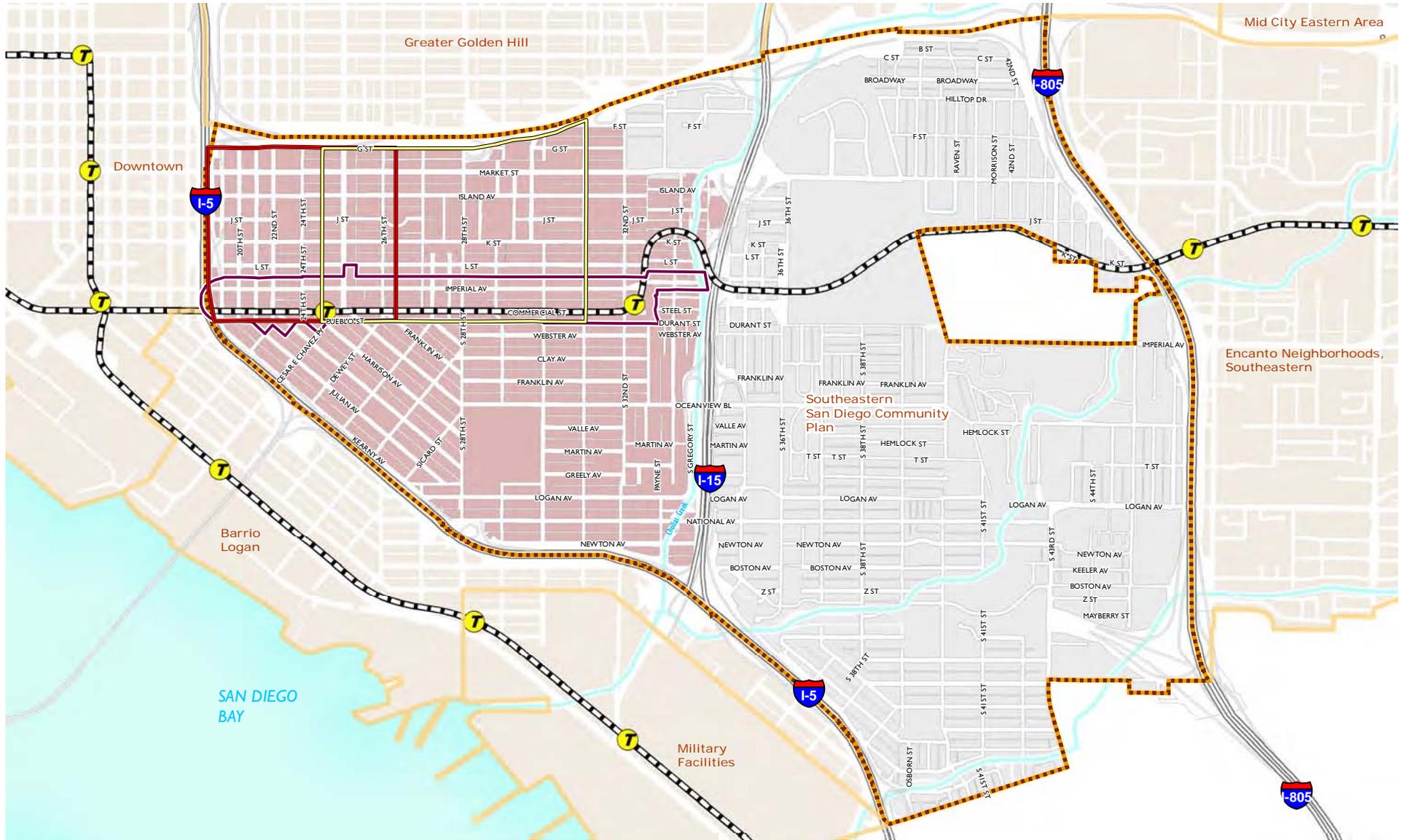
### SOUTHEASTERN SAN DIEGO COMMUNITY PLAN



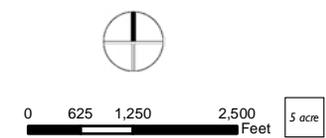
*The Master Plan may recommend amendments to policies and actions in existing plans in order to meet goals for the corridor.*

<sup>2</sup> City of San Diego. Southeastern San Diego Community Plan. Adopted 1987. Amended 2009. Page 4-5.

FIGURE 1-4: Existing Plans



-  Trolley Stop
-  Light Rail
-  Planning Area
-  Community Planning Areas
-  Sherman Heights Revitalization Action Program Area
-  Dells Imperial Proposed Redevelopment Area
-  Southeastern San Diego Community Plan Area
-  Grant Hill Revitalization Action Program Area



Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.

FIGURE 1-5: Southeastern San Diego Community Plan Land Uses



- |   |                         |                           |               |
|---|-------------------------|---------------------------|---------------|
| Single Family Residential (10-15 du/ac) | General Commercial      | Park                      | Trolley Stop  |
| Multi-Family Residential (15-17 du/ac)  | Community Commercial    | Cemetery                  | Light Rail    |
| Multi-Family Residential (15-30 du/ac)  | Neighborhood Commercial | Institutional             | Planning Area |
| Multiple Use                            | Industrial              | Schools/Public Facilities |               |

0 250 500 1,000 Feet 1 acre

**Data Source**  
 City of San Diego, California, 2011; Dyett & Bhatia, 2011.

nance list of prohibited uses (see Chapter 15 Article 19, Southeastern San Diego, Appendix A: Uses).

The Plan provides more detail on existing conditions and future objectives for each of the neighborhoods within the Southeastern community. Since the corridor extends through several neighborhoods, defined in the plan—Sherman Heights, Grant Hill, Stockton, Logan Heights, and Memorial—there are many policies that affect the Commercial/Imperial corridor including: strong code enforcement, commercial revitalization at Imperial Avenue and 30th Street, rehabilitation of existing business properties and façades, and development regulations to reduce conflicts between industrial and residential uses. Notably, the construction of the Central Division Police Station and rezoning Imperial Avenue area to multiple uses have already been implemented.

### **Grant Hill Revitalization Action Program**

Adopted by City Council in 1998, the Grant Hill Revitalization Action Program describes implementation actions to revitalize the historic Grant Hill neighborhood. The Program's boundaries do not overlap with the Commercial/Imperial Planning Area, but are located immediately to the north, as shown in Figure 1-4. The program defines five overall strategies: neighborhood clean-up, public safety, public improvements and services, jobs and economic development, and neighborhood celebration. Specific strategies that affect the Planning Area include traffic calming on heavy-use streets such as Imperial Avenue. Consistent with the Sherman Heights Revitalization Action Program, this program cites 25th Street as a primary connection and

recommends streetscape improvements to this street as well as Imperial Avenue, and 28th and 30th streets. In addition, the program recommends zoning changes to the Southeastern San Diego Planning District Ordinance to allow for increased densities and mixed-use development around the trolley stations, as well as amendments to development and design standards.

### **Sherman Heights Revitalization Action Program**

Adopted by City Council in 1995, the Sherman Heights Revitalization Action Program identifies strategies and projects to revitalize the historic community of Sherman Heights. The program's boundaries (shown in Figure 1-4) overlap with Commercial Street and Imperial Avenue between I-5 and just east of 24th Street. The Program's vision calls for streetscape improvements, such as lighting and landscaping, façade improvements, traffic calming, community services, housing rehabilitation, and neighborhood policing/defensible space strategies. The Program's key recommendations within the Commercial/Imperial Corridor Planning Area are to develop an urban plaza around the intersection of Commercial and 25th streets to create a vibrant focal point for the community and to revitalize the Farmers' Market site into a more vibrant indoor and outdoor marketplace. In addition, the program designates 25th Street as a primary connection within the Sherman Heights community and to the rest of the city—linking Balboa Park to San Diego Bay.

## Municipal Code/Zoning

### Land Development Code

The City's Land Development Code refers to Chapters 11, 12, 13, and 14 of the City of San Diego Municipal Code and documents the procedures and regulations for development within the city. This includes regulations for base zones, design, landscaping, and signs, among other development standards.

Chapter 13 describes the Transit Overlay Zone which surrounds the 25th Street Trolley station, as shown in Figure 1-6. This overlay zone provides supplemental parking regulations for areas receiving a high level of transit service. Non-residential development in this overlay zone within Southeastern have parking requirements reduced from 2.5 to 2.1 spaces per 1,000 square feet of floor area and multi-family housing parking ratios are reduced by 0.25 spaces per unit.

### Southeastern San Diego Planned District Ordinance

The Southeastern San Diego Planned District Ordinance (Chapter 15, Article 19 of the City of San Diego Municipal Code) provides development criteria to implement the Southeastern San Diego Community Plan. This includes requirements for a Southeastern San Diego Development Permit for various uses, including multi-family projects of four or more units, and commercial and industrial development. The Southeastern Economic Development Corporation's Board and the recognized community planning group (i.e., the Southeastern Community Planning Group) are responsible for making design review recommendations for discretionary permits.

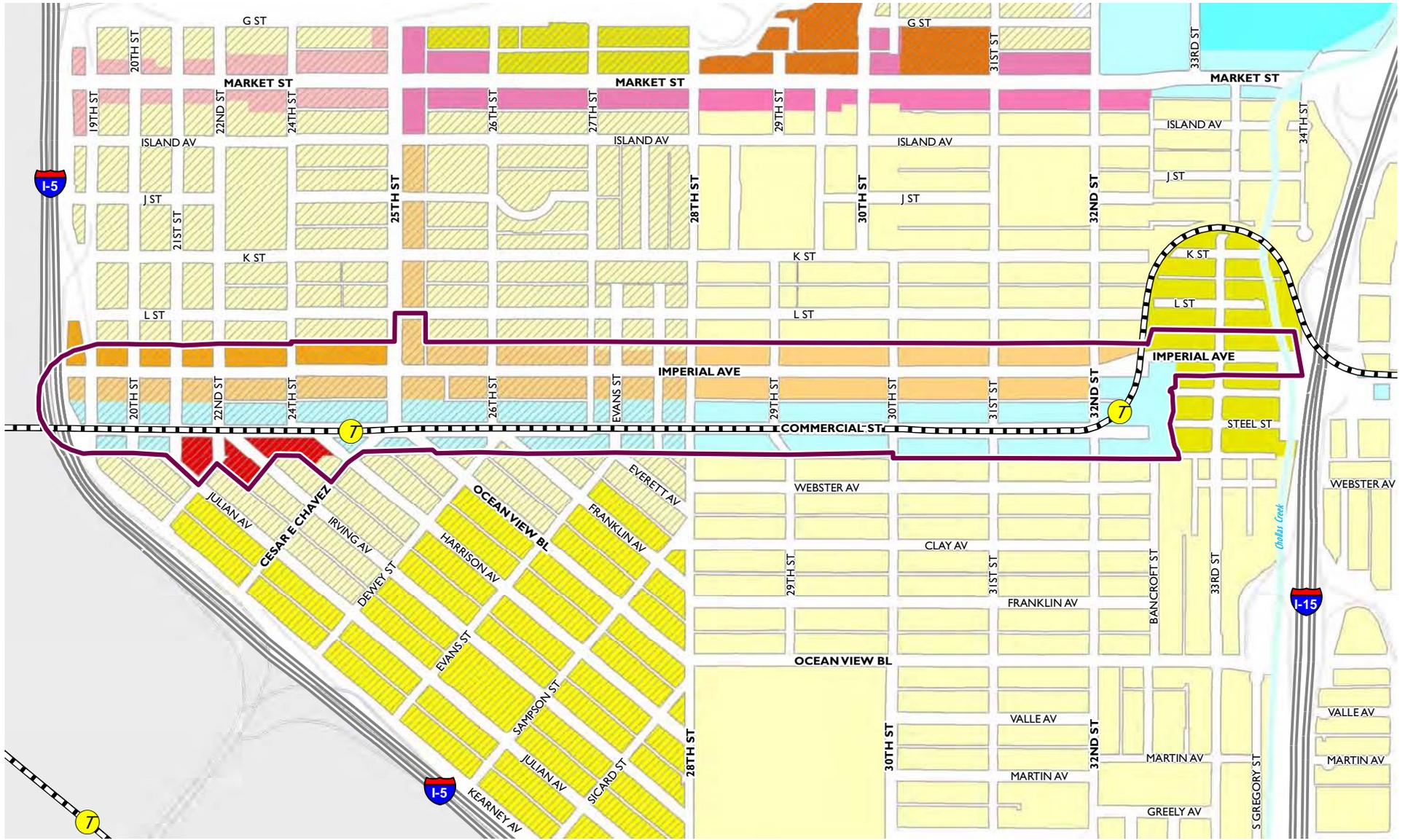
Chapter 15 also defines zoning designations for the Southeastern area. Most of the Commercial/Imperial Planning Area falls into the industrial and commercial zoning designations, as shown in Figure 1-6 and described in Table 1-2.

Sites zoned for industrial use that are adjacent to residential zones (i.e., along most of the southern boundary of the Planning Area) are required to have a 25-foot rear setback and three- to six-foot walls to provide a transition area between uses. Commercial uses that are adjacent to residential zones (i.e., along the northern boundary of the Planning Area) are required to construct walls and a 15-foot rear setback or the first story built to the property line with the second story and above stepped back.

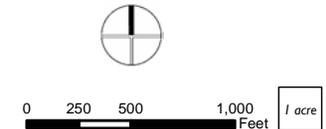
TABLE 1-2: SOUTHEASTERN SAN DIEGO PLANNED DISTRICT ORDINANCE ZONING DESIGNATIONS		
ZONING DESIGNATION	DESCRIPTION	DENSITY/INTENSITY
SESDPD-MF-1500	Multi-Family Residential, at least 1,500 square feet of land area / dwelling unit	14.52 dwelling units/net acre
SESDPD-MF-2500	Multi-Family Residential, at least 2,500 square feet of land area / dwelling unit	17.42 dwelling units/net acre
SESDPD-MF-3000	Multi-Family Residential, at least 3,000 square feet of land area / dwelling unit	29.04 dwelling units/net acre
SESDPD-CSR-2-R-1500 SESDPD-CSR-2-R-3000	Commercial strip development, with parking to the rear or side of the building, in areas with high pedestrian activity. Accommodates a variety of community shopping and business services, including retail and wholesale. Residential development is permitted by right, but mixed uses on a single parcel are not permitted.	0.75 Floor Area Ratio
SESDPD-I-1	Light industrial, accommodating a range of manufacturing, light industrial, and certain heavy commercial uses such as lumber yards.	1.5 Floor Area Ratio

Source: San Diego Municipal Code, Chapter 15, Article 19, Division 3.

FIGURE 1-6: Zoning Designations

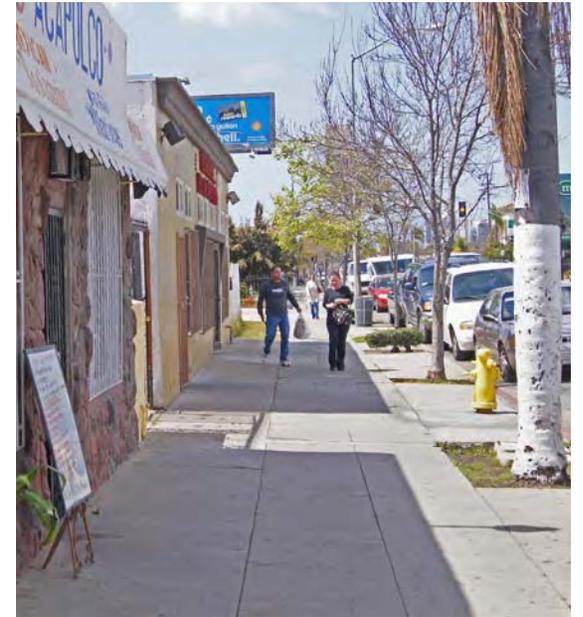
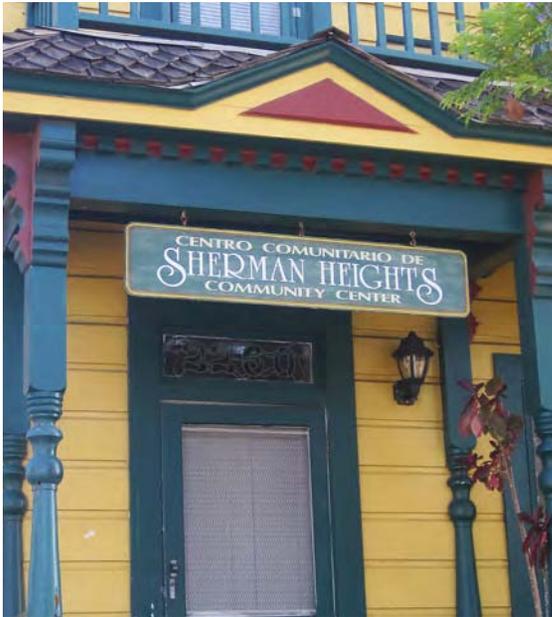


- |   |   |  |   |
|---|---|--|---|
| <span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span> CC-3-5                 | <span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> SESDPD-CSR-2-R-3000 | <span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> SESDPD-MF-1500   | <span style="display:inline-block; width:15px; height:15px; border:1px solid black; border-radius:50%; text-align:center; vertical-align:middle;">7</span> Trolley Stop |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightpink; border:1px solid black;"></span> SESDPD-CSF-2     | <span style="display:inline-block; width:15px; height:15px; background-color:darkorange; border:1px solid black;"></span> SESDPD-CT-2     | <span style="display:inline-block; width:15px; height:15px; background-color:lightyellow; border:1px solid black;"></span> SESDPD-MF-2500  | <span style="display:inline-block; width:15px; height:15px; border-top:1px dashed black;"></span> Light Rail  |
| <span style="display:inline-block; width:15px; height:15px; background-color:pink; border:1px solid black;"></span> SESDPD-CSF-2-R-3000   | <span style="display:inline-block; width:15px; height:15px; background-color:cyan; border:1px solid black;"></span> SESDPD-I-1            | <span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> SESDPD-MF-3000   | <span style="display:inline-block; width:15px; height:15px; border:2px solid purple;"></span> Planning Area   |
| <span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> SESDPD-CSR-2-R-1500 | <span style="display:inline-block; width:15px; height:15px; background-color:cyan; border:1px solid black;"></span> SESDPD-I-2            | <span style="display:inline-block; width:15px; height:15px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, gray 2px, gray 4px); border:1px solid black;"></span> Transit Area Overlay Zone |   |



Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.

## 2 LAND USE AND URBAN FORM



The Commercial/Imperial corridor was developed before the application of current zoning regulations, resulting in a patchwork of land uses—primarily residential, industrial, and commercial—that are not always compatible. Additionally, development of the extensive freeway network cut off segments of the Southeastern community from one another, making connections to and from the community challenged by overpasses and underpasses. This chapter analyzes land use and urban form in the Planning Area and the larger Southeastern community to provide a foundation for preparation of the Master Plan land use framework and policies.





Industrial and commercial retail uses compose about half of the land area in the corridor and include a variety of auto repair and wrecking uses, warehouse facilities, retail stores, and restaurants.

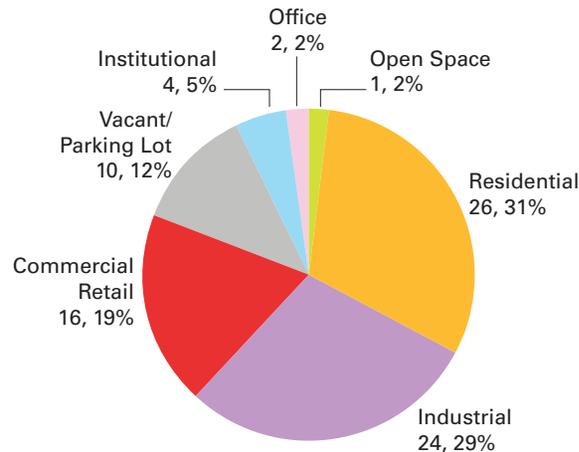
## 2.1 Existing Land Use

### Land Use Pattern

The Commercial/Imperial corridor is composed of a range of land uses as shown in Figure 2-1. Unlike many other areas of the city that have single-use districts, the Commercial/Imperial corridor exemplifies a multiple use pattern, with single-family homes, auto repair shops, retail stores, and industrial uses directly adjacent to each other. Commercial and residential uses are predominant along Imperial Avenue, while industrial uses dominate Commercial Street.

Chart 2-1 describes land uses in the Planning Area, by acres. There are just 83 acres of land in the Planning Area. (This total does not include the 58 acres devoted to rights-of-way.) Residential and industrial uses repre-

CHART 2-1: EXISTING LAND USE IN THE PLANNING AREA, BY ACRES AND PERCENT SHARE<sup>1</sup>



<sup>1</sup> Does not include roads and other rights-of-way.  
Source: City of San Diego, 2011.

sent the largest share: 31 and 29 percent of land area, respectively. Industrial uses include junkyards and recycling centers, warehousing, and light manufacturing. Commercial retail, which includes auto repair shops, restaurants, grocery stores, and other small businesses and retail stores, accounts for 16 percent of land area. Vacant sites and parking lots represent ten percent, office uses accounts for two percent, while open space represents just one percent of the area.

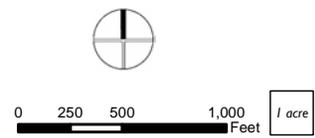
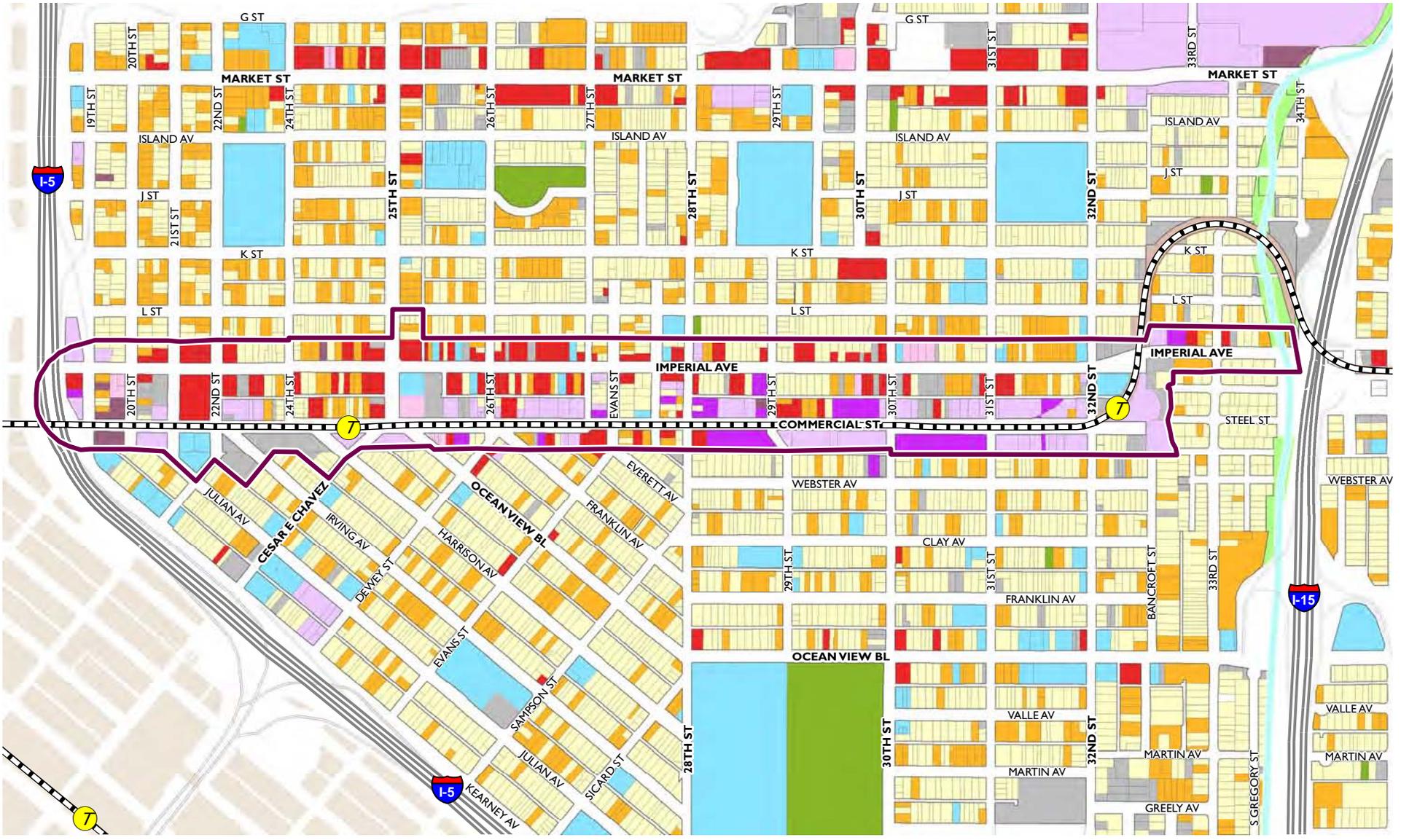
### Non-Residential

There is over 900,000 square feet of business and institutional space in the Planning Area, as shown in Table 2-1. Industrial and commercial sectors represent the largest share of non-residential space, with over 340,000 square feet each, and institutional building area (primarily the Police Station) with about 135,000 square feet of space. (For more information on jobs and employment area, see the accompanying Market and Economic Analysis, produced by Keyser Marston Associates.)

TABLE 2-1: NON-RESIDENTIAL BUILDING AREA		
LAND USE	BUILDING SQUARE FEET	PERCENT
Industrial	347,060	38%
Commercial	344,927	38%
Institutional	135,201	15%
Warehousing	43,000	5%
Office	27,381	3%
Junkyard	11,010	1%
<b>TOTAL</b>	<b>908,579</b>	<b>100%</b>

Source: City of San Diego, County of San Diego, 2011.

FIGURE 2-1: Existing Land Use



Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.



Residential uses include multi-family apartments, single-family homes, and mixed-use residential buildings.

### Residential

There are roughly 460 housing units within the Planning Area. Just over half are multi-family, 44 percent are single-family units, and the remainder are mixed-use residential units (e.g., housing above retail). These residential units translate to approximately 1,700 residents assuming 3.8 persons per households. However, the “expanded area” (Census blocks in Figure 1-3, extending north to Market Street and south to Ocean View Boulevard) is primarily residential with approximately 3,500 housing units. Of these units, 61 percent are single-family, 22 percent are in two- to four-unit buildings (i.e., attached single-family or multi-family), 11 percent are in five- to 19-unit buildings, and five percent are in buildings with 20 or more units. Consistent with these housing types, densities average 14 dwelling units per acre in the expanded Commercial/Imperial corridor area, and somewhat higher—17 dwelling units per acre—within the Planning Area itself. Residential densities are illustrated in Figure 2-2.

Table 2-2 compares characteristics of housing units in this expanded area and the city as a whole. More than

half of housing units in this expanded area were built before 1949 meaning they are more than 60 years old; units throughout San Diego are much newer by comparison. Approximately 70 percent of housing units around the corridor are renter-occupied, compared to 50 percent in the city as whole.

### Public Facilities

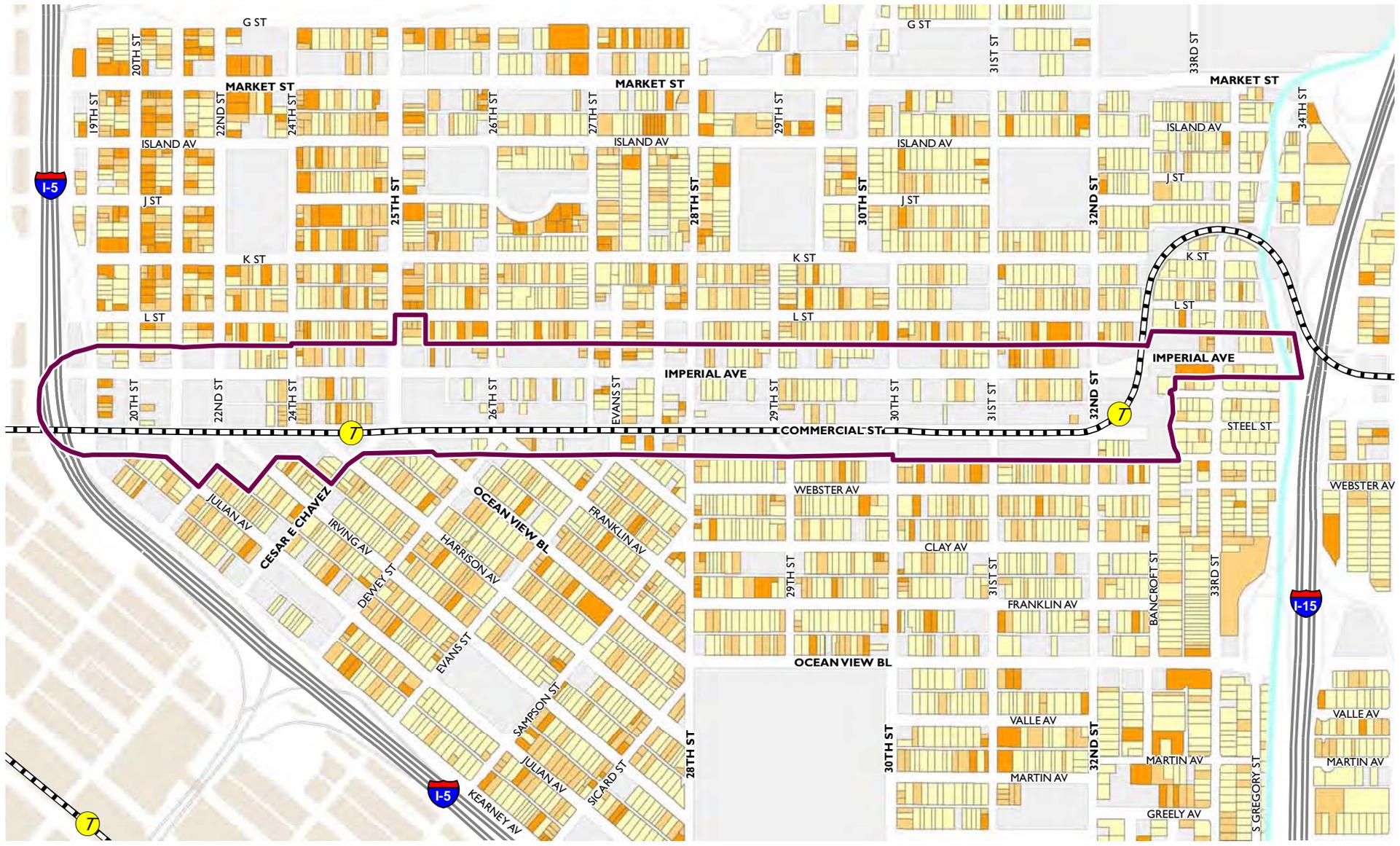
There are several schools and public facilities in the Southeastern Community Plan Area, but only one facility is located in the Planning Area: the recently completed Central Division Police Station. As shown in Figure 2-3, several community centers and the Logan Heights Library are all located within the vicinity of the Planning Area (within a half-mile or 10 minute walk north or south of the Planning Area). Table 2-3 identifies the schools in the vicinity of the Planning Area. Over 3,300 students attend elementary and middle schools at these schools. All students are considered economically disadvantaged and on average three-quarters of students are English Language Learners. There are no high schools in the area, so students must travel outside the community to attend high school.

**TABLE 2-2: HOUSING CHARACTERISTICS FOR COMMERCIAL/IMPERIAL EXPANDED AREA AND SAN DIEGO**

HOUSING CHARACTERISTICS	COMMERCIAL/ IMPERIAL EXPANDED AREA	CITY OF SAN DIEGO
Overcrowding (>1 occupant per room)	27%	6%
Median Year Built	1949	1975
Vacancy Rate	9%	8%
Owner occupied	30%	50%
Renter occupied	70%	50%

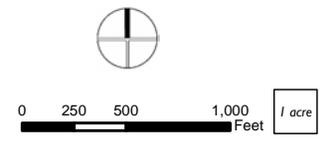
Source: American Community Survey, 2005-2009 Estimates. Commercial/Imperial Expanded Area includes census tracts: 39.01, 40, 47, 48, and 49.

FIGURE 2-2: Residential Density



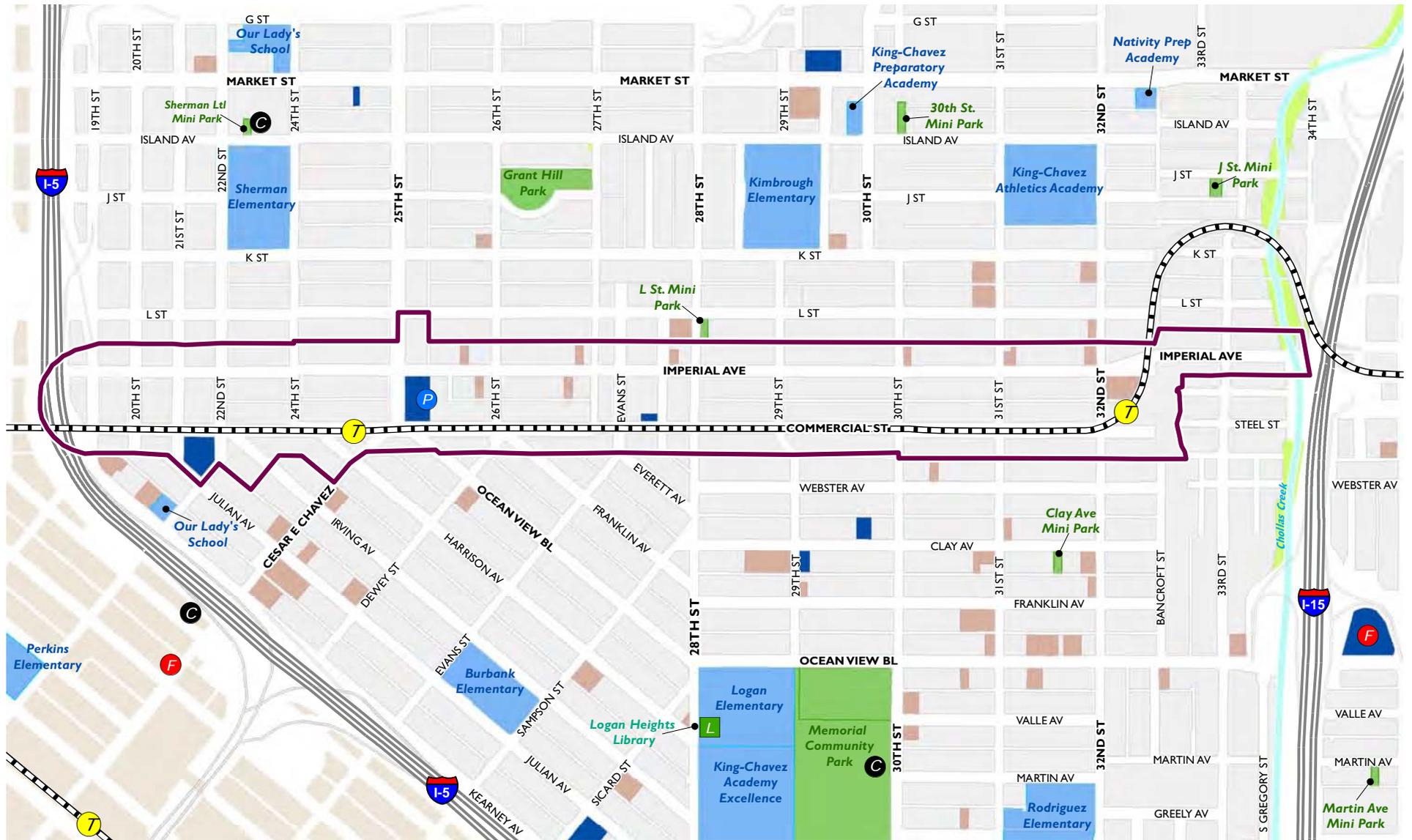
Residential Density (DU/Acre)

-  Trolley Stop
-  Light Rail
-  Planning Area
-  Low Density Residential (0 - <15 DU/acre)
-  Medium Density Residential (15 - <30 DU/acre)
-  High Density Residential (30+ DU/acre)

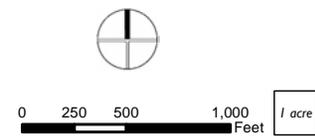


Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.

FIGURE 2-3: Public Facilities and Parks



- |                |                         |                 |                      |
|----------------|-------------------------|-----------------|----------------------|
| Police Station | Community/Senior Center | Schools         | Religious Facilities |
| Fire Station   | Trolley Stop            | Parks           | Open Space           |
| Library        | Light Rail              | Public Services | Planning Area        |



Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.

**TABLE 2-3: SCHOOL CHARACTERISTICS IN THE VICINITY OF THE PLANNING AREA**

NAME	GRADES	ENROLLMENT	% ENGLISH LANGUAGE LEARNERS	% ECONOMICALLY DISADVANTAGED
Burbank Elementary	K-5	373	77%	100%
Kimbrough Elementary	K-5	567	84%	100%
King-Chavez Athletics Academy	3-5	156	77%	100%
King-Chavez Preparatory Academy	6-8	347	58%	100%
Logan Elementary	K-8	623	71%	100%
Nativity Prep Academy (Private)	6-8	62	1	1
Our Lady's School (Private)	PK-8	230	1	1
Rodriguez Elementary	K-5	509	83%	100%
Sherman Elementary	K-5	464	80%	100%
<b>TOTAL/AVERAGE</b>		<b>3,331</b>	<b>76%</b>	<b>100%</b>

1. No data available for private schools.

Source: San Diego Unified School District, 2009-2010 (Public) and GreatSchools.net (Private).

### Parks and Open Space

No dedicated parks exist within the Planning Area. Open spaces are limited to enhancements made by businesses or institutions, such as a small public area with enhanced planting at the 25th and Commercial streets intersection. Within a half-mile north or south of the Planning Area), several parks are within a ten-minute walking distance, as shown in Table 2-4 and Figure 2-3. These parks include Grant Hill Park, Chicano Park, Memorial Park, and the fields associated with Sherman Elementary School that are joint use facilities. At 28th and L streets, a single basketball court is open to the public. Overall, the neighborhood is generally underserved with regard to open space, which was raised as a concern by many residents during community outreach meetings.

In total there are 21.5 acres of parkland near the Planning Area, with the vast majority of this park area coming from Memorial Park. In addition to these parks maintained by the City's Parks and Recreation Department, the City has joint-use agreements with the San Diego School District to use school facilities—including Sherman and Kimbrough Elementary Schools—during non-school hours. However, in practice coordination of these shared facilities has been logistically challenging according to community stakeholders.

Compared with the City's standards, the provision of parks in the area around the Commercial/Imperial corridor is quite low: 1.1 acres per 1,000 residents.<sup>1</sup> The Parks and Recreation Department recommends a park-

<sup>1</sup> To calculate the parks per 1,000 person ratio, Dyett & Bhatia estimated 19,700 residents in the expanded Commercial/Imperial area (based on Census data).



Public facilities are limited to a new police station has been built on Imperial Street. Schools and parks that serve the corridor are located north and south; Grant Hill and Memorial Park/Logan Elementary are shown above.



Community members praise the corridor for its family-orientation, diversity, Hispanic character, and pedestrian-scaled buildings and streets.

TABLE 2-4: PARKS AND RECREATION FACILITIES IN THE VICINITY OF THE PLANNING AREA		
NAME	PARK TYPE	ACRES
30th Street Mini-Park	Neighborhood Park	0.2
Clay Ave. Mini-Park	Neighborhood Park	0.2
Grant Hill Park	Neighborhood Park	2.6
J Street Mini-Park	Neighborhood Park	0.2
L Street Mini-Park	Neighborhood Park	0.2
Memorial Park	Community Park	18.0
Sherman Mini-Park	Neighborhood Park	0.1
<b>TOTAL</b>		<b>21.5</b>

Source: City of San Diego, Planning Division, 2011.

to-population ratio of 20 acres per 1,000 residents for all open space (including regional parks such as Balboa Park). Furthermore, General Plan standards call for neighborhood parks (~10-acre parks) to serve about 5,000 people within a half-mile radius. Community parks (~20-acre parks) are recommended by the General Plan to serve up to 25,000 people within a radius of one and one-half miles. According to the Southeastern San Diego Community Plan, the City has made progress toward achieving these standards through joint-use agreements with the School District.<sup>2</sup>

## 2.2 Community Design

### Corridor Structure

The Commercial/Imperial corridor is conveniently located within the city and the region, with easy freeway and trolley access to downtown, National City, Balboa

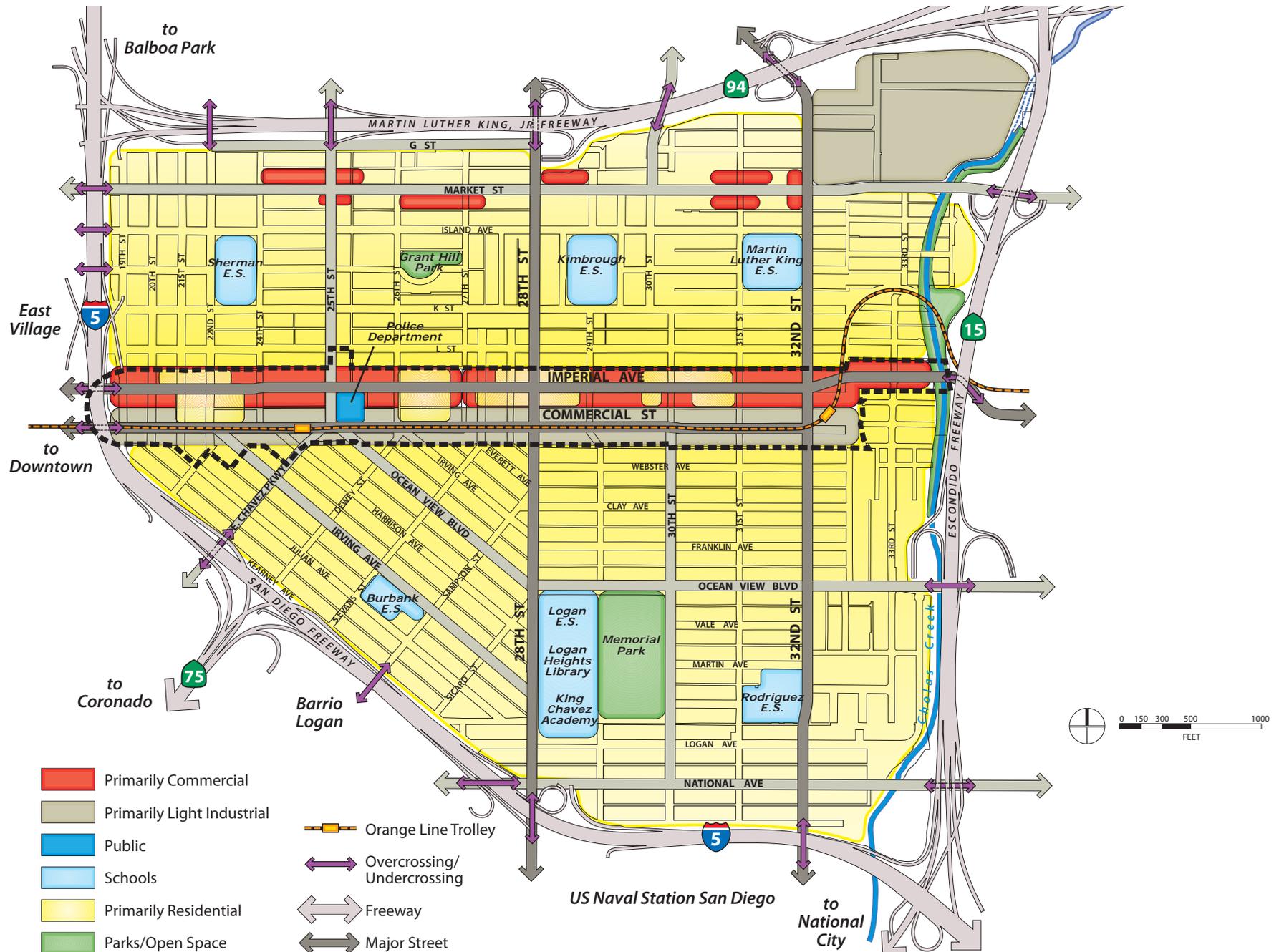
Park, and San Diego Bay. Small blocks and a large network of streets and alleys provide many routes through the community. This also allows businesses along Commercial and Imperial good delivery and distribution access. However, with this great access come barriers to circulation, as shown in Figure 2-4. The three highways—I-5, I-15, and Highway 94—that encircle the neighborhood result in dead-end streets. In addition, overpasses have allowed homeless persons to camp out under overpasses, reducing real and perceived safety and movement in and out of the neighborhood. The corridor and surrounding neighborhoods have good east-west access, particularly north of Commercial. But connections in the north-south direction and south of Commercial Street are fewer, especially where the street grid shifts west of 28th Street.

### Community Character and Urban Form

The Commercial/Imperial corridor is characterized by a fine-grain pattern, with small building footprints and lot sizes. Many of the businesses are targeted to the varied ethnicities within the surrounding neighbor-

<sup>2</sup> City of San Diego. Southeastern San Diego Community Plan. Adopted 1987. Amended 2009. Page 102.

FIGURE 2-4: Corridor Structure





*Building heights are generally one- to two-stories along Imperial Avenue (top and middle) and, similarly up to 20 feet along Commercial Street (bottom).*

hood, which contributes to a strong identity and fairly cohesive streetscape character with a heavily Hispanic influence. Imperial Avenue has a consistent street section, fairly regular street trees, and sidewalks in passable condition. The streetscape is active with pedestrian and vehicular traffic.

In contrast to the vibrancy and walkable feeling on Imperial Avenue, Commercial Street is dominated by vehicles and transit, while pedestrian comfort is significantly marginalized. This difference in character is largely due to two dominant factors: a wide street section to accommodate trolley lines, and the predominance of industrial land uses found in the eastern two-thirds of the Planning Area. The large parcel size of the industrial uses, coupled with a wider street, fewer street trees and irregular sidewalk conditions, contributes heavily to a general feeling of exposure for the pedestrian. Despite this, the corridor is active with trolley commuters (especially within the vicinity of the two trolley stops) and vehicle traffic at the recycling businesses.

Due to the trolley stops and the confluence of major streets, the Commercial and 25<sup>th</sup> streets intersection is a natural hub for multi-modal activity. This is the most active area of Commercial Street within the Planning Area, typified by a mix of commercial, residential, civic, and transit uses. This intersection is highlighted by the shifting grid which creates triangular blocks along the south side of the street. This area, stretching generally from 24<sup>th</sup> to 29<sup>th</sup> streets is also characterized by smaller parcel sizes and a more small-scale quality than the rest of the Commercial Street corridor.

### **Building Intensity and Building Heights**

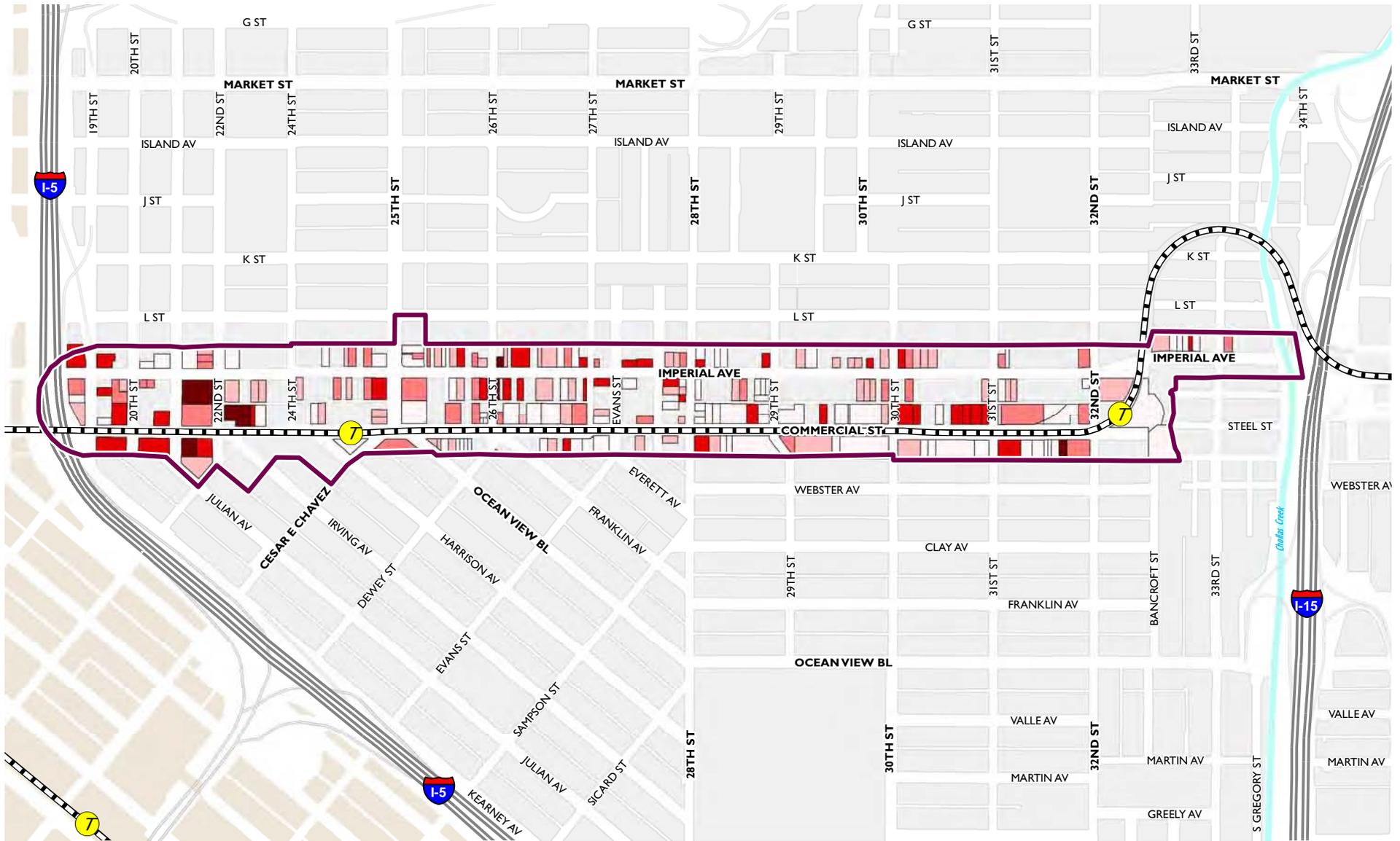
Intensity of non-residential development (office, commercial, and industrial) is measured by floor-to-area ratio (FAR). The FAR measurement describes the ratio of building floor area to lot size. Thus, a two-story building covering 100 percent of a parcel will result in an FAR of 2.0, as will a four-story building covering 50 percent of a parcel. Intensities are fairly low in the Planning Area, as shown in Figure 2-5. Overall, average intensities are 0.5 FAR in the Planning Area and the expanded corridor area. The highest intensities in the Planning Area are the Farmers' Market site (1.9 FAR) and vacant school district site (4.9 FAR) at 22nd and Commercial.

Building heights are generally one to two stories, as shown in Figure 2-6 for non-residential buildings. Though data are not available for residential structures, observations show that residential structures in the Planning Area also tend to be one to two stories in height.

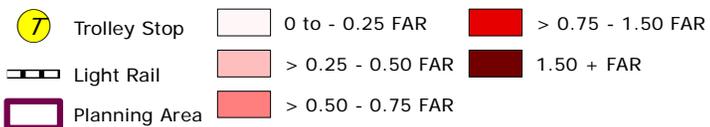
### **Imperial Avenue Streetscape**

Within the Planning Area, the western end of Imperial Avenue has an open feeling, with more vehicular traffic, slightly larger parcels, and fewer street trees. East of 25<sup>th</sup> Street, it assumes a more localized character, with a mix of restaurants, small service businesses, and residences. This portion of Imperial Avenue also has more regular street trees and more pedestrian traffic on the sidewalks. The Imperial Avenue street section is very consistent, and has a slight difference in the sidewalk conditions at residential uses versus commercial uses. At primarily residential uses the sidewalk is typically ten feet wide, with a four-foot planted buffer between the sidewalk

FIGURE 2-5: Non-Residential Building Intensity

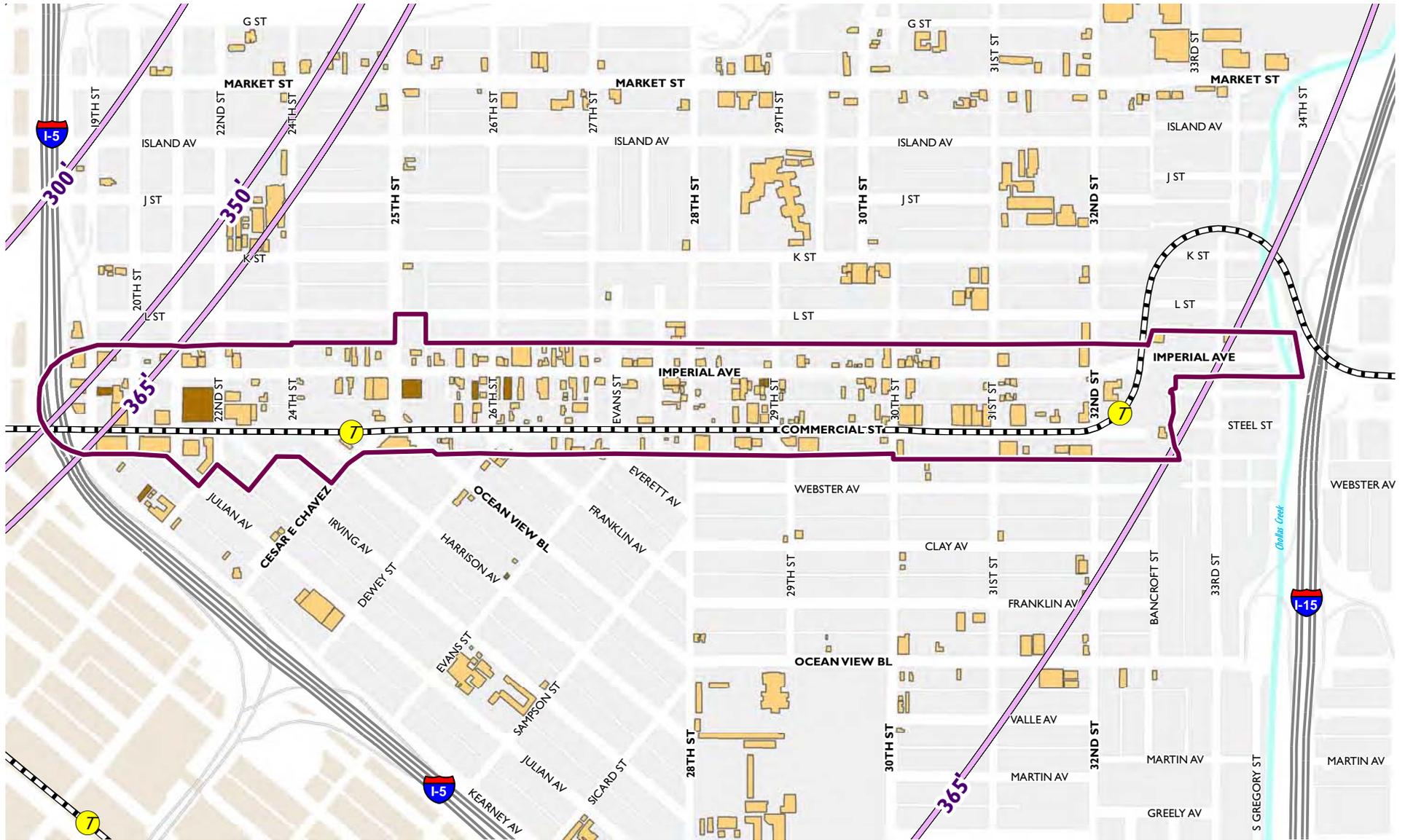


Floor Area Ratio (FAR)

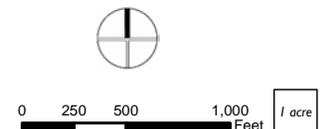


Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.

FIGURE 2-6: Building Heights and Height Constraints



- Trolley Stop
- 1 Story
- 2 Stories
- Light Rail
- Planning Area
- Airport Height Limits (ft.)



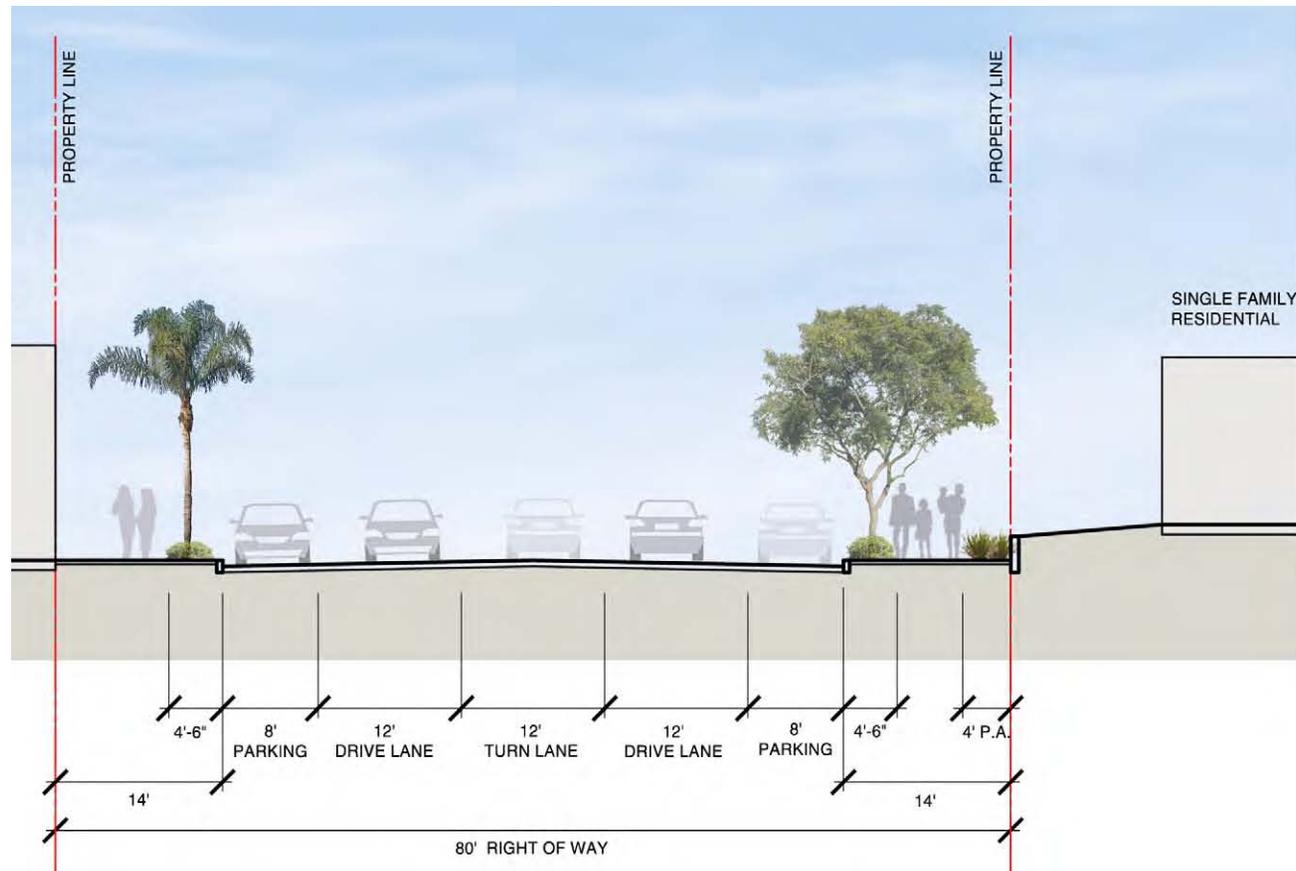
Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.

edge and the property line. As shown in the street section in Figure 2-7, commercial uses along Imperial Avenue have 14-foot wide paved sidewalks from curb to property line with small five-by-five foot planting areas cut-outs for street trees, generally spaced 25 to 35 feet on center. Imperial Avenue is a two-way street, with one travel lane in each direction, a center turn lane, and parallel parking on both sides of the street throughout the length of the corridor.

Street tree species vary, with the majority of the trees being the Camphor tree (*Cinnamomum camphora*), and include some intermittent Queen Palm (*Syagrus romanzoffiana*) and several Canary Island Date Palms (*Phoenix canariensis*). Planting areas are limited to small cutouts within the sidewalk and are generally not very well tended or successful. Sidewalks are generally in fair condition, with some heaving of pavement due to tree roots. Tree grates are not found on Imperial Av-



FIGURE 2-7: Imperial Avenue and 28th Street Typical Street Section



1/16" : 1.0'  
 Spurlock Poirier Landscape Architects, May, 2011.

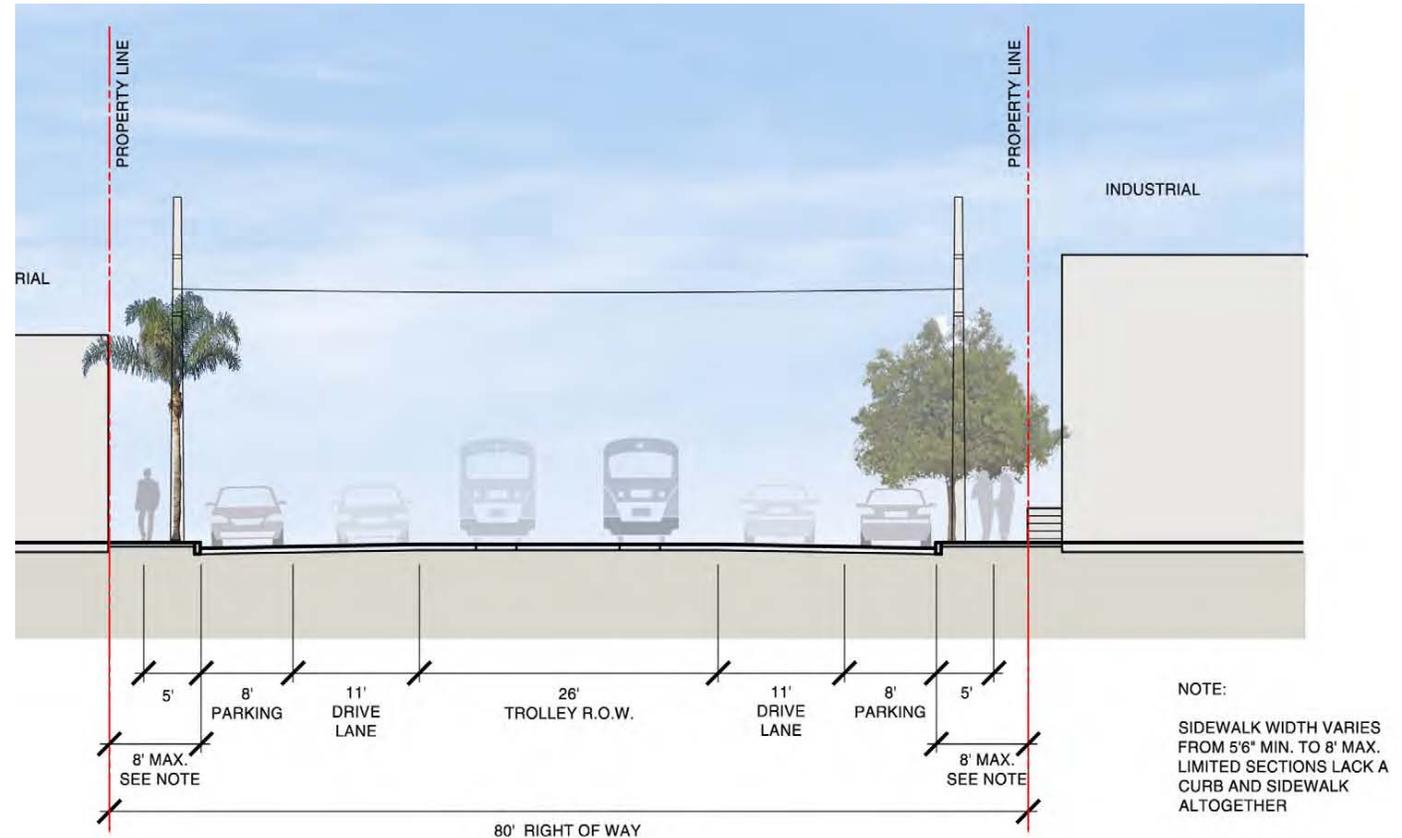


Imperial Avenue enjoys ample pedestrian activity and fairly consistent sidewalks and landscaping.

FIGURE 2-8: Commercial Street and 30th Street Typical Street Section A



Along much of Commercial Street, streetscape and sidewalk conditions are poor.

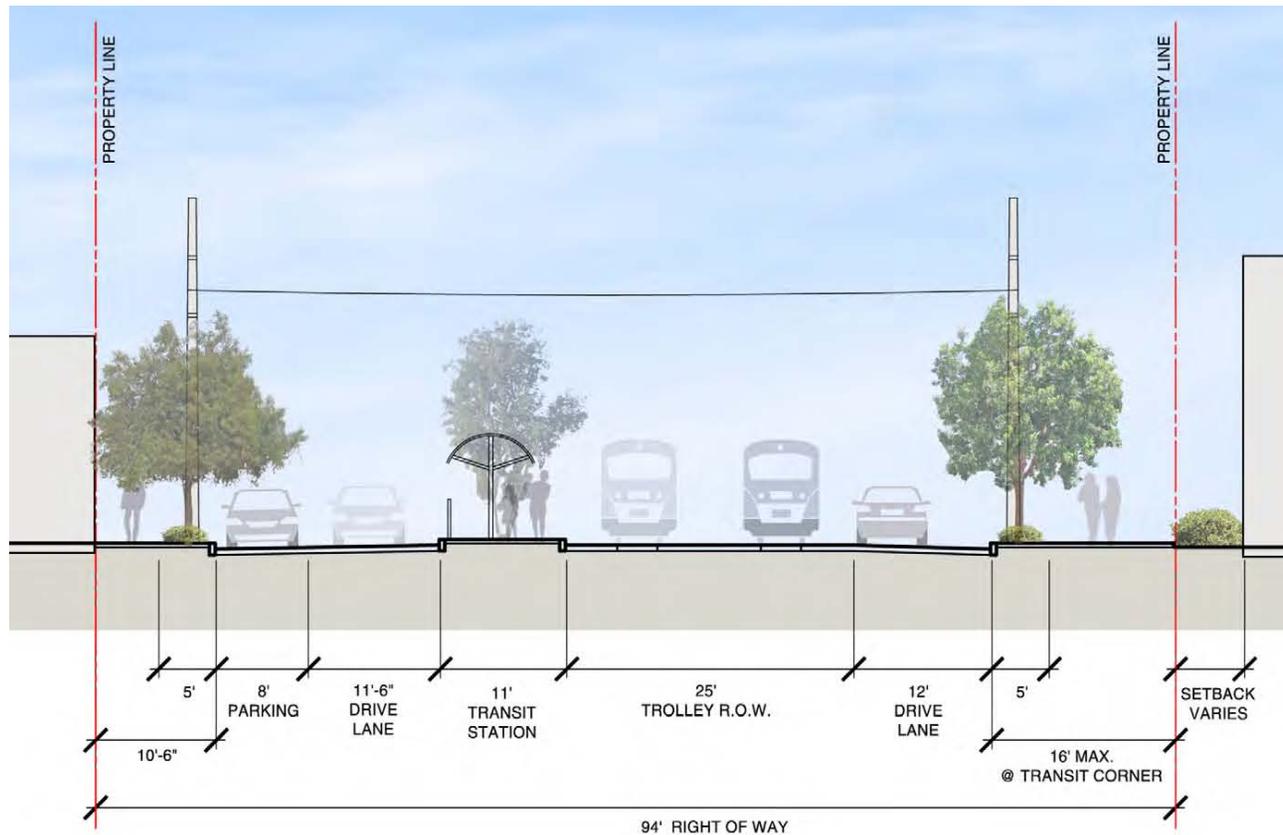


1/16" : 1.0'  
Spurlock Poirier Landscape Architects, May 2011.

enue, and few street furnishings such as benches, trash receptacles, or bike racks are provided. Lighting is limited to vehicular pole lights and does not provide good illumination for pedestrians at night. Sidewalk seating at restaurants is very limited, and generally seating is not available for pedestrians except at bus stops. Over-

all, the character of the street is provided by the activity of the pedestrian and a varied mix of small businesses and single family homes. Many storefronts are brightly colored and engaging, though public art on Imperial is limited to a mural at the corner of 32nd Street.

FIGURE 2-9: Commercial Street and 25th Street Typical Street Section B



1/16" : 1.0'  
 Spurlock Poirier Landscape Architects, May 2011.

**Commercial Street Streetscape**

Though consistently wide to accommodate vehicular traffic and trolley tracks, the Commercial Street section varies significantly depending on adjacent land uses, as shown in Figures 2-8 and 2-9. At the 25<sup>th</sup> Street trolley stations, wait-

ing platforms are within the street, separated from the curb by one parallel parking lane and one travel lane. Two sets of tracks run east-west, followed by another vehicular lane with no parallel parking. Sidewalks in this area vary and are about ten feet wide with typical five-by-five foot tree planting cut-outs. Despite its overall



Sidewalks, landscaping, shelters, and public art create a more comfortable pedestrian environment around the 25th Street trolley station.



width, the street at the trolley stops appears cramped at the waiting platforms, with one traffic lane in each direction providing auto, bus and service access in addition to the parked cars.

Noticeably more street trees are found in the blocks around the 25<sup>th</sup> Street trolley station, with African Sumac (*Rhus lancea*), and Podocarpus (*Podocarpus gracilior*) being most abundant. Mature Canary Island Palms (*Phoenix canariensis*) lend strong character at the west bound station, and Cajeput trees (*Melaleuca quinquenervia*) at both the 25<sup>th</sup> Street and 32<sup>nd</sup> Street Stations provide continuity. Additionally, at 25<sup>th</sup> Street, the north side of Commercial provides a wider setback to the building edge, creating more space for planting and includes several Jacaranda trees at the corner. At the trolley station waiting platforms, overhead awning structures, public art pieces, and tiled art seating lends some interest to the streetscape.



*The Grant Hill Park and Sherman Heights historic districts lie just north of the planning area, though there are some resources within the planning area that have been designated or may be eligible for historic designation.*

Beyond the trolley station areas near 25<sup>th</sup> Street, the majority of Commercial Street is characterized by large-parcel industrial and light manufacturing uses, a wide-open street section, and the trolley tracks. Sidewalks are narrower or nonexistent in some locations, street trees are irregular and generally in poor condition, and pedestrian lighting is sub-standard. Along this eastern section of the corridor, sidewalk conditions for pedestrian use are severely impacted by impediments related to land use. The walking surface is often interrupted by building entries, loading docks, and trolley catenary poles jutting into the walking zone approximately every 140 feet. Continuity of access along several blocks is impossible, especially for wheelchairs, where catenary poles and tree cutouts effectively cut the sidewalk width

below three feet, and “dead end” conditions at ramps and loading docks are common.

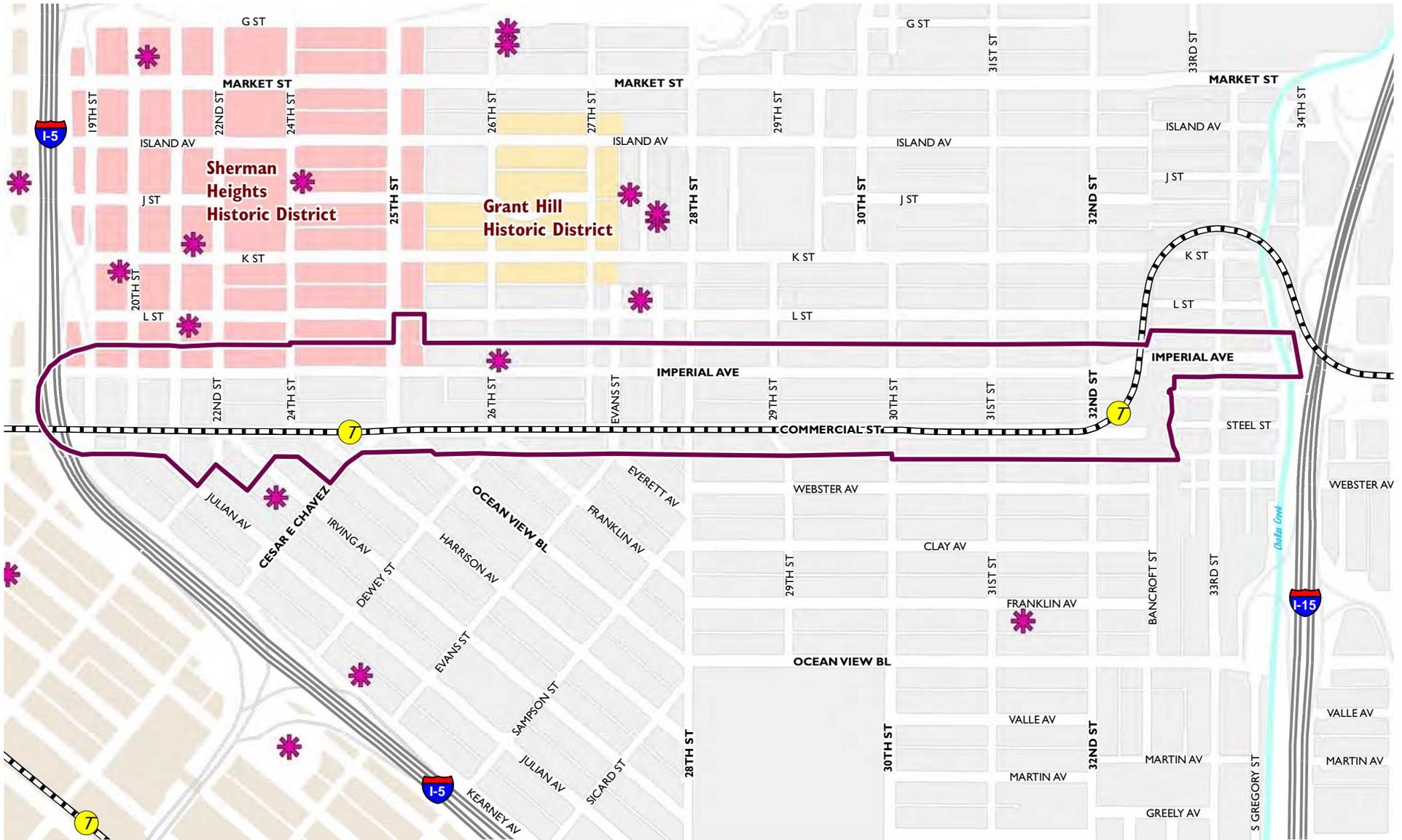
At the east end of the corridor, the 32<sup>nd</sup> Street trolley stop, which feels separated from the street itself, is positioned on the curve as the trolley tracks arc north from Commercial and over Imperial. The separation gives this stop its own character, enhanced by the curve, consistent Melaleuca trees, and adjacency to the adjacent church at the corner of 32<sup>nd</sup> Street and Imperial Avenue.

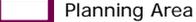
### Historic Resources

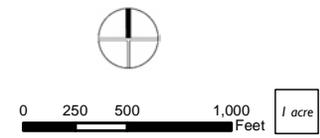
As one of the oldest neighborhoods in San Diego, Southeast has many historic resources and adopted programs to protect them. The only registered historic building in the Planning Area is the Claus A. Johnson Commercial Building at 2602 Imperial Avenue. The Sherman Heights Historic District extends into the northwest portion of the Planning Area, as shown in Figure 2-10. The area was originally subdivided by Captain Matthew Sherman in 1869 and settled by a variety of groups including business people, government workers, and construction tradesmen. The Grant Hill Park Historic District lies just to the north of the Planning Area. It was originally subdivided in 1887 and later developed by Ulysses S. Grant, Jr. (though it was named after U.S. President Ulysses S. Grant, Sr.). Both districts enjoy historically significant structures and beautiful mature trees that contribute to the community’s identity.

Preservation of these districts and implementation of historic preservation policies are describes in the Revitalization Action Programs (discussed in Chapter 1) and in adopted Design Criteria and Guidelines for both of these districts. In particular, policies call for the revital-

FIGURE 2-10: Historic Sites and Districts



-  Trolley Stop
-  Designated Sites
-  Light Rail
-  Grant Hill Historic District
-  Planning Area
-  Sherman Heights Historic District



Data Source  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.

ization of Imperial Avenue to provide jobs and business opportunities.<sup>3</sup> For the portion of the Planning Area that lies within the Sherman Heights District, alternations and new development must be completed with sensitivity to the historic character of the district, and lot consolidation is discouraged.

<sup>3</sup> City of San Diego. Grant Hill Revitalization Action Plan. Adopted 1998: 4.

**TABLE 2-5: REPORTED CRIMES, BY CRIME TYPE (FEBRUARY 1-APRIL 30, 2011)**

CRIME TYPE	NUMBER OF INCIDENTS	PERCENT
Traffic Citation	243	60%
Narcotics	34	8%
Malicious Mischief/Vandalism	17	4%
Curfew Violation	16	4%
Traffic Collision	15	4%
Drunk in Public	12	3%
Vehicle Theft	12	3%
Theft	11	3%
DUI	8	2%
Deadly Weapons	7	2%
Simple Assault (non-DV)	7	2%
Robbery	6	1%
Aggravated Assault (non-DV)	5	1%
Sex Crimes	4	1%
Residential Burglary	3	1%
Commercial Burglary	2	<1%
Vehicle Break-in	2	<1%
Rape	1	<1%
<b>TOTAL</b>	<b>405</b>	

Source: San Diego Police Department, ARJIS, 2011.

## 2.3 Public Safety

### Police and Fire Services

The Central Division Police Station is located in a new building in the Planning Area at 2501 Imperial Avenue and serves about 96,000 residents in the surrounding neighborhoods.<sup>4</sup> Two fire stations are located just outside the Planning Area, Station 19 just east of I-15, and Station 7 just west of I-5, as shown in Figure 2-3.

### Crime

Community stakeholders have expressed the importance of public safety in the corridor and generally feel that the Planning Area is safe. A review of the San Diego Police Department’s crime statistics over a three-month period for the half-mile area surrounding the intersection of 28th Street and Imperial Avenue (roughly the center of the Planning Area) revealed the following reported incidents: Table 2-5 shows the greatest number of incidents come from traffic citations (on both highways and surface streets), narcotics, vandalism, curfew violations, and traffic collision. Although violent crimes and sex crimes are fewer in number, they are severe and distressing to community members.

## 2.4 Potential Opportunity Sites

This section describes potential opportunity sites in the Planning Area, including approved projects and vacant and underutilized sites that may be appropriate for future development.

<sup>4</sup> San Diego Police Department, <<http://www.sandiego.gov/police/neighborhood/central.shtml>>

### Development Projects

One development project is pending within the project area: Comm22 on the south side of Commercial Street between 21st Street and Harrison Avenue, as shown in Figure 2-11. The proposed project includes four phases, which upon complete buildout will include 250 housing units (senior and family affordable rentals, supportive housing, market-rate condos, studios, and live/work lofts) a 5,447-square foot child care facility, 27,800 square feet of commercial retail and office space, and a 355-space subterranean parking garage. The project received entitlements for the project in December 2007. In May 2011, the Centre City Development Corporation recommended approval of an Owner Participation Agreement to provide financial assistance by the Planning Commission and City Council.

### Potential Opportunity Sites

Vacant and underutilized sites can provide strategic opportunities to create new uses, meet community needs, and capitalize on access to the trolley stations and Southeastern community facilities. This section presents potential opportunity sites based on the follow methodology:

- Vacant sites or sites currently occupied by surface parking lots;
- Properties where assessed value is less than land value, suggesting that the site is underutilized; and
- Low intensity sites, where FAR values are below 0.75 or 0.50 and more intensive redevelopment may be appropriate (sites with low FAR values);

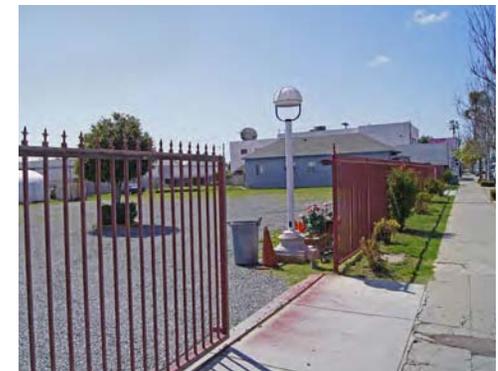
Residential uses are excluded, but some of these may be appropriate for higher density uses or additions as well.

Using this methodology, there are as many as 45 acres that may be appropriate for redevelopment, as shown in Figure 2-11. These potential opportunity sites have been further categorized to suggest those sites with the highest potential for redevelopment. This is signified by the color gradient in Table 2-6, with the darker color suggesting those sites that are more likely to redevelop. The highest potential includes seven acres classified as vacant or surface parking and 15 acres that have a FAR value that is less than 0.5 and an assessed value that is less than the land value. Though it not likely that all of these sites will be redeveloped in the future, the planning process will help to identify locations for intensification of existing uses, redevelopment, rehabilitation, and preservation. Moreover, these sites may have constraints (e.g. hazardous material presence or potential historic designation) that would preclude their redevelopment. Potential environmental constraints are described in Chapter 3.

**TABLE 2-6: POTENTIAL OPPORTUNITY SITES (ACRES)**

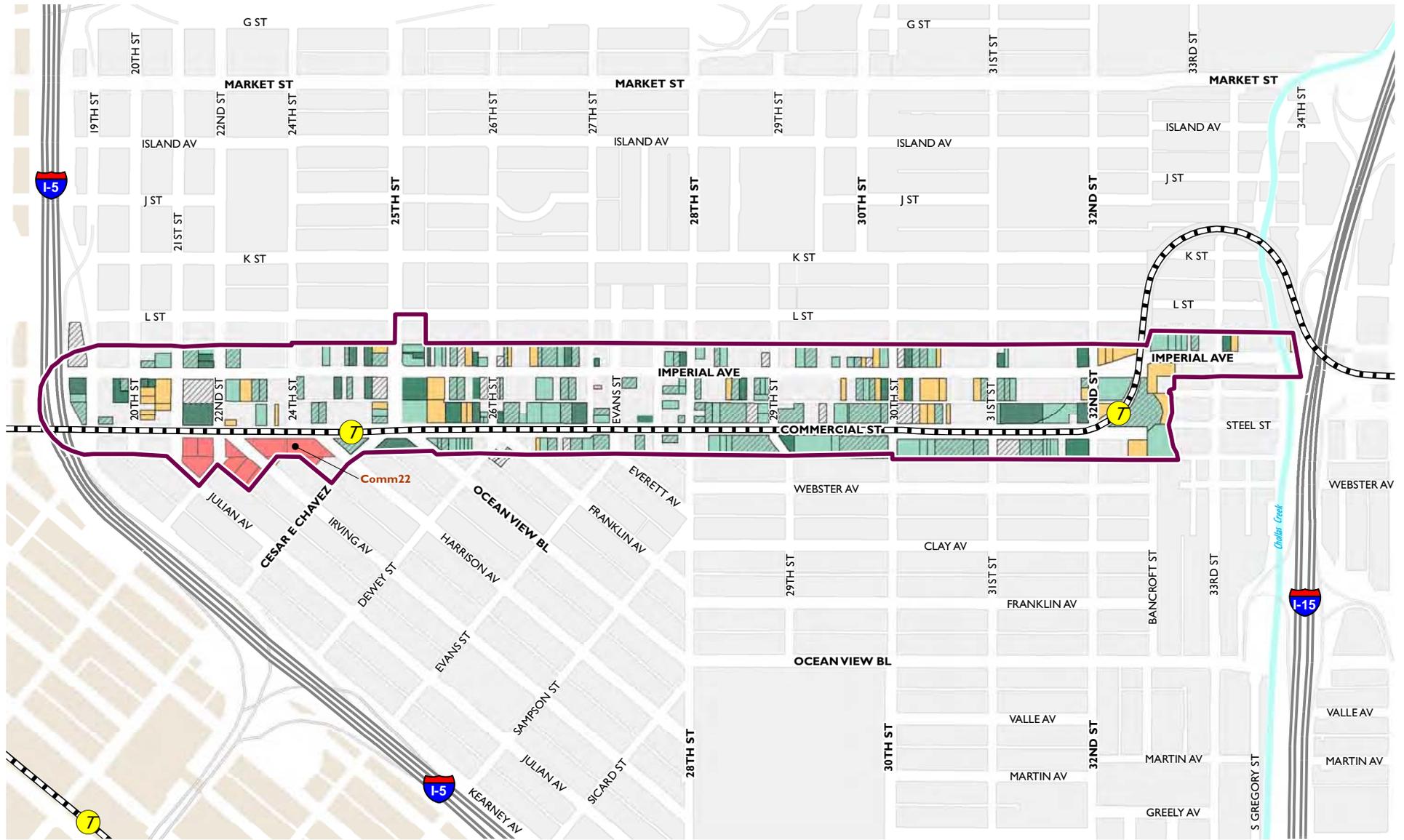
	BUILDING VALUE < LAND VALUE		TOTAL ACRES
	YES	NO	
Vacant/Surface Parking	7	0	7
Low FAR: Less than 0.5	15	12	27
Low FAR: 0.5 to 0.75	4	2	7
Building Value < Land Value (FAR > 0.75)	4	n/a	4
<b>TOTAL ACRES</b>	<b>30</b>	<b>15</b>	<b>45</b>

Source: City of San Diego, County of San Diego, Dyett & Bhatia, 2011.



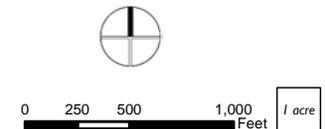
The largest vacant site in the planning area (top) has been approved for development of the Comm22 project, but vacant and underutilized sites are present throughout the area, on both Commercial Street and Imperial Avenue.

FIGURE 2-11: Potential Opportunity Sites



Potential Opportunity Sites

- Trolley Stop
- Development Project
- Low FAR: Less than 0.5
- Vacant/Surface Parking
- Low FAR: 0.5 to 0.75
- Building Value < Land Value
- Planning Area



**Data Source**  
 City of San Diego, California,  
 2011; Dyett & Bhatia, 2011.

# 3 ENVIRONMENT AND COLOCATION



Given the mix of industrial, auto repair, and residential uses in the Planning Area, the Master Plan will need to address issues of collocation and potential environmental impacts. This chapter analyzes critical environmental conditions within the Planning Area, specifically air quality, noise, and hazardous materials.





*Industrial businesses, gas stations, and freeways can all have air quality impacts. Given the close proximity of such uses to residents, homes, and schools in and around the planning area, buffers and other mitigations should be considered to reduce potential impacts.*

### 3.1 Air Quality

This section summarizes and evaluates existing air quality conditions within the Commercial/Imperial Master Plan corridor.

#### Regional Air Quality

##### Climate and Topography

The weather of the San Diego region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in degree Fahrenheit (°F)) from the mid 40s to the high 90s. Most of the region's precipitation falls from November to April, with infrequent (approximately 10%) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains.

The topography in the San Diego region varies greatly, from beaches on the west to mountains and desert on the east. Along with local meteorology, it influences the dispersal and movement of pollutants in the basin. The mountains to the east prohibit dispersal of pollutants in that direction and help trap them in inversion layers.

The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

#### Air Pollution Climatology

The project site is located within the San Diego Air Basin (SDAB or Basin) and is subject to the Air Pollution Control District County of San Diego (SDAPCD) guidelines and regulations. The SDAB is one of fifteen air basins that geographically divide the State of California. The SDAB is currently classified as a federal nonattainment area for ozone ( $O_3$ ) and a state nonattainment area for particulate matter less than 10 microns ( $PM_{10}$ ), particulate matter less than 2.5 microns ( $PM_{2.5}$ ), and  $O_3$ .

The SDAB lies in the southwest corner of California and comprises the entire San Diego region, covering 4,260 square miles, and is an area of high air pollution potential. The Basin experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The Basin experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce ozone, commonly known as smog.

Light and daytime winds, predominately from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to carbon monoxide (CO) and oxides of nitrogen (NO<sub>x</sub>) emissions. CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are relatively high due to cold temperatures and the large number of motor vehicles traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the Basin are associated with heavy traffic. Nitrogen dioxide (NO<sub>2</sub>) levels are also generally higher during fall and winter days.

Under certain conditions, atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County. This often produces high O<sub>3</sub> concentrations, as measured at air pollutant monitoring stations within the County. The transport of air pollutants from Los Angeles to San Diego has also occurred within the stable layer of the elevated subsidence inversion, where high levels of O<sub>3</sub> are transported.

### Sensitive Receptors

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed sensitive receptors are the most serious hazards of existing

air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

The project site consists of various residential, commercial, and industrial uses, and there are numerous instances where sensitive receptors are located adjacent to or relatively close to commercial and industrial land uses.

### Pollutants and Effects

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O<sub>3</sub>, NO<sub>2</sub>, CO, sulfur dioxide (SO<sub>2</sub>), PM<sub>10</sub>, PM<sub>2.5</sub>, and lead (Pb). These pollutants are discussed in Appendix A.<sup>1</sup> In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

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1 The following descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on the Environmental Protection Agency (EPA) Six Common Air Pollutants (EPA 2010a) and the CARB Glossary of Air Pollutant Terms (CARB 2011a) published information.

### Local Air Quality

#### SDAB Attainment Designation

An area is designated in attainment when it is in compliance with the NAAQS and/or CAAQS. These standards are set by the EPA or CARB for the maximum level of a given air pollutant which can exist in the outdoor air without unacceptable effects on human health or the public welfare.

The pollutants of primary concern that are considered in this air quality assessment include NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Although there are no ambient standards for VOCs or NO<sub>x</sub>, they are important as precursors to O<sub>3</sub>.

The SDAB is designated Subpart 1 (Basic) nonattainment for the 8-hour NAAQS for O<sub>3</sub>. The SDAB is cur-

rently in the process of being redesignated as a “serious” nonattainment area for ozone despite the possibility of the SDAB achieving the original 1997 Federal 8-hour ozone standard in 2011. In 2009, the EPA proposed a “moderate” ozone nonattainment classification for the SDAB. Because the attainment deadline for “moderate” classification designation has since passed, the SDAB will be redesignated. A pending final rule for a “serious” nonattainment classification is expected in Summer 2011. The SDAB was designated in attainment for all other criteria pollutants under the NAAQS with the exception of PM<sub>10</sub>, which was determined to be unclassifiable.

The SDAB is currently designated nonattainment for O<sub>3</sub> and particulate matter, PM<sub>10</sub> and PM<sub>2.5</sub>, under the CAAQS. It is designated attainment for CO, NO<sub>2</sub>,

**TABLE 3-1: SDAB ATTAINMENT CLASSIFICATION**

POLLUTANT	FEDERAL DESIGNATION	STATE DESIGNATION
Ozone (1 hour)	Attainment*	Nonattainment
Ozone (8 hour)	Nonattainment (Subpart I/Basic)	Nonattainment
Carbon Monoxide	Attainment (Maintenance Area)	Attainment
PM <sub>10</sub>	Unclassifiable**	Nonattainment
PM <sub>2.5</sub>	Attainment	Nonattainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(no federal standard)	Attainment
Hydrogen Sulfide	(no federal standard)	Unclassified
Visibility-Reducing Particles	(no federal standard)	Unclassified

\* The federal 1-hour standard of 0.12 ppm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.

\*\* At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Source: SDAPCD 2007.

SO<sub>2</sub>, lead, and sulfates. Table 3-1, SDAB Attainment Classification, summarizes San Diego County’s federal and state attainment designations for each of the criteria pollutants.

### Air Quality Monitoring Data

The SDAPCD operates a network of ambient air monitoring stations throughout San Diego County, which measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The SDAPCD monitors air quality conditions at ten locations throughout the Basin. The nearest ambient monitoring station to the project site is the San Diego station, located approximately 0.5 miles southwest of the site. Ambient concentrations

of pollutants from 2007 through 2009 are presented in Table 3-2.

As Table 3-2 demonstrates, air quality within the proposed project region is in compliance with both CAAQS and NAAQS for NO<sub>2</sub>, CO, and SO<sub>2</sub>. As shown in Table 3-3, the state 8hour O<sub>3</sub> standard, however, was exceeded once during the years 2007 and 2008. The state 24-hour PM<sub>10</sub> standard was exceeded once during the years 2007, 2008, and 2009, but the national PM<sub>10</sub> standard was not exceeded. PM<sub>2.5</sub> levels monitored at the air monitoring station exceeded the national standard during each of the 3 years reported. Air quality within the project region is in compliance with both CAAQS and NAAQS for NO<sub>2</sub>, CO, and SO<sub>2</sub>.

**TABLE 3-2: AMBIENT AIR QUALITY DATA (PPM UNLESS OTHERWISE INDICATED)**

POLLUTANT	AVERAGING TIME	2007	2008	2009	MOST STRINGENT AMBIENT AIR QUALITY STANDARD	MONITORING STATION
O <sub>3</sub>	8 hour	0.073	0.073	0.063	0.070	San Diego
	1 hour	0.087	0.087	0.090	0.09	
PM <sub>10</sub>	Annual	31.2 µg/m <sup>3</sup>	29.3 µg/m <sup>3</sup>	29.4 µg/m <sup>3</sup>	20 µg/m <sup>3</sup>	San Diego
	24 hour	111 µg/m <sup>3</sup>	59 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	
PM <sub>2.5</sub>	Annual	11.7 µg/m <sup>3</sup>	10.7 µg/m <sup>3</sup>	11.8 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>	San Diego
	24 hour	71.4 µg/m <sup>3</sup>	42.0 µg/m <sup>3</sup>	52.1 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>	
NO <sub>2</sub>	Annual	0.018	0.019	0.017	0.030	San Diego
	1 hour	0.098	0.091	0.078	0.18	
CO	8 hour	3.01	2.60	2.77	9.0	San Diego
	1 hour*	4.4	3.1	—	20	
SO <sub>2</sub>	Annual	0.003	0.003	0.001	0.030	San Diego
	24 hour	0.006	0.007	0.006	0.040	

1. San Diego – Monitoring Station located at 1110 Beardsley Street, San Diego, California  
 2. A new 1-hour NAAQS for NO<sub>2</sub> became effective in April 2010. Data reflect compliance with the 1-hour CAAQS  
 \* Data were taken from EPA 2011a; Data represent maximum values

**TABLE 3-3: FREQUENCY OF AIR QUALITY STANDARD VIOLATIONS**

MONITORING STATION	YEAR	NUMBER OF DAYS EXCEEDING STANDARD					
		STATE 1-HOUR O <sub>3</sub>	STATE 8-HOUR O <sub>3</sub>	NATIONAL 8-HOUR O <sub>3</sub>	STATE 24-HOUR PM <sub>10</sub> <sup>1</sup>	NATIONAL 24-HOUR PM <sub>10</sub> <sup>1</sup>	NATIONAL 24-HOUR PM <sub>2.5</sub> <sup>1</sup>
San Diego	2007	0	1	0	24.4 (4)	0 (0)	8.9 (8)
	2008	0	1	0	23.6 (4)	0 (0)	3.5 (3)
	2009	0	0	0	18.2 (3)	0 (0)	3.4 (3)

1. Measurements of PM<sub>10</sub> and PM<sub>2.5</sub> are usually collected every 6 days and 3 days, respectively. Number of days exceeding the standards is mathematical estimates of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses ( ) are the measured number of samples that exceeded the standard.

\* Data were taken from EPA 2011a; Data represent maximum values

Source: CARB 2011c.

## Existing Site Conditions

### Local Facility Emissions

Sources emitting criteria air pollutants or toxic air contaminants can create health impacts to local residences and other sensitive receptors. Accordingly, the siting of residential land uses near these sources should be evaluated to avoid potential conflicts between these land uses.

CARB manages an online facility database, which includes criteria and toxics pollutant emissions data for stationary sources throughout the state. Emissions included in the database inventory are from stationary sources (emitting devices) that are typically required to have air district permits. However, stationary sources that are permit exempt may also be included in the inventory. Stationary sources do not include mobile or biogenic sources, or accidental releases. The facility search tool indicated three stationary sources located within the project site. These stationary sources, along with their associated criteria pollutant emissions, are identified in Table 3-4 below. In addition to facilities found in the CARB database, additional stationary

sources of criteria air pollutants or toxic air contaminants were found based on a review of land uses within the project site. These additional stationary sources are also listed below in Table 3-4.

In addition to criteria pollutant emissions, R W Little Coatings is reported as a source of TACs including several organic solvents, crystalline silica, and metals; gas stations are sources of TACs such as benzene, toluene, and xylenes that are associated with gasoline; and California Plating is a source of chromium and nickel emissions.

### CARB Siting Recommendations

In April 2005, CARB released the Air Quality and Land Use Handbook (Handbook) as part of their Community Health Program (CARB 2005). The handbook is intended to encourage local land use agencies to consider the risks from air pollution prior to making decisions that approve the siting of new sensitive receptors (e.g., homes or daycare centers) near sources of air pollution. Unlike industrial or stationary sources of air

TABLE 3-4: LOCAL FACILITY EMISSIONS							
FACILITY	FACILITY ADDRESS	CRITERIA POLLUTANT EMISSIONS (TONS/YEAR)					
		VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Krasnes Inc. <sup>1</sup>	2222 Commercial Street	7.55	—	—	—	—	—
R W Little Coatings Co. <sup>1</sup>	3135 Commercial Street	1.68	0.57	0.12	0.01	2.67	2.67
ARCO Prestige Stations Inc. #9560 <sup>1</sup>	2502 Imperial Avenue	3.97	—	—	—	—	—
California Plating <sup>2</sup>	2802 Imperial Avenue	—	—	—	—	—	—
Thrifty Gas Station <sup>2</sup>	2502 Imperial Avenue	—	—	—	—	—	—

Source: 1. CARB 2011d. 2. Emissions data are not available from this source.

pollution, siting of new sensitive receptors does not require air quality permits or other approvals from the SDAPCD, but could create air quality problems. The primary purpose of the document is to highlight the potential health impacts associated with proximity to common air pollution sources, so that those issues are considered in the planning process. CARB's Handbook makes recommendations regarding the siting of new sensitive land uses near freeways, truck distribution centers, dry cleaners, gasoline dispensing stations, and other air pollution sources.

The following recommendations address the issue of siting sensitive receptors near specific sources of air pollution:

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries

- Chrome plating facilities
- Dry cleaners
- Large gasoline dispensing facilities

These advisory recommendations, summarized in Table 3-5 below, are based primarily on dispersion and health risk modeling studies and focused monitoring studies near these sources. Accordingly, they may not entirely reflect conditions in the master plan area. Siting of new sensitive land uses within these recommendation distances may be possible, but only after site-specific studies are conducted to identify the potential health risks. CARB acknowledges that land use agencies have to balance other siting considerations such as housing and transportation needs, economic development priorities and other quality of life issues.

Based on a review of existing land uses, several of the emission source types indicated in Table 3-5 were identified within the master plan area. These sources include the following:

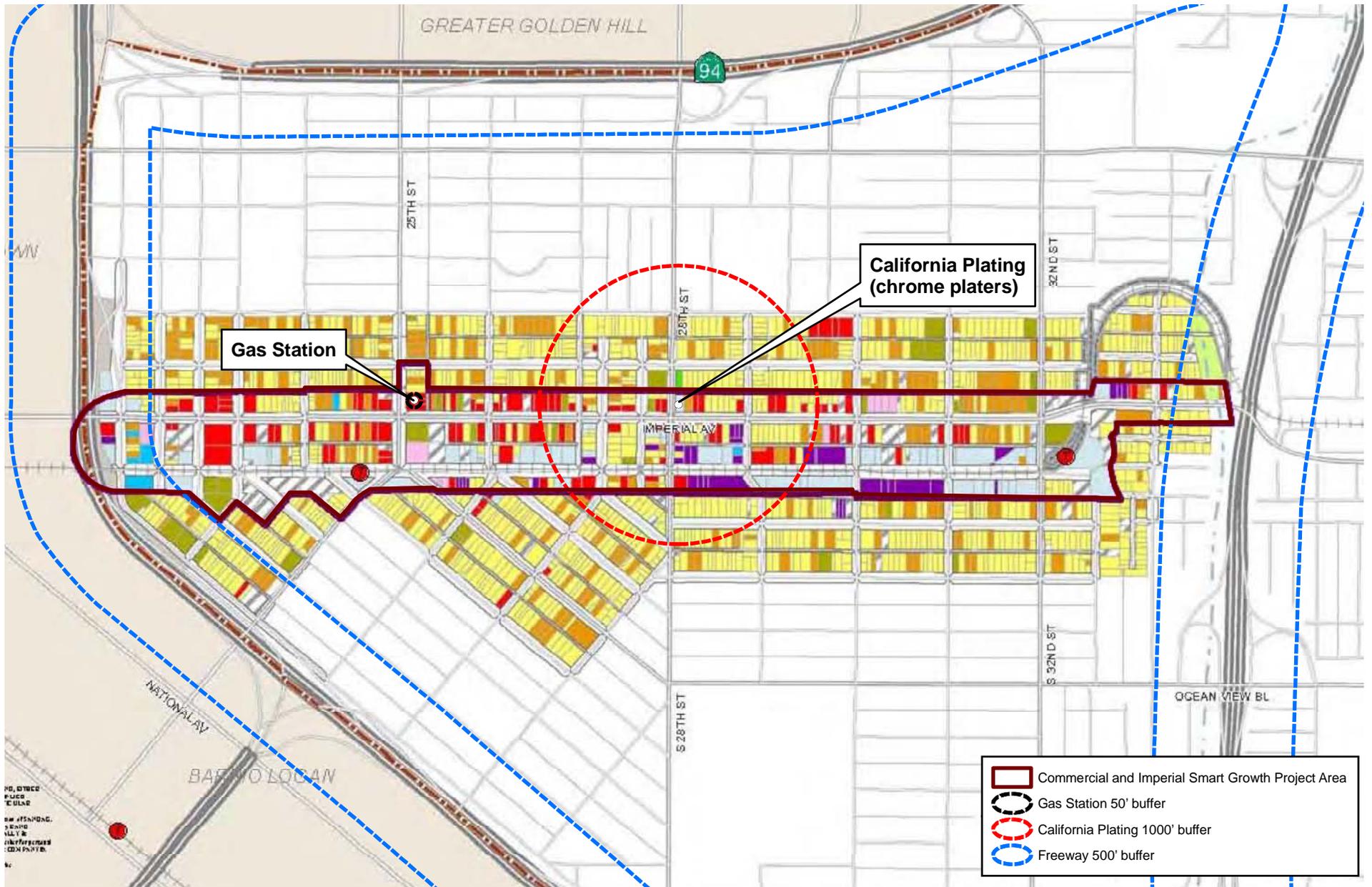
TABLE 3-5: CARB LAND USE SITING RECOMMENDATIONS	
SOURCE TYPE	ADVISORY RECOMMENDATIONS
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or CARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district.  Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Source: CARB 2005

TABLE 3-6: NUISANCE SOURCES			
FACILITY	FACILITY ADDRESS	NATURE OF COMPLAINT	DATE OF COMPLAINT
Johnny's Autobody Shop	2730 Imperial Avenue	Odor	10/23/2006
Resident	2688 Imperial Avenue	Dust	11/6/2006
R W Little Sandblasting	3135 Commercial Street	Smoke	5/9/2007
El Dorado Sandblasting	2694 Commercial Street	Overspray	7/27/2007
Huberto Ramirez	2691 Imperial Avenue	Odor	8/26/2008
Jose Eduardo Zamarripa	2691 Imperial Avenue	Odor	10/17/2008
Jose Eduardo Zamarripa	2691 Imperial Avenue	Odor	11/4/2008
R W Little Sandblasting	3135 Commercial Street	Dust	1/13/2009
El Dorado Sandblasting	2694 Commercial Street	Dust	12/1/2009
Riley's Recycling	2812 Commercial Street	Odor	5/3/2010

Source: SDAPCD 2011

FIGURE 3-1: CARB Land Use Siting Constraints



- Chrome Plater – California Plating (northeast corner of Imperial Avenue and 28th Street)
- Gas Station – Thrifty Gas Station (northeast corner of Imperial Avenue and 25th Street)
- Freeways – Interstate 5 and Interstate 15

Figure 3-1 depicts the location of these emission sources and their associated buffers, consistent with CARB’s guidance. It is recommended that these buffers be considered when making land use decisions for the Master Plan area.

### Nuisance Sources

In addition to the sources listed above, various sources within the master plan area could create a nuisance to sensitive receptors in the project area. Imperial Avenue is largely dominated by land uses associated with automotive repair and maintenance, with residential lots often located directly adjacent to these uses. Similarly, Commercial Street consists of junk yards, storage yards, recycling centers, and automotive repair shops close to residential land uses and other sensitive receptors.

The SDAPCD receives and documents complaints about nuisance sources, including dust, odors, and other nuisances. Odors and dust are air pollutants that can have negative health impacts, and while almost any source may emit objectionable odors, some land uses are more likely to produce odors or dust as a result of their operation. Assessing potential impacts depends on a number of variables such as wind speed and direction, design features of the facility such as stack height, and the physical distance from the source and the sensitive receptors (SCAQMD 2005). Ideally, potential odor and

dust emissions from projects should be identified and evaluated while the project is still in its initial design phase.

Table 3-6 below indicates several sources located within the project site associated with nuisance compliance, based on data obtained from the SDAPCD through June 2010. The proximity of these facilities should be considered when making future land use decisions to avoid the potential for future nuisances.

## 3.2 Noise

The Planning Area can generally be described as a community with residential uses interspersed within light industrial and commercial areas which can create noise conflicts. This section analyzes potential noise impacts in the Planning Area. Fundamental noise concepts and regulations are described in Appendix B.

### Noise Sources

Noise typically is categorized as transportation-related or stationary noise. Transportation noise refers to noise from vehicles on roads, airport operations, and rail activity. Stationary noise sources include machinery, fabrication, construction, air conditioning systems, compressors, landscape maintenance equipment, and a range of activities (e.g., live music/concerts, outdoor cafes, amplified music from stereos, and loud voices of crowds).

The Planning Area is primarily exposed to noise from roads, light rail transit vehicles and stationary noise sources. Traffic noise in the area generates the greatest

noise levels and affects the largest number of people. The community is not subject to significant overflight of aircraft.

Stationary noise sources from light industrial and commercial activities also present some concerns, particularly where such operations are adjacent to residential neighborhoods. Noise impacts generated by construction activities, as well as commercial businesses can periodically generate high levels of noise in the community.

*Existing Roadway Noise*

The roads generating the greatest noise level in the area are I-5, I-15 and Imperial Avenue. Existing noise levels exceed 65 dBA CNEL (A-Weighted Sound Level Community Noise Equivalent Level) adjacent to these

roads.<sup>2</sup> The existing noise contours are depicted in Figure 3-2. The distances to various traffic CNEL noise contours for these major roads are depicted in Table 3-7. The noise contour distances represent the predicted noise level and do not reflect the mitigating effects of noise barriers, structures, topography, or dense vegetation. Because intervening structures, topography, and dense vegetation may significantly affect noise exposure at a particular location, the noise contours should not be considered site-specific, but rather are guides to determine when detailed acoustic analysis should be undertaken.

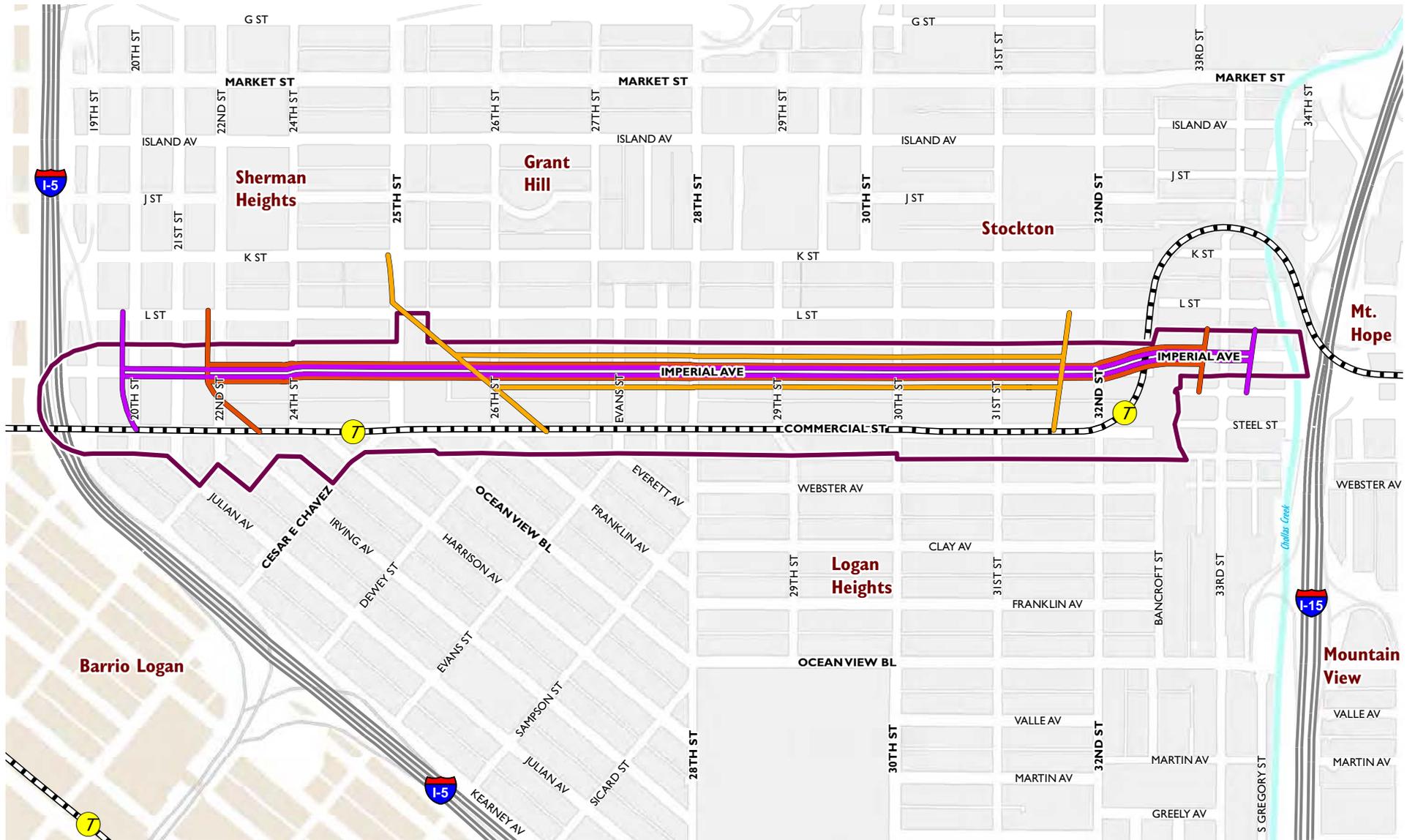
2 The existing noise contours were calculated using the Federal Highway Administration’s TNM 2.5 traffic noise model. TNM 2.5 noise model accepts as input the number and types of vehicles on the roadway, vehicle speeds, receiver locations and other input data.

TABLE 3-7: EXISTING VEHICLE NOISE CONTOUR DATA									
ROAD (SEGMENT)	AVERAGE DAILY TRIPS	VEHICLE MIX PERCENTAGE			SPEED MPH	CNEL AT 50 FEET	DISTANCE TO CNEL NOISE CONTOUR (IN FEET FROM CENTER LINE OF ROAD)		
		AUTO	MEDIUM TRUCKS	HEAVY TRUCKS			70	65	60
I-5	163,000	96%	1.4%	2.6%	65	85	480	1,040	2,250
I-15	105,000	94.9%	2.5%	2.6%	65	83	365	790	1,700
Imperial Ave.									
I-5 to 24th St.	6,580	90%	6%	4%	40	66	R/W	55	125
24th to 26th St.	5,200	94%	4%	2%	40	64	R/W	45	105
26th to 28th St.	5,260	92%	6%	2%	40	64	R/W	45	105
28th to 30th St.	5,030	94%	4%	2%	40	63	R/W	40	100
30th to 32nd St.	4,150	95%	3%	2%	40	63	R/W	40	100
32nd St. to I-15	6,600	90%	6%	4%	40	66	R/W	55	125

Notes: Noise contour distances do not include the shielding effects of buildings, walls, berms, etc. R/W = Within right-of-way

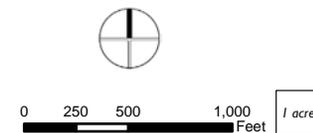
Source: Caltrans 2011, SANDAG 2011, Fehr & Peers 2011.

FIGURE 3-2: Existing Noise Contours



Existing Noise Contours

- 7 Trolley Stop
- 60
- Light Rail
- 65
- Planning Area
- 70



Data Source  
 Dudek, 2011; SANDAG/City  
 of San Diego, California, 2011;

### Existing Railway Noise

Within the Planning Area the SDMTS provides trolley service along a railway alignment designated the “Orange Line”. The Orange Line trolley generally parallels Commercial Street. At the at-grade crossings there are trolley warning signals operating while the trolley is in the vicinity of the crossing.

Railway noise consists of noise from the trolleys and emergency signaling devices. Trolley vehicles are equipped with horns for use in emergency situations and as a general audible warning to track workers and trespassers within the right-of-way as well as to pedestrians and motor vehicles at road grade crossings. Horns on the moving trolley vehicle, combined with stationary bells at grade crossings can generate excessive noise levels that can affect noise sensitive land uses.<sup>3</sup>

The majority of the trolley trains run between the hours of 5:00 a.m. and 10:00 p.m. The Orange Line trolley operations consist of 146 scheduled trains each weekday with fewer trolleys on weekends (SDMTS 2010). Of this total, 96 trains occur during the daytime hours (i.e., 7 a.m.–7 p.m.) 17 occurring during the evening hours (i.e., 7 p.m.–10 p.m.) and 33 occur during the nighttime hours (i.e., 10 p.m.–7 a.m.).

The modeled trolley noise levels indicate that the existing noise level at the site ranges up to approximately 61 dBA CNEL at 50 feet associated with the trolley (with-

out the use of a trolley horn and 63 dBA CNEL at 50 feet with the use of trolley horns). The distances to various trolley CNEL noise contours are depicted in Table 3-8 and the noise contours shown in Figure 3-2.

### Existing Stationary Noise

Stationary noise sources from commercial and industrial activities are highly localized. Light industrial and commercial impacts are generally related to noise generated by loading dock operations, trucks entering and leaving the area, mechanical equipment located outside buildings, and use of equipment inside particularly when the activity is conducted with garage doors open. Light industrial and commercial uses near residential uses can cause noise impacts. Typically, these excessive industrial and commercial noises can be minimized through separation or shielding of noise sensitive uses, application of noise attenuation techniques, and the enforcement of the City’s Noise Ordinance.

These noise sources can be continuous and may contain tonal components or impact noise that may be annoying to people would live in the nearby vicinity. In addition, noise levels may vary during the day based on the specific activity being performed, mechanical equipment work load, atmospheric conditions as well as other factors. Noise levels can vary greatly because there can be periods of intense activity levels followed by periods without or moderate levels of activity. It should be noted that determining the typical hourly average noise levels or CNEL noise levels for stationary noise sources is difficult as there are significant variations in the size and operation of equipment used, the activities may not occur continuously during any given hour and



*Generally noise levels are fairly low and safe throughout the planning area, though sites located adjacent to recycling yards, industrial uses, and major roadways may experience intermittent or constant noise impacts.*

<sup>3</sup> The noise levels associated with the Orange Line Trolley were calculated based on noise the Federal Highway Transit Administration’s train noise model (FTA 2006). This train noise model calculates train noise based a various factors including train speeds, use of transit whistles, warning horns, etc.

**TABLE 3-8: RAILROAD NOISE CONTOUR DATA**

RAILWAY	TRAIN AND TROLLEY DAILY PASSBYS			DISTANCE TO CNEL NOISE CONTOUR (IN FEET FROM NEAREST TRACK)		
	DAY	EVENING	NIGHT	70	65	60
<b>NO GRADE CROSSINGS (WITHOUT HORNS/WHISTLES SCENARIO)</b>						
Orange Line Trolley	96	17	33	R/W	R/W	55
<b>At-Grade Crossing (With Horn Scenario)</b>						
Orange Line Trolley	96	17	33	R/W	R/W	75

Note: R/W = Within right-of-way, typically 50 feet or less

the various operations may not occur simultaneously. Also, the background traffic noise generally exceeds the stationary noise at areas in relative close proximity to the primary roads.

Typical community activities generate noise. Outdoor activities such as stereos, animal noise, emergency signaling devices (e.g., car and fire alarms, home security devices), and landscape and garden maintenance equipment all generate noise. These activities are not considered significant noise sources; while they can be objectionable, they are normally classified as nuisance noise. The City adopted the Noise Ordinance to regulate excessive community noise.

### 3.3 Hazardous Materials

This section identifies sites with potential hazardous material impacts that may affect residential dwellings and other sensitive receptors. An Environmental Data Resources (EDR) study for the Planning Area identified 264 sites, 12 of which are unique sites identified as having open release cases, as shown in Figure 3-3 and listed in Appendix C. The EDR study identified 313 other sites within the American Society for Testing and Materials (ASTM) Standard search distance from the Planning Area.

Individual sites were evaluated by determining if the site is located within or outside of the Planning Area, if the site was listed in a database that would indicate the potential for a known release, and if the release case was closed by the regulatory agency or is currently open. If insufficient details were provided in the EDR report concerning the status of a release case, Dudek performed a more extensive search using online California State databases (Regional Water Quality Control Board's Geotracker website and Department of Toxic Substances Control's Envirostor website). If no details

on the status of the release case were available after this research, the case status of the site was listed as unknown. Sites listed pursuant to Government Code Section 65962.5 (listed in the following databases: LUST, Cortese, Cal-Sites, SWF/LF, and Envirostor) are also identified in the table.

Figure 3-3 presents the identified sites and current land use in and around the Planning Area. All of these sites are documented in Appendix C. Several release sites, including open release cases that are still undergoing investigation and possibly remediation, are located adjacent to residential areas. These sites and sites that will be in residential areas under future land use conditions should be evaluated further. Even closed release cases should be revisited since many case closures are based on continued commercial/industrial land use. Many case closures require reevaluation of the site prior to a change in land use to residential.

Although this evaluation identifies sites with known contaminant releases, this evaluation does not consider potential impacts of chemical use, especially air emissions, from existing industrial uses on near-by residential or commercial properties. Instead, this evaluation identifies sites which have known releases to soil or groundwater, highlighting issues that should be considered when evaluating a site for redevelopment. Because the scope of the investigation was limited, it is possible that currently unrecognized conditions or contamination might exist within the Planning area. Dudek recommends that a Phase I Environmental Site Assessment, conducted in accordance with ASTM Standard E 1527-05, be prepared prior to acquiring or redeveloping a property. Additionally, Dudek recommends coordina-

tion with the County Department of Environmental Health (DEH) prior to development or redevelopment of listed release sites. It may be appropriate to evaluate chemical use sites under the County's voluntary assistance program (VAP) and it may be required to evaluate closed release cases under the County VAP, depending on the proposed land use.



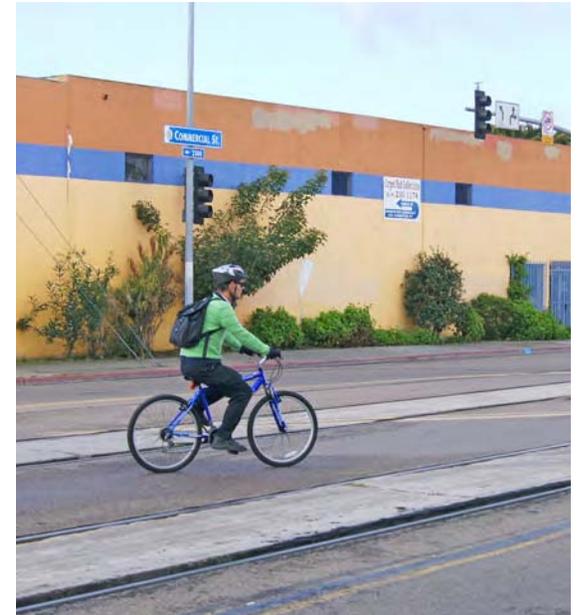
*Potential hazardous materials sites will need to be evaluated before any change in land use, particularly if residential uses are planned.*

FIGURE 3-3: Potential Hazardous Release Sites



Dudek, June 2011.  
Source: SANDAG/City, March 2011.

# 4 MOBILITY



This chapter presents the physical and operational conditions of the existing circulation network in the Commercial/Imperial Corridor Planning Area, including an evaluation of streets, non-motorized (bicycle and pedestrian) facilities, public transit, and parking.





*Imperial Avenue and Commercial Street are the two east-west roadways in the planning area, carrying vehicle, truck, and trolley traffic.*

## 4.1 Streets

Imperial Avenue and Commercial Street are parallel east-west facilities traversing the neighborhoods of Sherman Heights, Logan Heights, Grant Hill, and Stockton in the Southeastern Community of the City of San Diego. The Southeastern Community is located directly to the east of Downtown, bounded by State Route 94 to the north, City of National City to the south, Interstate 5 to the west, and Interstate 805 to the east. For the purposes of this Master Plan, the Planning Area is identified as the Imperial Avenue and Commercial Street corridors between 17<sup>th</sup> and 32<sup>nd</sup> streets, roughly from Interstate 5 to Interstate 15.

### Geometrics and Traffic Volumes

This section describes the key roadways comprising the vehicular circulation system in the Planning Area, in terms of east-west roadways and north-south roadways.

#### East-West Roadways

Imperial Avenue and Commercial Street are generally separated by one block, though some sections between the two roadways have alleys facilitating east-west vehicular access and providing access to homes and businesses fronting Imperial Avenue and Commercial Street.

- **Imperial Avenue** is a 3-lane (two westbound and one eastbound) roadway between 17<sup>th</sup> and 20<sup>th</sup> streets, and a 2-lane with a two-way left-turn lane roadway between 20<sup>th</sup> Street and 32<sup>nd</sup> Street. There are no bike lanes, but parallel parking is available on both sides of the roadway. The Right-of-Way width is 80 feet and the curb to curb width ranges from 50 to 62 feet. The posted speed limit along

this facility is 30 mph. Within the Planning Area, Imperial Avenue provides direct access to adjacent land uses, freeway access to Interstate 5, and local connectivity for inter-community trips. This facility is classified as a Major Street in the currently adopted Southeastern Community Plan.

- **Commercial Street** is a 2-lane roadway with the Orange Line Trolley (light-rail) located in the median. There are no bike lanes, but parallel parking is available on both sides of the roadway. The Right-of-Way width varies between 80 and 92 feet and the curb to curb width ranges from 60 to 75 feet. The posted speed limit along this facility is 25 mph. Within the Planning Area, Commercial Street provides direct access to adjacent land uses, freeway access to Interstate 5, and local connectivity for inter-community trips. This facility is not classified as a Circulation Element roadway in the currently adopted Southeastern Community Plan.

The center-running trolley has a 27 foot right-of-way. For safety purposes, vehicles traveling along Commercial Street are prohibited from making left-turns across the trolley track at all unsignalized intersections. Traffic signals along Commercial Street are equipped with transit pre-emption/priority treatment for trolley operations. The transit signal priority allows an advanced trolley phase (23 seconds) providing adequate time for trolleys to safely clear the intersection prior to vehicular traffic entering.

#### North-South Roadways

- **17<sup>th</sup> Street** is a one-way (southbound) 2-lane roadway providing direct access to Interstate 5 within

the Planning Area. There are no bike lanes, and parallel parking is available on both sides of the roadway. The Right-of-Way width is 80 feet and the curb to curb width is currently 50 feet. 17<sup>th</sup> Street is not classified as a Circulation Element roadway in the currently adopted Southeastern Community Plan.

- **19<sup>th</sup> Street** is a one-way (northbound) 3-lane roadway providing direct access to Interstate 5 within the Planning Area. There are no bike lanes, and parallel parking is available on both sides of the roadway. The Right-of-Way width is 80 feet and the curb to curb width is currently 50 feet. The posted speed limit along this facility is 25 mph. 19<sup>th</sup> Street is not classified as a Circulation Element roadway in the currently adopted Southeastern Community Plan.
- **25<sup>th</sup> Street** is a 4-lane roadway with a posted speed limit of 30 mph within the Planning Area. There are no bike lanes, and a mix of angled and parallel parking is available on the west side of the street. The Right-of-Way width is 100 feet and the curb to curb width varies between 60 and 67 feet. 25<sup>th</sup> Street is classified as a Collector Street in the currently adopted Southeastern Community Plan.
- **28<sup>th</sup> Street** is a 2-lane roadway with a posted speed limit of 25 mph within the Planning Area. There are no bike lanes, and parallel parking is available on both sides of the street. The Right-of-Way width is 60 feet and the curb to curb width is currently 40 feet. 28<sup>th</sup> Street is classified as a Collector Street in the currently adopted Southeastern Community Plan.

- **30<sup>th</sup> Street** is a 2-lane roadway with a posted speed limit of 25 mph within the Planning Area. There are no bike lanes, and parallel parking is available on both sides of the street. The Right-of-Way width is 60 feet and the curb to curb width is currently 40 feet. 30<sup>th</sup> Street is classified as a Collector Street in the currently adopted Southeastern Community Plan.
- **32<sup>nd</sup> Street** is a 2-lane roadway with a posted speed limit of 25 mph within the Planning Area. There are no bike lanes, and parallel parking is available on both sides of the street. The Right-of-Way width is 60 feet and the curb to curb width is currently 40 feet. 32<sup>nd</sup> Street is classified as a Collector Street in the currently adopted Southeastern Community Plan.

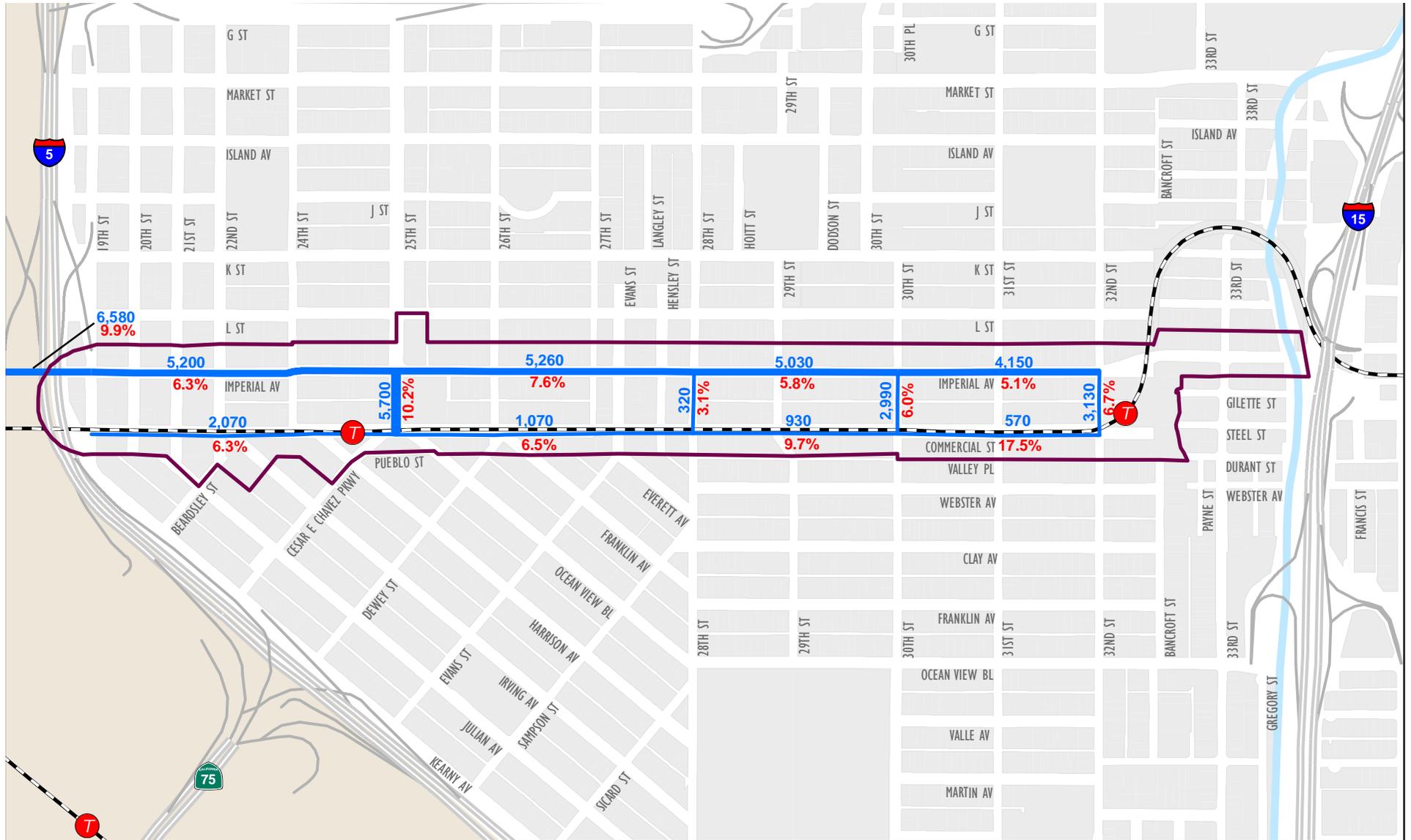
Figure 4-1 displays both the existing Planning Area roadway geometrics and daily traffic volumes, including percent of truck traffic. Roadway segment counts were conducted in May 2011 and are provided in Appendix D1.

As shown in the figure, daily traffic volumes along Imperial Avenue range between 4,150 and 6,580 with heavy vehicle/truck percentages ranging between 5.1% and 9.9%. Daily traffic volumes along Commercial Street range between 570 and 2,070 with heavy vehicle percentages ranging from 6.3% at the western end of the corridor to 17.5% at the eastern end.

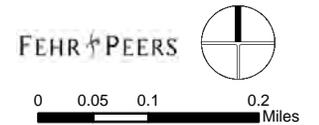


*Narrower streets and alleys intersect with Imperial Avenue and Commercial Street, creating a fine circulation network for vehicles and pedestrians.*

FIGURE 4-1: Existing Roadway Geometrics and Daily Traffic Volumes



- 2-Lane Roadway
- 3-Lane Roadway (includes Two-Way Left Turn Lane)
- 4-Lane Roadway
- X,XXX Daily Traffic Volumes
- XX.X% Percentage of Heavy Vehicles
- Study Area
- Trolley
- T Trolley Station



Source: Field Data Services (2011)

### Intersections

A total of twenty-four (24) key Planning Area intersections have been identified for analysis for this project, as shown below:

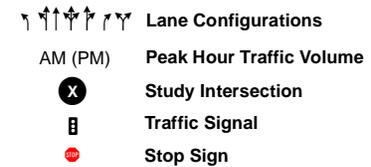
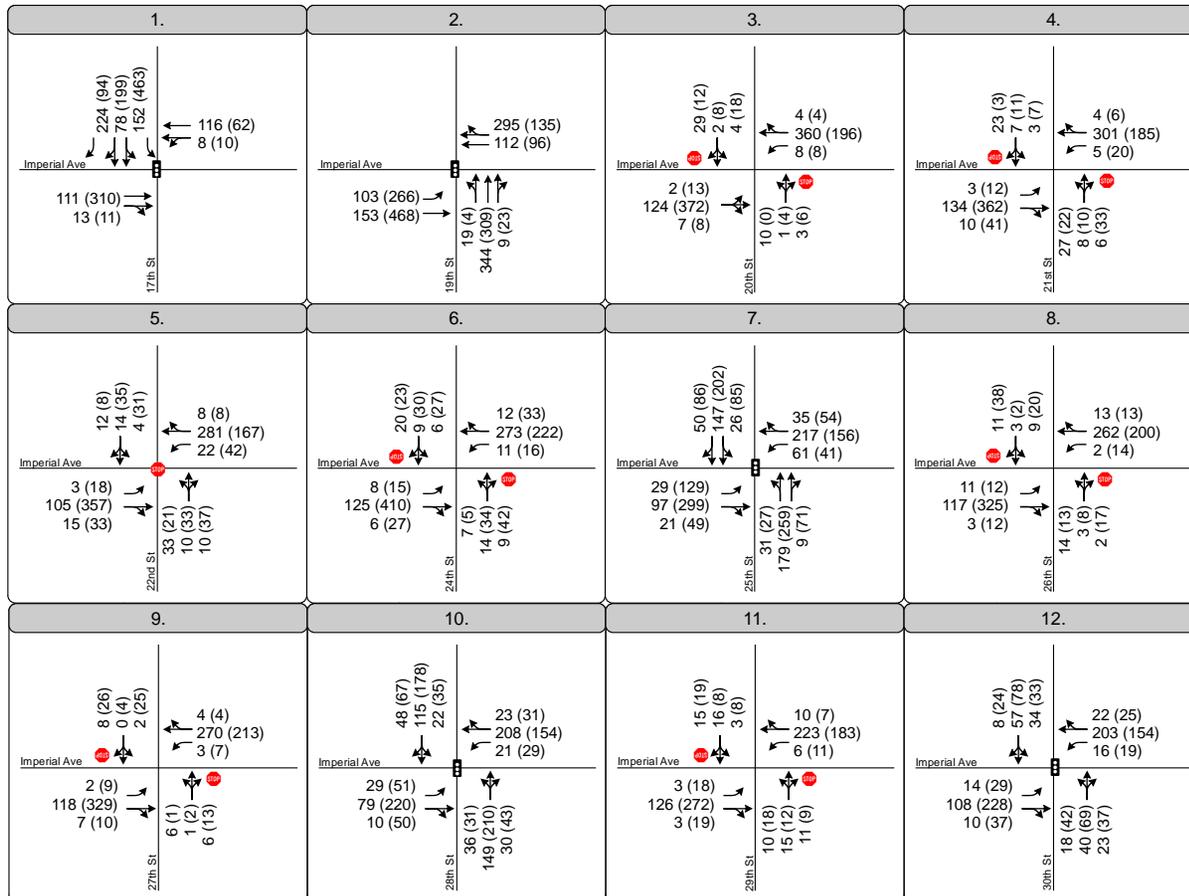
1. 17<sup>th</sup> Street / Imperial Avenue (signalized)
2. 19<sup>th</sup> Street / Imperial Avenue (signalized)
3. 20<sup>th</sup> Street / Imperial Avenue (two-way stop controlled)
4. 21<sup>st</sup> Street / Imperial Avenue (two-way stop controlled)
5. 22<sup>nd</sup> Street / Imperial Avenue (all-way stop controlled)
6. 24<sup>th</sup> Street / Imperial Avenue (two-way stop controlled)
7. 25<sup>th</sup> Street / Imperial Avenue (signalized)
8. 26<sup>th</sup> Street / Imperial Avenue (two-way stop controlled)
9. 27<sup>th</sup> Street / Imperial Avenue (two-way stop controlled)
10. 28<sup>th</sup> Street / Imperial Avenue (signalized)
11. 29<sup>th</sup> Street / Imperial Avenue (two-way stop controlled)
12. 30<sup>th</sup> Street / Imperial Avenue (signalized)
13. 31<sup>st</sup> Street / Imperial Avenue (all-way stop controlled)
14. 32<sup>nd</sup> Street / Imperial Avenue (signalized)
15. 19<sup>th</sup> Street / Commercial Street (signalized)
16. 22<sup>nd</sup> Street/Irving Avenue / Commercial Street (two-way stop controlled)
17. 24<sup>th</sup> Street / Commercial Street (one-way stop controlled)
18. Harrison Avenue / Commercial Street (one-way stop controlled)
19. 25<sup>th</sup> Street/Cesar Chavez Parkway/ Ocean View Blvd / Commercial Street (signalized)
20. 26<sup>th</sup> Street/Dewey Street/Franklin Ave / Commercial Street (two-way stop controlled)
21. Evans Street / Commercial Street (two-way stop controlled)
22. 28<sup>th</sup> Street / Commercial Street (signalized)
23. 30<sup>th</sup> Street / Commercial Street (signalized)
24. 32<sup>nd</sup> Street / Commercial Street (signalized)

Figure 4-2 displays both the existing Planning Area intersection geometrics and a.m./p.m. peak hour turning movements. Approximately half of the intersection counts were conducted in May 2011 and the other half are historical counts (2006/2007) obtained from Imperial Marketplace Traffic Impact Study prepared by KOA. The May 2011 roadway segment counts were compared to those collected in 2006/2007, and it was concluded that current traffic volumes along both the Imperial and Commercial Corridors were generally lower than the 2006/2007 counts. The peak hour intersection turning movement counts are provided in Appendix D2.

### Safety

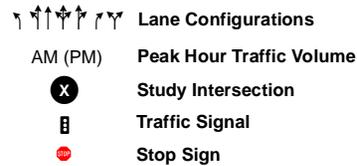
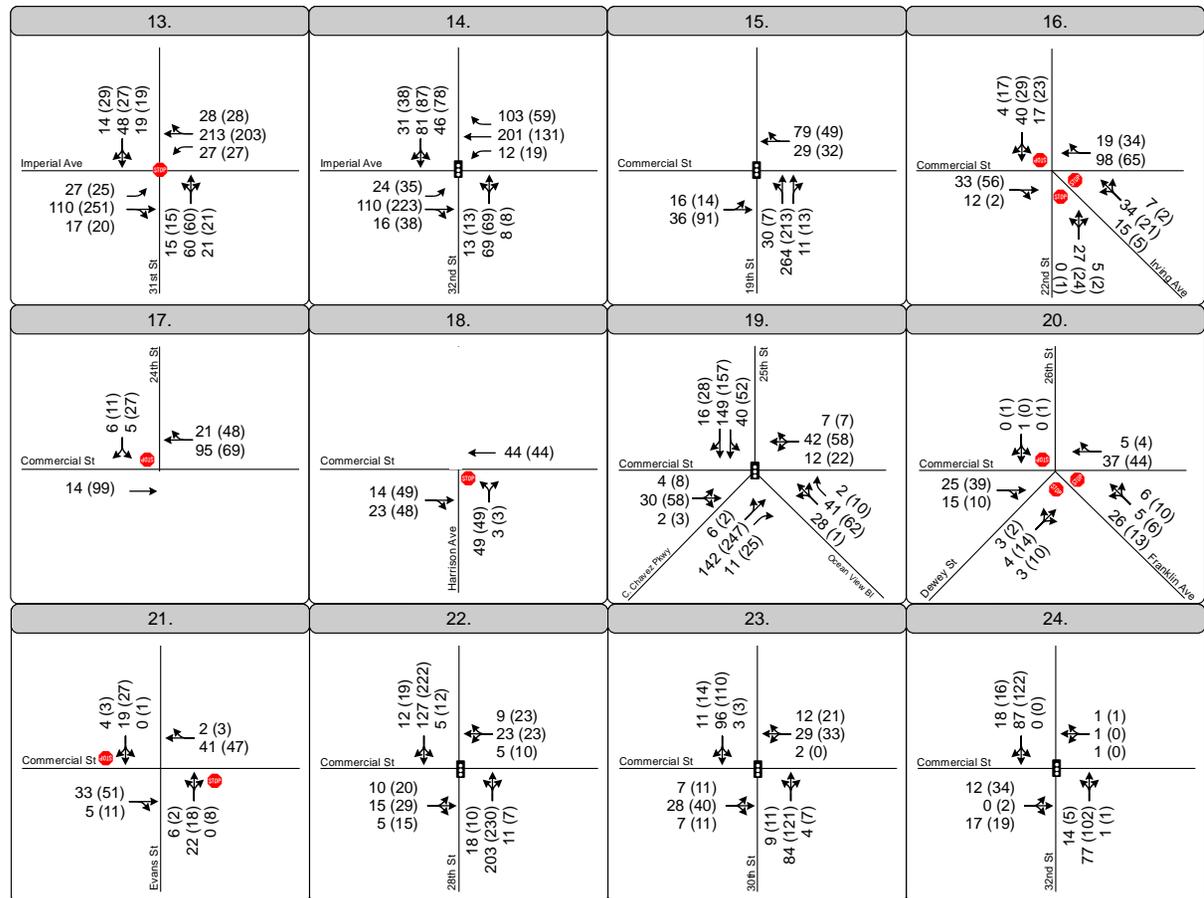
Automobile collision data was obtained from the City of San Diego for the Planning Area. The reports provide collision data over a period of five years (2005 – 2010), indicating a total of 160 vehicle-to-vehicle collisions.

4-6 : FIGURE 4-2: Existing Intersection Geometrics and Peak Hour Turning Movements (1 of 2)



Fehr & Peers.  
Source: Fehr and Peers, 2011.

FIGURE 4-2: Existing Intersection Geometrics and Peak Hour Turning Movements (2 of 2) 4-7





Ensuring the safety of community members is an essential part of any community planning effort, but especially in a location such as the Commercial/Imperial Corridor where there are a range of travel modes including high volumes of pedestrian activity.

TABLE 4-1: COLLISION DATA SUMMARY		
CHARACTERISTIC	NUMBER OF COLLISIONS	PERCENT
<i>Location</i>		
Intersection	79	48%
Mid-Block	86	52%
<i>Lighting</i>		
Day	95	58
Night	70	42
<i>Primary Cause</i>		
Unsafe Movement <sup>1</sup>	107	65%
Ran Red Light or Stop Sign	26	16%
Unsafe Speed	19	12%
Violated R-O-W	4	2%
Other <sup>2</sup>	9	5%

1. "Unsafe Movement" includes improper lane changes/starts/passing/turns, unsafe backing, and other general unsafe maneuvers.  
2. "Other" includes fell asleep, not paying attention, losing control, medical conditions, open vehicle door, unsecured load, etc.

Source: City of San Diego 2011.

Figure 4-3 shows the distribution of automobile collisions and Table 4-1 provides a general summary of all vehicle-to-vehicle collisions, including location (intersection vs. mid-block), lighting (daylight vs. night), and primary cause.

As shown in Figure 4-3, of the 165 recorded vehicle-to-vehicle collisions, 51 resulted in injuries, 114 resulted in no injuries, and none resulted in a fatality. Approximately 48 percent of the collisions occurred at intersections, while the other 52 percent occurred at mid-block. Approximately 58 percent occurred during daylight while the other 42 percent occurred at night (dark/dusk/dawn). The leading cause of the collisions was unsafe movements at approximately 65 percent, including improper lane changes/starts/ passing/turns, unsafe backing, and other general unsafe maneuvers. The sec-

ond leading cause was running a red light or stop sign at 16 percent, followed by unsafe speeds at 12 percent.

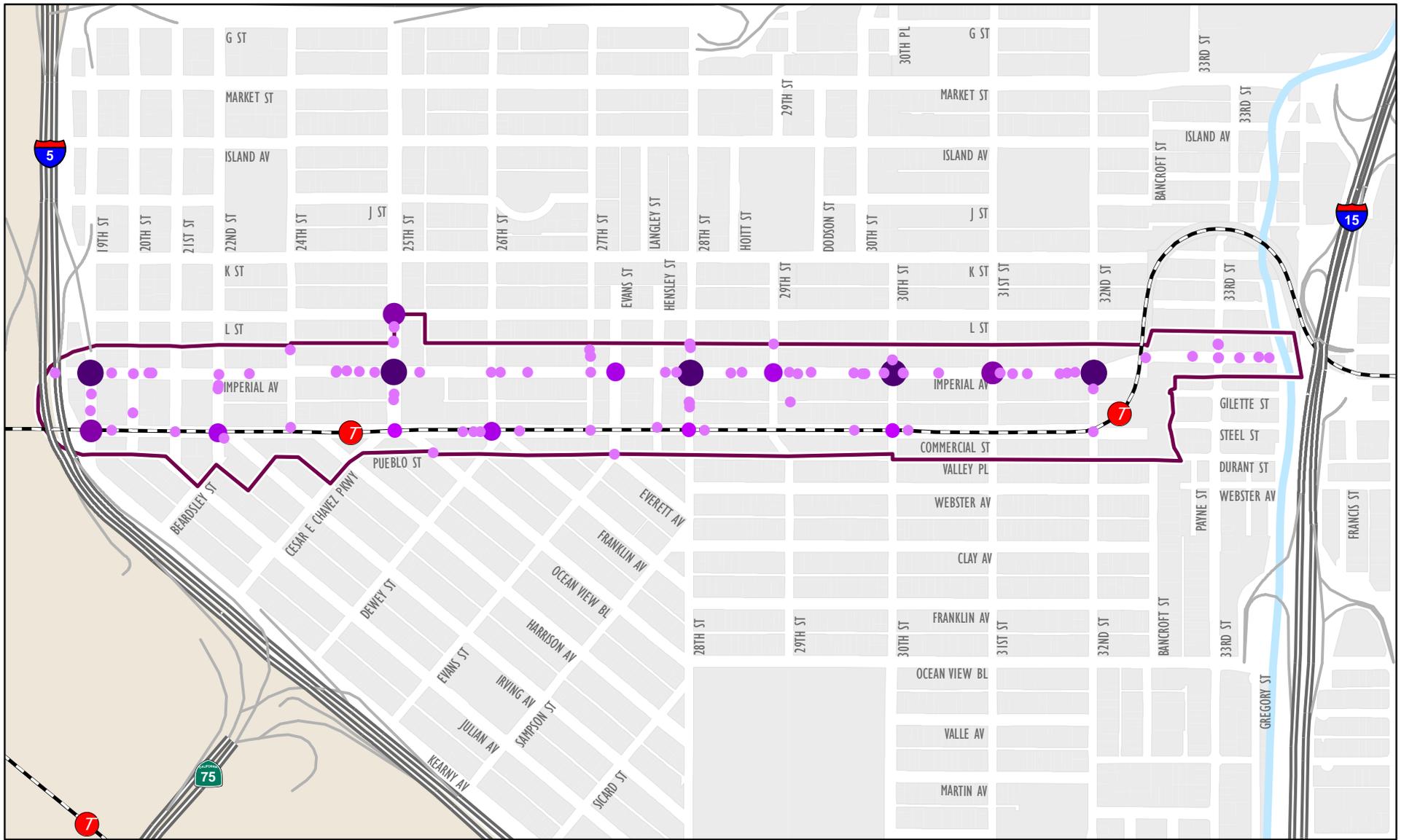
## 4.2 Public Transit System

Public transit for the Planning Area is provided by the San Diego Metropolitan Transit System (MTS) and consists of light rail transit (or Trolley) and public bus. Figure 4-4 displays the transit routes and stops serving the Planning Area.

### Trolley System

The San Diego Trolley Orange Line operates between Gillespie Field in El Cajon and the 12<sup>th</sup> & Imperial Transit Center in Downtown San Diego (East Village).

FIGURE 4-3: Automobile Collisions



**Number of Automobile Collisions**

	7 - 9		2
	4 - 6		1
	3		

Study Area

Trolley

Trolley Station

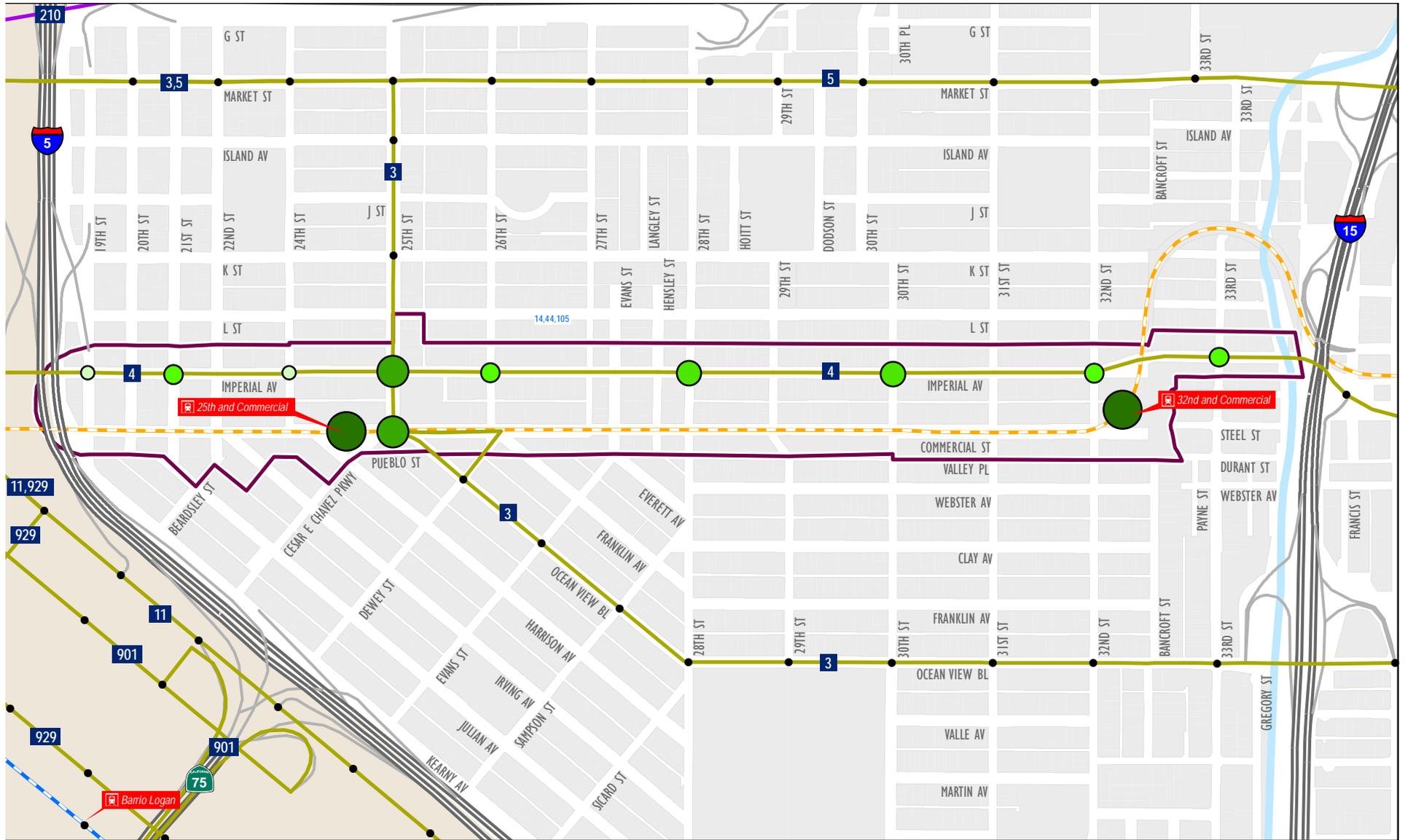
Total Number of Crashes: 160

**FEHR & PEERS**

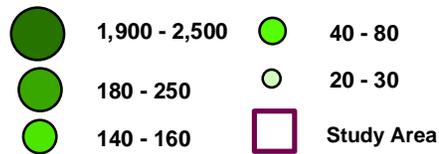
0 0.05 0.1 0.2 Miles

Source: City of San Diego (2010)

FIGURE 4-4: Existing Public Transit Facilities

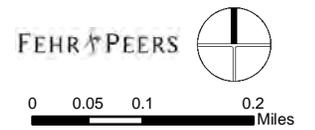


Daily Combined Boardings and Alightings at Transit Stops



- Orange Line Trolley
- Blue Line Trolley
- Express Bus
- Local Bus Route
- Bus Route Number

- Trolley Station
- Transit Stops outside of Study Area



Source: San Diego Metropolitan Transit System (2010)

Within the Planning Area boundaries, the Orange Line operates in the middle of Commercial Street, with two stops located at 25<sup>th</sup> Street and 32<sup>nd</sup> Street. Currently, the Orange Line operates with 15-minute headways before 9 p.m. during weekdays, and with 30-minute headways after 9 p.m. during weekdays and on weekends.

The 25<sup>th</sup> Street Station encompasses approximately one city block on Commercial Street, between Harrison and Franklin avenues. Shelters (crowned with security cameras) and decorative benches are also provided at this station. The station is designed to reflect the surrounding neighborhood, with plentiful imagery related to the local culture.

The 32<sup>nd</sup> Street Station is located east of 32<sup>nd</sup> Street at the terminus (to vehicular traffic) of Commercial Street. While pedestrians and transit users do not have to worry about through traffic on Commercial Street, there is a distinguishable lack in amenities (shelters, benches, etc.) at this station when compared to the 25<sup>th</sup> Street Station.

### **Bus System**

MTS Route 3 and Route 4 provide bus service in the Master Plan Planning area. Each route is described in detail in the following.

#### **Route 3**

Route 3 runs between Hillcrest and Lincoln Park through Downtown San Diego with headways of approximately 15 minutes before 7:30 p.m. and 30 minutes thereafter on weekdays. On Saturdays, Route 3 operates with 30-minute headways before 8:00 p.m. and 60-minute headways thereafter. Sunday services are provided with 60-minute headways.

Two bus stops in each direction are located in the Planning Area and the list below provides the location of the bus stop (intersection and far-side or near-side) and any amenities such as a bench, shade, or trash receptacle:

#### *Northbound*

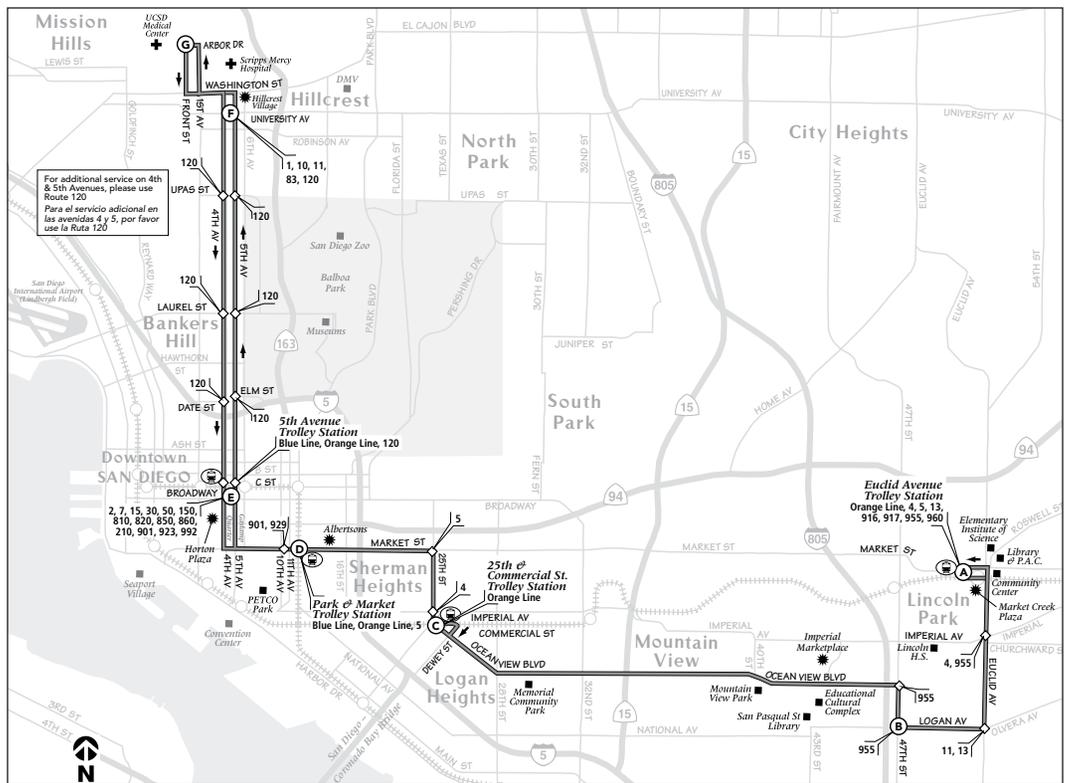
- Ocean View Boulevard & Commercial Street - Near-side bus stop (located on northbound Ocean View Boulevard) with signage only
- 25<sup>th</sup> Street & Imperial Avenue - Near-side bus stop westbound with signage, bench, and trash receptacle

#### *Southbound*

- 25<sup>th</sup> Street & Imperial Avenue - Near-side bus stop with signage, bench, and trash receptacle
- Ocean View Boulevard & Commercial Street - Far-side bus stop (located on eastbound Commercial Street) with signage, bench, and trash receptacle

#### **Route 4**

Imperial Avenue is served by MTS Route 4, which runs between Lomita Village and East Village. The route provides weekday service with headways of approximately 30



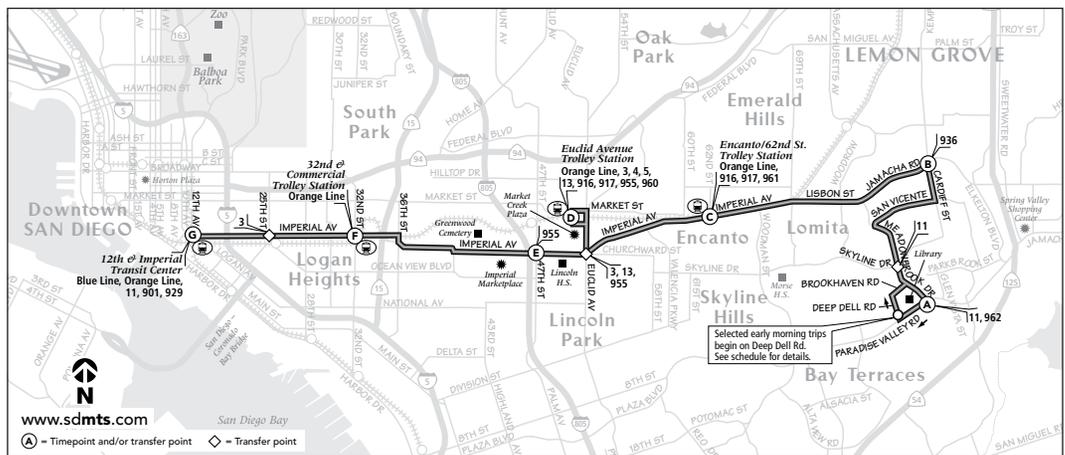
Route and stops for Route 3.

minutes before 9:00 p.m. and 60 minutes thereafter. On Saturdays, Route 4 operates with 30-minute headways before 7:30 p.m. and 60-minute headways thereafter. Sunday services are provided with 60-minute headways except for the period between 2:30 and 5:30 in the afternoon, which is served with 30-minute headways.

Numerous stops are provided along Imperial Avenue within the Planning Area and the list below provides the location of the bus stop (intersection and far-side or near-side) and any amenities such as a bench, shade, or trash receptacle:

*Eastbound*

- 19<sup>th</sup> Street & Imperial Avenue - Far-side bus stop with signage only
- 22<sup>nd</sup> Street & Imperial Avenue - Near-side bus stop with signage and trash receptacle
- 24<sup>th</sup> Street & Imperial Avenue - Near-side bus stop with signage and trash receptacle
- 25<sup>th</sup> Street & Imperial Avenue - Far-side stop with signage, trash receptacle, and bench
- 26<sup>th</sup> Street & Imperial Avenue - Near-side with signage, bench, and trash receptacle
- Hensley Street & Imperial Avenue - Near-side bus stop with signage and trash receptacle
- 30<sup>th</sup> Street & Imperial Avenue - Near-side bus stop with signage and trash receptacle
- 32<sup>nd</sup> Street & Imperial Avenue – Near-side stop with signage, bench, and trash receptacle
- 33rd Street & Imperial Avenue – Near-side bus stop with signage only



Route and stops for Route 4.

*Westbound*

- 33rd Street & Imperial Avenue – Near-side bus stop with signage only
- 32nd Street & Imperial Avenue – Far-side stop with signage and trash receptacle
- 30th Street & Imperial Avenue - Near-side bus stop with signage only
- 28th Street & Imperial Avenue – Near-side bus stop with signage, bench, and trash receptacle
- 26th Street & Imperial Avenue - Near-side bus stop with signage, bench, and trash receptacle
- 25th Street & Imperial Avenue - Near-side stop with signage, trash receptacle, and bench
- 24th Street & Imperial Avenue - Near-side bus stop with signage and trash receptacle
- 21st Street & Imperial Avenue - Near-side bus with signage, bench, and trash receptacle
- 19th Street & Imperial Avenue - Near-side bus stop with signage only



*The corridor enjoys great transit access, particularly in the east-west direction. Public transit running north-south through the planning area is limited.*

TABLE 4-2: EXISTING TRANSIT DAILY BOARDINGS AND ALIGHTINGS SUMMARY			
TRANSIT STOP	BOARDING	ALIGHTING	TOTAL
Orange Line			
25th Street & Commercial Street	1,264	1,231	2,495
32nd Street & Commercial Street	944	977	1,921
Route 3			
25th Street & Imperial Avenue	113	73	186
Ocean View Boulevard & Commercial Street	94	152	246
Route 4			
19th Street & Imperial Avenue	8	13	21
21st/22nd Street & Imperial Avenue	13	35	48
24th Street & Imperial Avenue	10	17	27
25th Street & Imperial Avenue	38	35	73
26th Street & Imperial Avenue	29	28	57
Hensley/28th Street & Imperial Avenue	72	80	152
30th Street & Imperial Avenue	58	85	143
32nd Street & Imperial Avenue	29	31	60
33rd Street & Imperial Avenue	24	28	52
<b>TOTAL</b>	<b>2,696</b>	<b>2,785</b>	<b>5,481</b>

Source: SANDAG 2010.



Imperial Avenue and streets around the trolley stops tend to have higher pedestrian volumes and better facilities.

### Boardings and Alightings

Year 2010 transit (both Trolley and public bus) passenger load information was obtained from SANDAG and included in Appendix D3. Table 4-2 summarizes the daily boardings/alightings at all transit stops within the Planning Area.

As shown in the table, there were 2,696 boardings and 2,785 alightings, for a total of 5,481 boardings/alightings at all transit stops in the Planning Area. The Trolley Orange Line consists of approximately 80 percent (at 4,416) of the total boardings/alightings. The two bus stops located in the vicinity of Ocean View Boulevard / Commercial Street intersection have the highest bus loading activity at 246 daily.

### 4.3 Bicycle Facilities

Bicycling is considered an environmentally friendly mode of transportation that enhances both personal and social well-being. Bicycling is recognized as an integral component of the Southeastern Community's transportation system, currently and in the future. It is an important travel mode and a key component of a seamless multi-modal transportation system. In addition to transportation, this mode of travel provides many public access, health and economic benefits.

Safe, convenient, attractive, and well-designed bicycle facilities are essential if this mode is to be properly accommodated and encouraged. Well-designed bicycle facilities are safe, attractive, convenient, and easy to use. Inadequate facilities discourage users and unnecessary facilities waste money and resources.

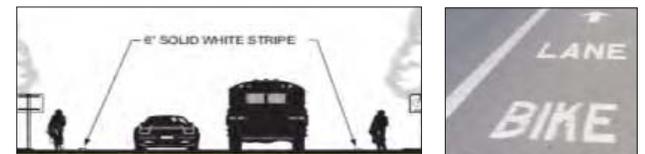
### Standard Typology

Bicycle facilities are classified based on a standard typology, which is described as follows:

- Class I Bikeway (Bike Path) provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized.



- Class II Bikeway (Bike Lane) provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally five feet wide. Vehicle parking and vehicle/pedestrian cross-flow are permitted.



- Class III Bikeway (Bike Route) provides for a right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles.



### **Bicycle Facilities and Volumes**

Based upon the City of San Diego's Draft Bicycle Master Plan, there are no existing bicycle facilities on Imperial Avenue or Commercial Street. 28<sup>th</sup> Street, north of Ocean View Boulevard, and L Street, between 22<sup>nd</sup> and 32<sup>nd</sup> streets, are designated as Class III Bicycle Routes. These represent the nearest existing designated bicycle facilities in and near the Planning Area. Figure 4-5 displays the locations of various existing bicycle facilities.

Although Imperial Avenue is not designated as a bicycle facility, bicycles are allowed to travel on the street. With relatively low traffic volumes (less than 7,000 ADT), one travel lane in each direction, and a 30 mile per hour posted speed limit, Imperial Avenue serves bicycle travel and provides a relatively comfortable environment for bicycling.

Bicyclist usage on Commercial Street is more difficult due to a variety of factors. The lack of a well-defined pedestrian right-of-way east of 30<sup>th</sup> Street leads to all users of the road commingling, which detracts from the perceived level of safety for cyclist. Also, the presence of the at-grade Trolley tracks within the cross-section of Commercial Street gives the bicyclist another obstacle to overcome. In addition to the Trolley tracks that run the length of the Planning Area, there are also older rail tracks that appear east of 29<sup>th</sup> Street in both travel lanes and in the westbound travel lane, west of 24<sup>th</sup> Street leading to the back of The San Diego Farmers' Market.

Despite being parallel and in such close proximity, Imperial Avenue and Commercial Street differ significantly in terms of the experience, comfort, quality, and provision of bicycle facilities. Relative to Commercial Street,

the physical and operating characteristics along Imperial Avenue such as traffic controls, number of lanes, lane widths, striping, and pavement conditions enhance the comfort and experience of bicyclists on the roadway.

Existing bicycle data was collected at all of the Planning Area intersections during the a.m./p.m. peak periods, and are displayed in Figure 4-6. The counts sheets are included in Appendix D4.

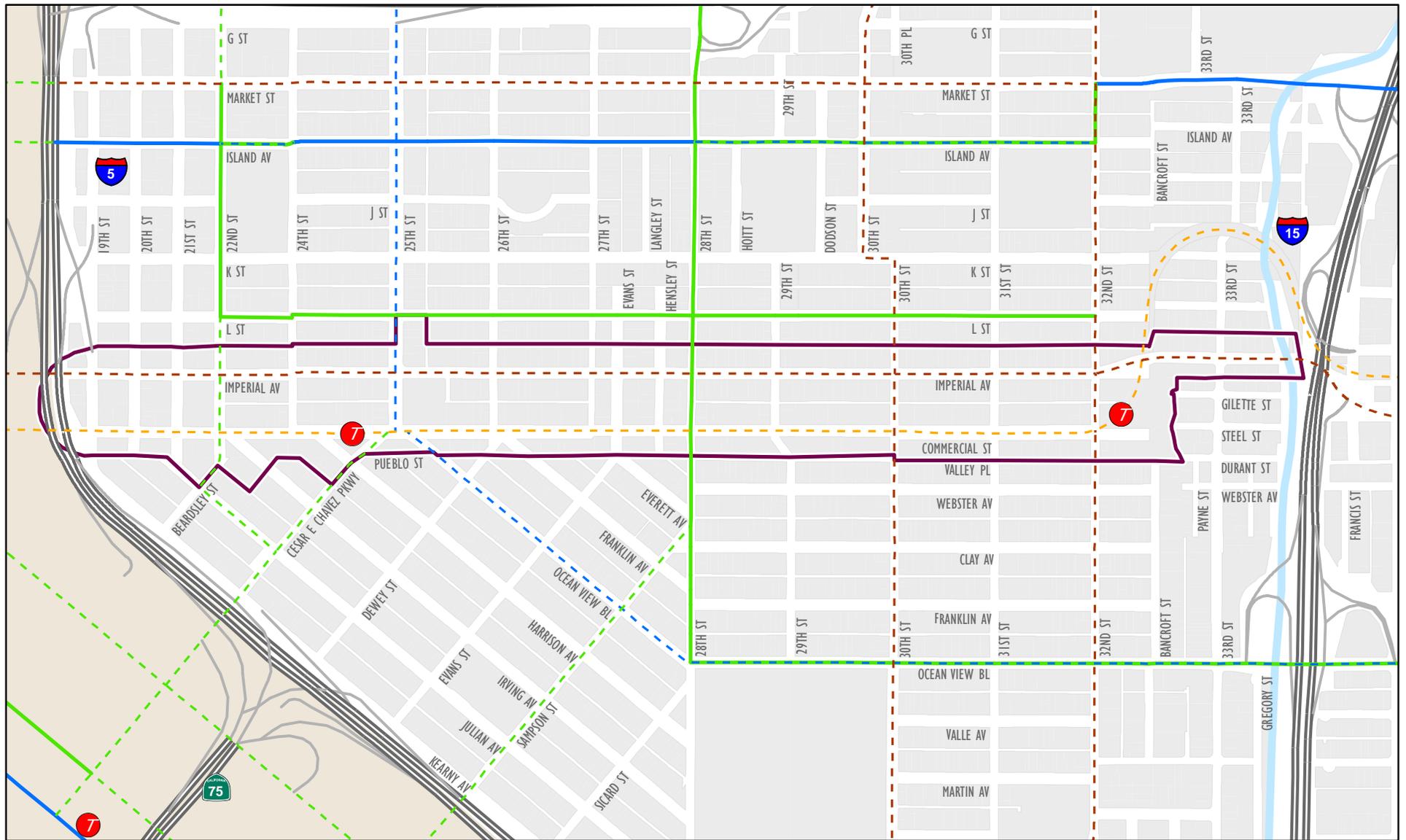
### **Safety**

Bicycle related collision data was obtained from the City of San Diego for the Planning Area. The reports provide collision data over a period of five years (2005 – 2010), which indicates a total of 11 collisions. Figure 4-7 shows the distribution of the bicycle related collisions. Of the 11 recorded collisions, nine resulted in injuries, two resulted in no injuries, and there were no fatalities. Approximately 45 percent of the collisions occurred at intersections while the other 55 percent occurred at mid-block. Approximately 73 percent occurred during daylight, while the other 27 percent occurred at night (dark/dusk/dawn).

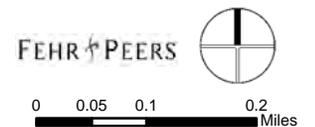
## **4.4 Pedestrian Facilities**

Walking is another environmentally friendly mode of transportation that enhances both personal and social well being. In addition to transportation, this mode of travel provides many public access, health and economic benefits. Safe, convenient, attractive, and well-designed pedestrian facilities are essential if this mode is to be properly accommodated and encouraged. Pedestrian circulation is particularly important in the Southeastern

FIGURE 4-5: Existing Bicycle Facilities

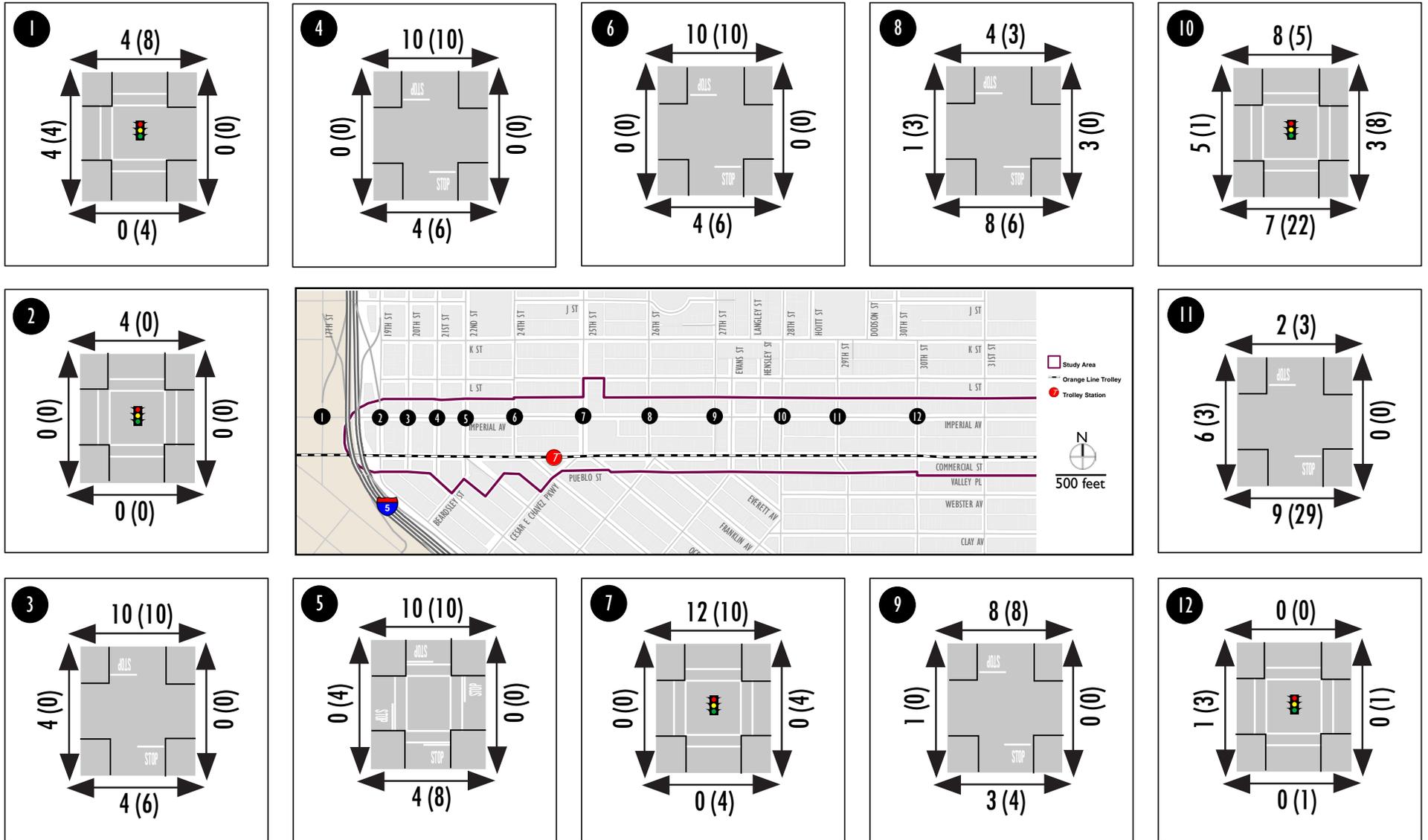


- |  |   |   |
|--|---|---|
| <b>Existing Bicycle Facilities</b>   | <b>Proposed Bicycle Facilities</b>  |  Study Area      |
|  Class II - Bicycle Lane   |  Class I - Bicycle Path    |  Trolley Station |
|  Class III - Bicycle Route |  Class II - Bicycle Lane   |   |
|  |  Class III - Bicycle Route |   |
|  |  Class II or Class III     |   |



Source: SANDAG (2011); City of San Diego (2011)

FIGURE 4-6: Existing Bicycle Peak Hour Volumes (1 of 2)



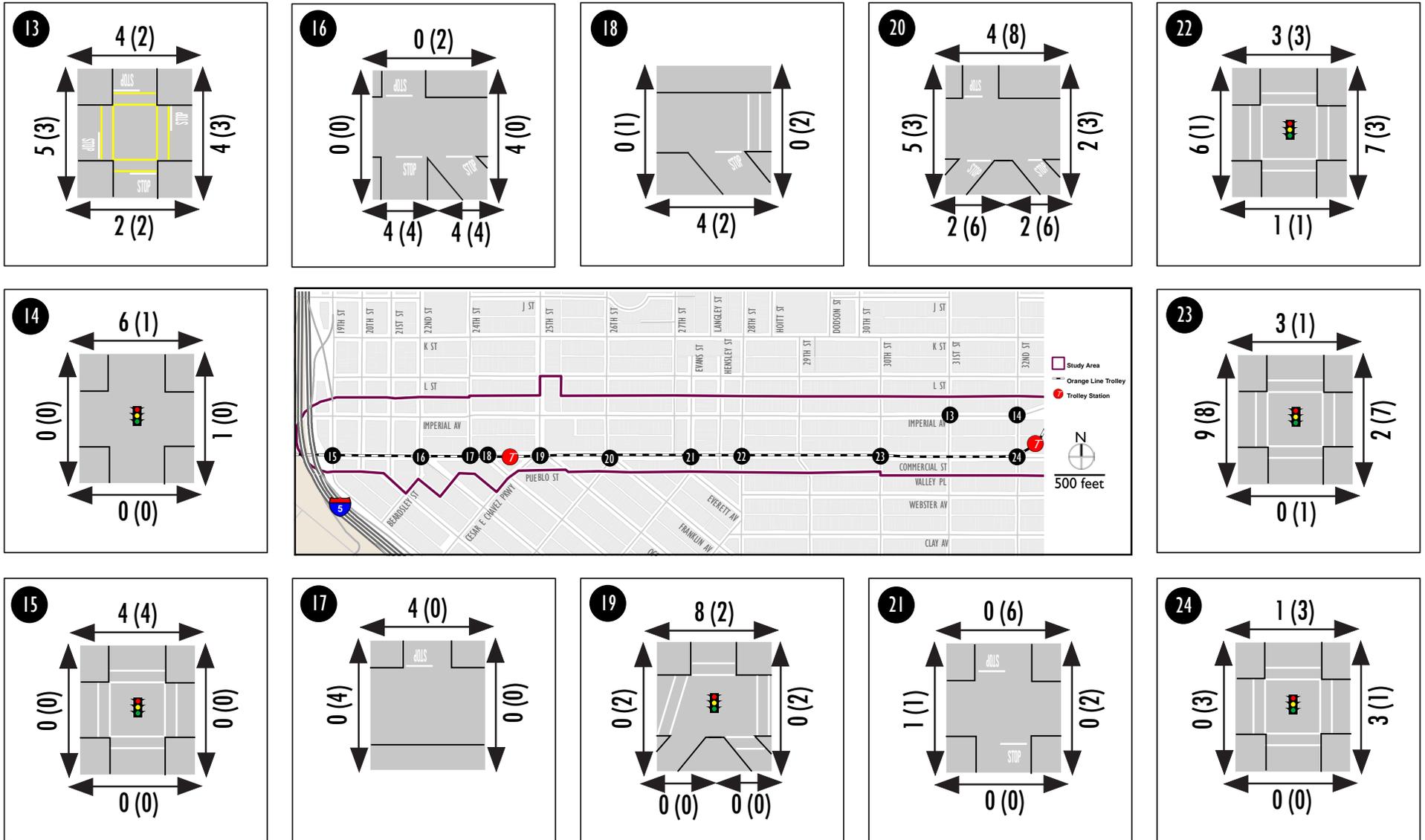
XX (XX) AM (PM) Count Totals



Crosswalk

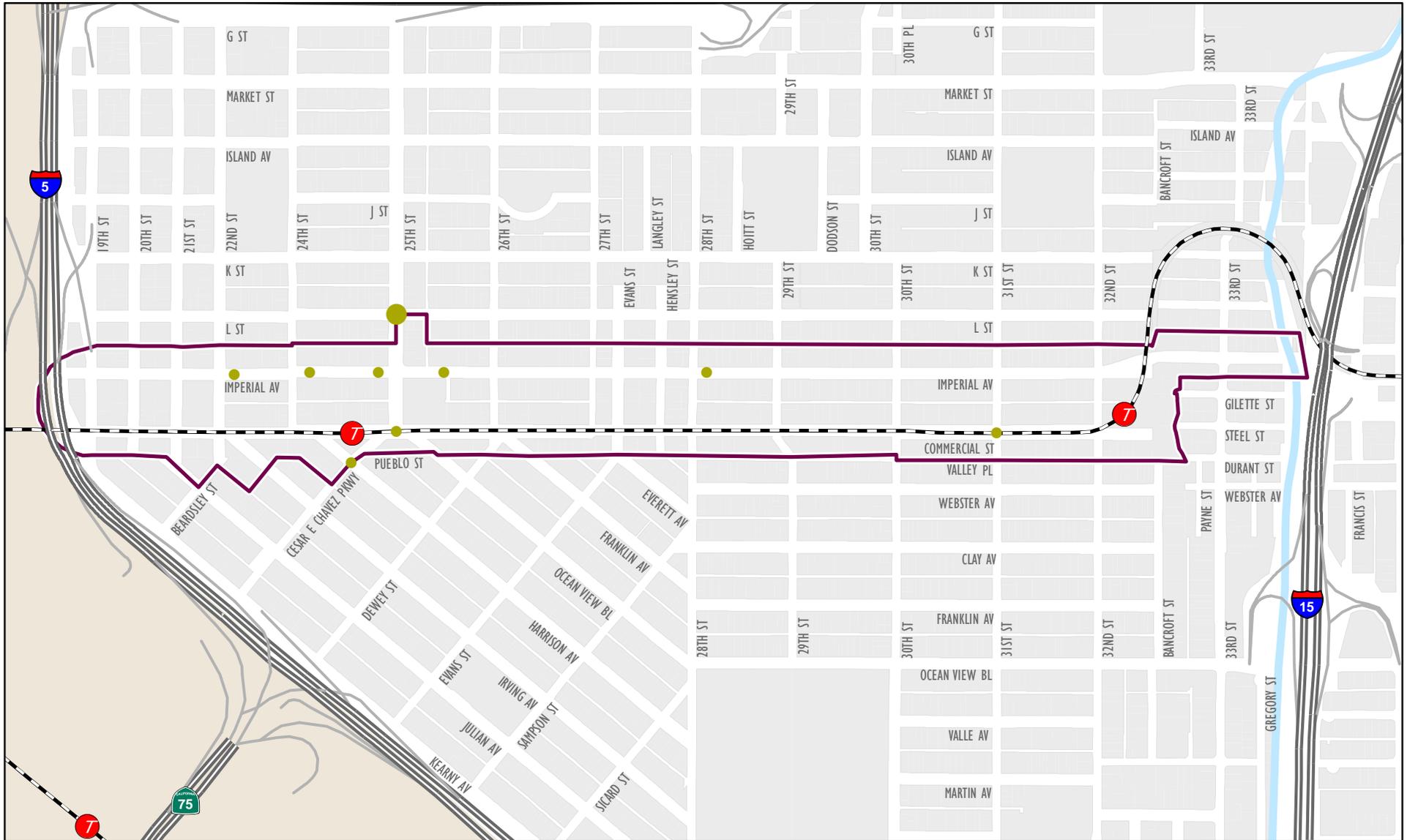
Traffic Control

FIGURE 4-6: Existing Bicycle Peak Hour Volumes (2 of 2)



XX (XX) AM (PM) Count Totals  
 Crosswalk  
 Traffic Control

FIGURE 4-7: Bicycle Related Collisions



Number of Bicycle-Related Collisions

- 3
- 1

Study Area

Trolley

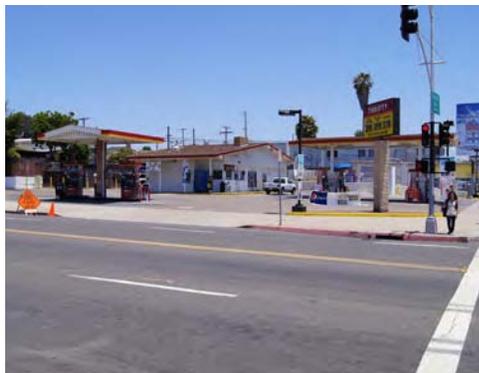
T Trolley Station

Total Number of Crashes: 11



0 0.05 0.1 0.2 Miles

Source: City of San Diego (2010)



*Imperial Avenue's retail uses and Commercial Street's trolley stops attract pedestrians. Reducing curb cuts and improving streetscapes can enhance pedestrian safety and comfort.*

Community because, approximately 18 percent of the total occupied households do not own a motor vehicle.<sup>1</sup>

The land-uses, density, scale, and configuration of Imperial Avenue are conducive to pedestrian activity. There are several churches, community-based organizations, and public uses that typically generate pedestrian traffic, such as schools and parks. For example, the area bounded by J Street, Logan Avenue, 28<sup>th</sup> Street, and 32<sup>nd</sup> Street consists of four schools and one park/recreation center. The two Trolley stops along Commercial Street serve as important pedestrian destinations within the community.

### Pedestrian Facilities and Volumes

Figure 4-8 displays the existing pedestrian facilities map with identifications of missing sidewalks and curb ramps. Imperial Avenue generally provides an inviting streetscape with sidewalks and several amenities for pedestrians and transit patrons. Frontages along both sides of Imperial Avenue generally include active commercial uses with a sidewalk approximately five feet wide and an additional four to five feet containing a row of recurring trees between the sidewalk and vehicular right-of-way. On-street parking is allowed along Imperial Avenue and provides an additional buffer.

A number of the intersections along Imperial Avenue are controlled by traffic signals or all-way stop signs. Therefore all traffic approaches are controlled, with marked crosswalks generally provided across all four legs. Examples include the intersection of Imperial Avenue at:

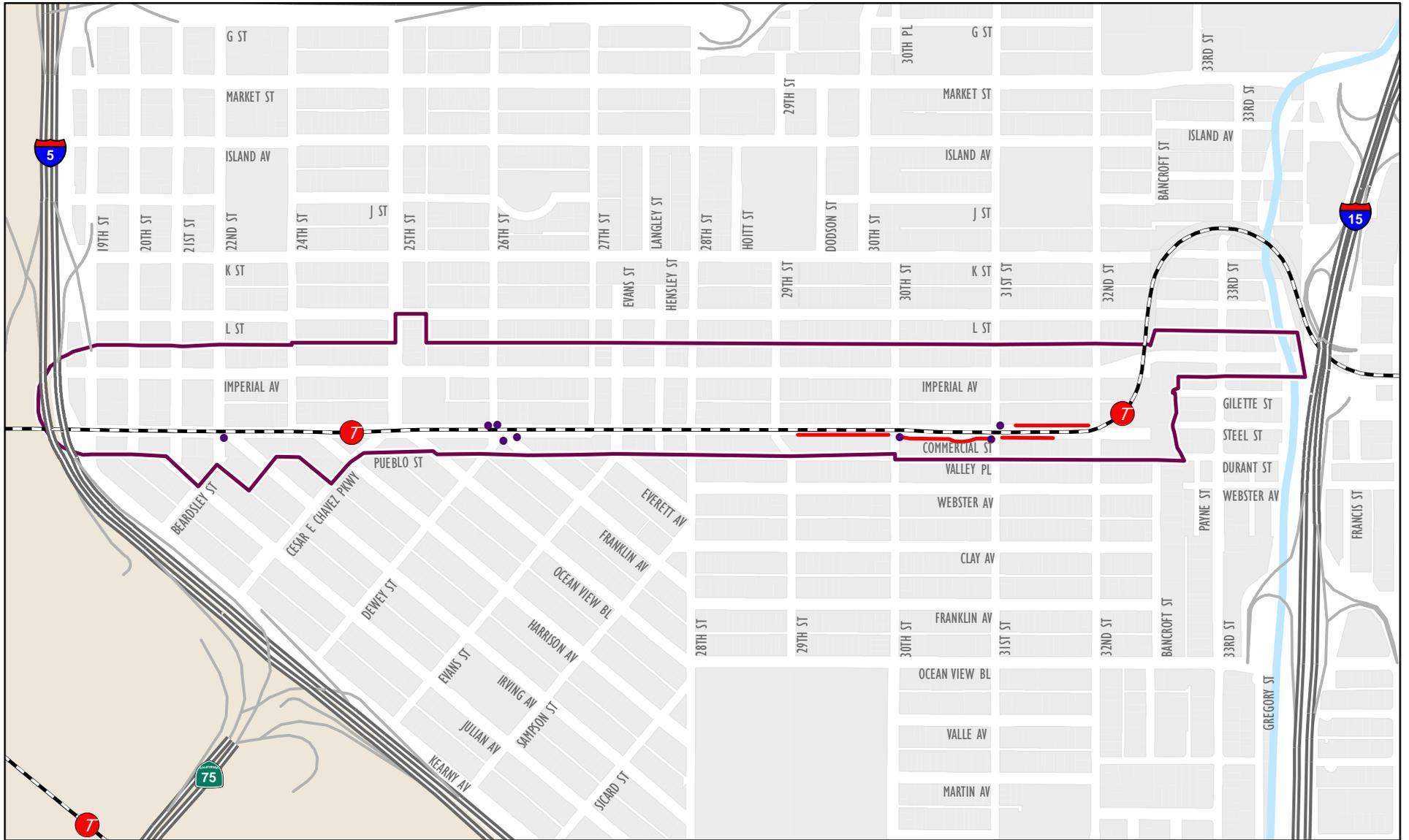
- 17<sup>th</sup> Street (signalized with marked crosswalks on southern, western, and northern legs)
- 19<sup>th</sup> Street (signalized with marked crosswalks on all four legs)
- 22<sup>nd</sup> Street (stop-controlled with marked crosswalks on all four legs)
- 25<sup>th</sup> Street (signalized with marked crosswalks on all four legs)
- 28<sup>th</sup> Street (signalized with marked crosswalks on all four legs)
- 30<sup>th</sup> Street (signalized with marked crosswalks on all four legs)
- 31<sup>st</sup> Street (stop-controlled with marked school crosswalks on all four legs)
- 32<sup>nd</sup> Street (signalized with unmarked crosswalks)

All of the remaining intersections on Imperial Avenue in the Planning Area are side-street stop controlled, with vehicular traffic on Imperial Avenue uncontrolled, and marked crosswalks not provided across Imperial Avenue, including:

- 20<sup>th</sup> Street
- 21<sup>st</sup> Street
- 24<sup>th</sup> Street
- 26<sup>th</sup> Street
- 27<sup>th</sup> Street
- Evans Street
- Hensley Street
- 29<sup>th</sup> Street

<sup>1</sup> American Community Survey (ACS) 2005-2009.

FIGURE 4-8: Missing Sidewalks and Curb Ramps



- Missing Sidewalk
- Missing Curb Ramp
- Study Area
- Trolley
- 7 Trolley Station

FEHR & PEERS

0 0.05 0.1 0.2 Miles

Source:  
City of San Diego (2011)

Despite the variations in roadway cross-sections, traffic controls, land uses, and the availability of pedestrian crossings, the presence of sidewalks, short block lengths, street tree buffers, and on-street parking are generally present and tend to promote a more comfortable pedestrian experience on Imperial Avenue between 17<sup>th</sup> Street and 33<sup>rd</sup> Street. Additionally, curb ramps exist at all corners of the intersections along Imperial Avenue.

Despite running parallel to Imperial Avenue, one block south, Commercial Street lacks many of the amenities that make Imperial Avenue a more inviting streetscape for pedestrians and transit patrons. Commercial Street is primarily fronted by light/heavy industrial uses, with a few residential properties speckled along the corridor. Sidewalks are missing in several stretches. One very notable feature to a pedestrian on Commercial Street is the parallel at-grade Trolley tracks. The presence of the Trolley along the corridor can be an obstacle to north-south travel that requires crossing Commercial Street. Other than the signalized intersections at 19<sup>th</sup>, 25<sup>th</sup>, 28<sup>th</sup>, 30<sup>th</sup> and 32<sup>nd</sup> streets, the rest of the intersections are side street stop controlled.

Along with the presence of the Orange Line Trolley tracks, pedestrian movement along the south side of Commercial Street is greatly affected by the layout of intersecting streets. Streets on the west side of the Logan Heights neighborhood intersect Commercial Street at 45 degree angles with crossing distances of up to 175 feet, such as at Franklin Avenue and at Dewey Street.

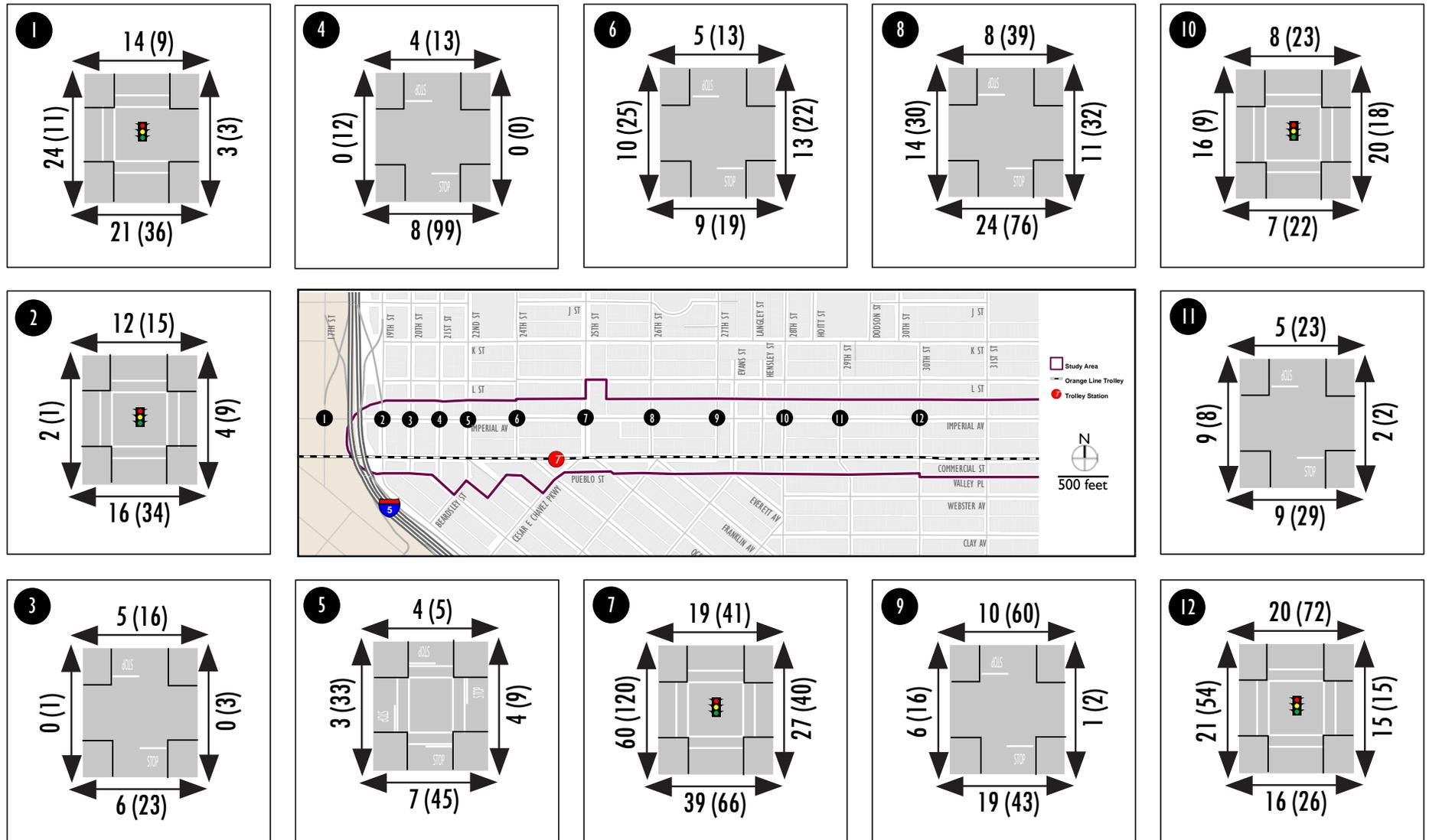
The Commercial Street corridor is also riddled with an ever-changing sidewalk layout, which can make it difficult for pedestrians to navigate. Between 17<sup>th</sup> and 29<sup>th</sup>

streets, sidewalk widths vary between four feet and nine feet and can be interrupted by numerous driveways providing industrial access. Between 29<sup>th</sup> Street and 30<sup>th</sup> Street, sidewalk is not present on portions of Commercial Street (south side). There are no sidewalks east of 30<sup>th</sup> Street, thus requiring transit riders to walk on the shoulder of the traffic lane to access the 32<sup>nd</sup> Street Station. In spite of the limited and poor pedestrian facilities along the eastern section of the Commercial Street corridor, the presence of the Orange Line Trolley does encourage pedestrian activity in the area.

Potential enhancements to the pedestrian environment that could be explored include: wider sidewalks, shade, provision of marked crosswalks at controlled and uncontrolled locations (with adequate enhancements), curb ramps, countdown pedestrian signals, landscaping, restriping faded crosswalk markings, wayfinding signage, and pedestrian focused signage, especially around transit stops.

Existing pedestrian data was collected at all of the Planning Area intersections during the a.m./p.m. peak periods, and are displayed in Figure 4-9. The counts sheets are included in Appendix D5.

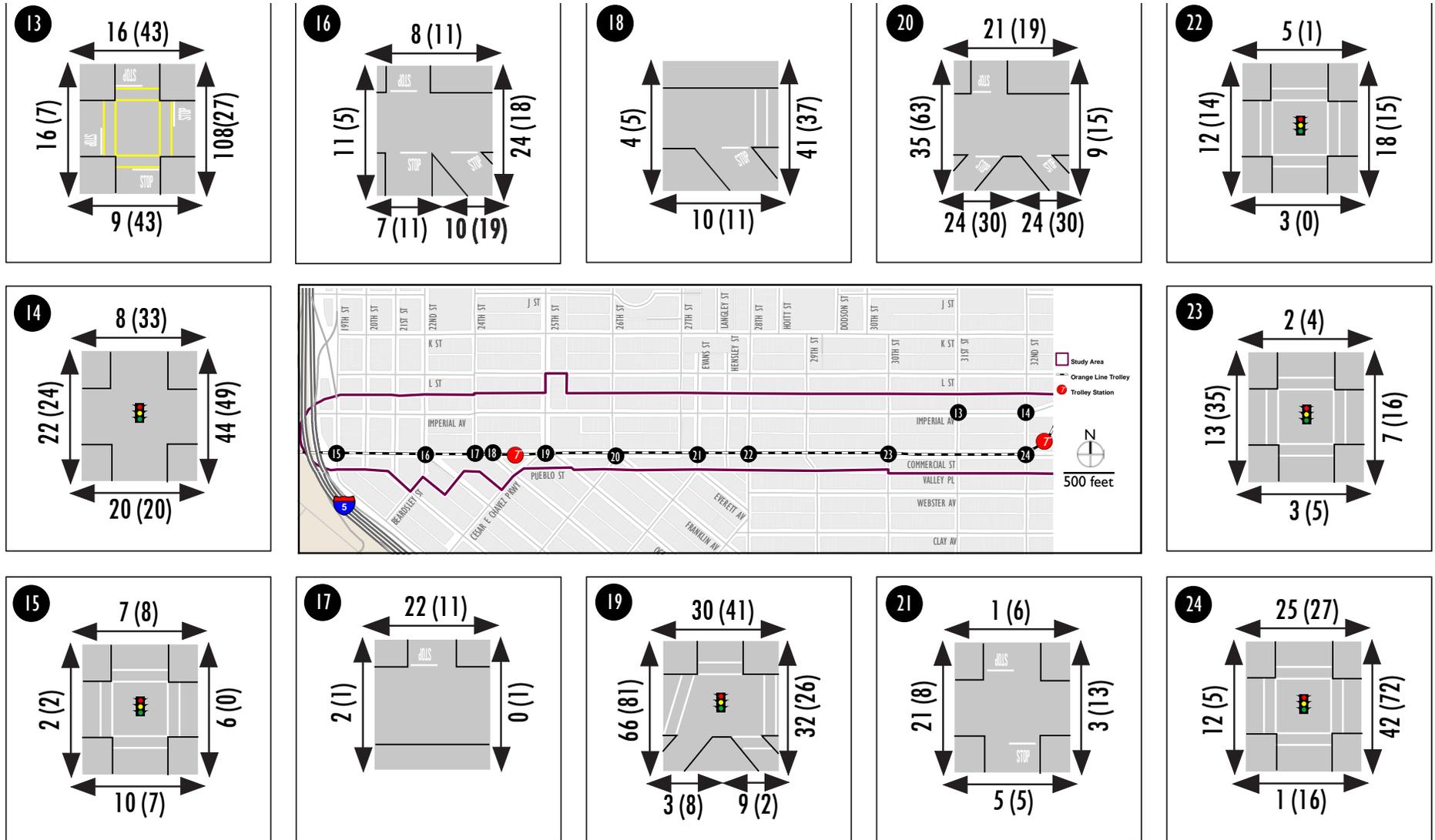
FIGURE 4-9: Existing Pedestrian Peak Hour Volumes (1 of 2) : 4-23



Source: National Data Services (2011); True Count (2006, 2007)

XX (XX) AM (PM) Count Totals  
 Crosswalk  
 Traffic Control

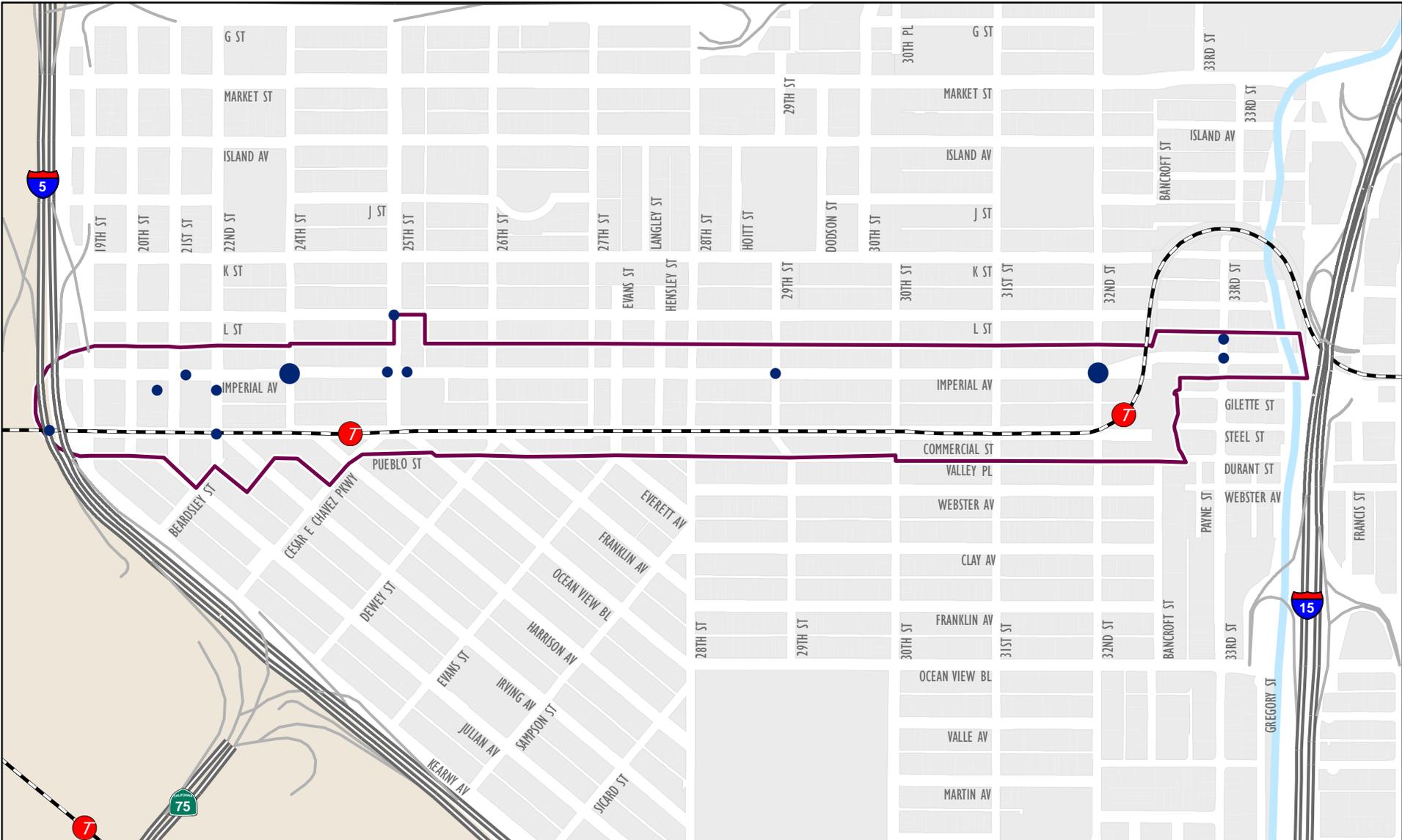
FIGURE 4-9: Existing Pedestrian Peak Hour Volumes (2 of 2)



Source: National Data Services (2011); True Count (2006, 2007)

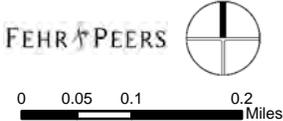
XX (XX) AM (PM) Count Totals  
 Crosswalk  
 Traffic Control

FIGURE 4-10: Pedestrian-Related Collisions 4-25



- Number of Pedestrian-Related Collisions
- 2
- 1
- Study Area
- Trolley
- Trolley Station

Total Number of Crashes: 15



Source: City of San Diego (2010)



*On-street parking tends to be well-utilized on both Imperial Avenue and Commercial Street. Parking also provides a safety buffer between vehicles in the roadway and pedestrians on the sidewalk.*

### Safety

Pedestrian related collision data was obtained from the City of San Diego for the Planning Area. The reports provide collision data over a period of five years (2005 – 2010), which indicates a total of 15 collisions. Figure 4-10 shows the distribution of the pedestrian related collisions. Of the 15 recorded collisions, 13 resulted in injuries, 2 resulted in no injuries, and there were no fatalities. Approximately 53 percent of the collisions occurred at intersections while the other 47 percent occurred at mid-block locations. Approximately 60 percent occurred during daylight while the other 40 percent occurred at night (dark/dusk/dawn).

### 4.5 Parking

An inventory of all on-street parking spaces within the Planning Area was conducted in May 2011. The area consisted of Imperial Avenue and Commercial Street between 17<sup>th</sup> and 33<sup>rd</sup> streets, as well as all side streets within the Planning Area boundaries. On-street parking is generally parallel parking with no time restrictions (detailed information is listed in Table 4-3) and free of charge. There are roughly 1,800 on-street parking spaces in the Planning Area.

The on-street parking demand data was collected on May 12th, 2011. Three time periods were selected for data collection to capture the current on-street parking occupancy in the Planning Area: between 7:30 a.m. and 9:00 a.m. reflecting the morning commute peak; between 12:00 p.m. and 1:30 p.m. capturing the peak retail/commercial parking demand; and between 4:30 p.m. and 6:00 p.m. reflecting the afternoon commute

peak. Table 4-4 summarizes the findings of the on-street parking demand survey.

As shown in the table, the highest occupied on-street parking is located:

- Along 17<sup>th</sup> Street in the AM peak - at approximately 70 percent
- Along Imperial Avenue, between 28<sup>th</sup> & 32<sup>nd</sup> streets; and along 27<sup>th</sup> Street during the mid-day period - both at approximately 90 percent
- Along 27<sup>th</sup> Street and along Evans Street in the PM peak - both at approximately 90 percent

In summary, the AM peak hour has the lowest overall on-street parking occupancy at less than 50% for the entire Planning Area, while both the Mid-day and PM peak occupied an average of approximately 70% on-street parking spaces. A night-time (between 8:00 p.m. and 8:30 p.m.) drive-by observation was conducted on July 27th, 2011, and the on-street parking occupancy was at near 100% adjacent to residential uses.

### 4.6 Multi-Modal Level of Service

On September 30, 2008, the State of California approved Assembly Bill 1358 – The Complete Streets Act. This act requires, commencing January 1, 2011, that the legislative body of a city or county, plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways, defined to include motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation,

TABLE 4-3: EXISTING ON-STREET PARKING INVENTORY SUMMARY						
ROADWAYS	TIME LIMIT			LOADING ZONE	DISABLED	ANGLED
	15-MIN	30-MIN	60-MIN			
Imperial Avenue, between 17 <sup>th</sup> Street and 25 <sup>th</sup> Street	6	3	6		1	
Imperial Avenue, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	6			3	5	
Imperial Avenue, between 28 <sup>th</sup> Street and 32 <sup>nd</sup> Street				8	8	
Imperial Avenue, between 32 <sup>nd</sup> Street and I-15						
Commercial Street, between 17 <sup>th</sup> Street and 25 <sup>th</sup> Street				11	1	
Commercial Street, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street					1	
Commercial Street, between 28 <sup>th</sup> Street and 32 <sup>nd</sup> Street	3			2	2	
17 <sup>th</sup> Street				5	2	
19 <sup>th</sup> Street				7		
20 <sup>th</sup> Street						14
21 <sup>st</sup> Street						22
22 <sup>nd</sup> Street/Irving Avenue				9		24
24 <sup>th</sup> Street/Harrison Avenue		2		8		
25 <sup>th</sup> Street/Cesar Chavez Parkway/Ocean View Boulevard	10				2	6
26 <sup>th</sup> Street/Dewey Street/Franklin Avenue	4			9		
27 <sup>th</sup> Street						
Evans Street						
Hensley Street					1	5
28 <sup>th</sup> Street						
29 <sup>th</sup> Street						
30 <sup>th</sup> Street				4	2	
31 <sup>st</sup> Street				4	1	
32 <sup>nd</sup> Street						
33 <sup>rd</sup> Street						
<b>TOTAL</b>	<b>29</b>	<b>5</b>	<b>6</b>	<b>70</b>	<b>26</b>	<b>71</b>

Source: Fehr & Peers, May 2011.

<b>TABLE 4-4: EXISTING ON-STREET PARKING DEMAND SUMMARY</b>			
<b>ROADWAYS</b>	<b>AM PEAK</b>	<b>MID-DAY</b>	<b>PM PEAK</b>
Imperial Avenue, between 17 <sup>th</sup> Street and 25 <sup>th</sup> Street	30%	60%	60%
Imperial Avenue, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	40%	70%	70%
Imperial Avenue, between 28 <sup>th</sup> Street and 32 <sup>nd</sup> Street	50%	90%	80%
Imperial Avenue, between 32 <sup>nd</sup> Street and I-15	50%	80%	80%
Commercial Street, between 17 <sup>th</sup> Street and 25 <sup>th</sup> Street	20%	50%	50%
Commercial Street, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	50%	80%	70%
Commercial Street, between 28 <sup>th</sup> Street and 32 <sup>nd</sup> Street	30%	70%	70%
17 <sup>th</sup> Street	70%	80%	70%
19 <sup>th</sup> Street	50%	30%	50%
20 <sup>th</sup> Street	60%	80%	70%
21 <sup>st</sup> Street	60%	70%	70%
22 <sup>nd</sup> Street / Irving Avenue	40%	80%	70%
24 <sup>th</sup> Street / Harrison Avenue	40%	80%	70%
25 <sup>th</sup> Street / Cesar Chavez Parkway / Ocean View Blvd	30%	70%	70%
26 <sup>th</sup> Street / Dewey Street / Franklin Avenue	40%	30%	50%
27 <sup>th</sup> Street	60%	90%	90%
Evans Street	50%	80%	90%
Hensley Street	50%	50%	60%
28 <sup>th</sup> Street	50%	80%	80%
29 <sup>th</sup> Street	50%	60%	70%
30 <sup>th</sup> Street	50%	80%	60%
31 <sup>st</sup> Street	40%	80%	60%
32 <sup>nd</sup> Street	30%	50%	50%
33 <sup>rd</sup> Street	50%	60%	80%

Source: Fehr & Peers, May 2011.

in a manner that is suitable to the rural, suburban, or urban context of the general plan.

Demographics and observed travel patterns for the area surrounding the Imperial Avenue and Commercial Street corridor indicate that transit, walking, and bicycling are modes of transportation commonly used by residents and/or employees. The combination of a relatively high degree of reliance on non-vehicular travel and the surrounding land uses results in steady pedestrian and bicycle activity in the Planning Area.

### Methodology

The respective analysis methodologies are described for each mode of travel in this section. In general, roadway and intersection LOS is based on facility operations, while transit, bicycle and pedestrian facilities are evaluated based on user perception of the traveling experience on the subject facilities. The multimodal LOS

analysis method used herein for transit, bicycle and pedestrian was developed under the National Cooperative Highway Research Program (NCHRP) Project 3-70, Multimodal Level of Service for Urban Street.

### Automobile

LOS is a quantitative measure describing operational conditions within a traffic stream, and the motorist's and/or passengers' perception of operations. A LOS definition generally describes these conditions in terms of such factors as delay, speed, travel time, freedom to maneuver, interruptions in traffic flow, queuing, comfort, and convenience. Table 4-5 describes generalized definitions of the various LOS categories (A through F) as applied to roadway operations.

**TABLE 4-5: LEVEL OF SERVICE DEFINITIONS**

LOS CATEGORY	DEFINITION OF OPERATION
A	This LOS represents a completely free-flow condition, where the operation of vehicles is virtually unaffected by the presence of other vehicles and only constrained by the geometric features of the highway and by driver preferences.
B	This LOS represents a relatively free-flow condition, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.
C	At this LOS the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles.
D	At this LOS, the ability to maneuver is notably restricted due to traffic congestion, and only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	This LOS represents operations at or near capacity. LOS E is an unstable level, with vehicles operating with minimum spacing for maintaining uniform flow. At LOS E, disruptions cannot be dissipated readily thus causing deterioration down to LOS F.
F	At this LOS, forced or breakdown of traffic flow occurs, although operations appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

Source: Highway Capacity Manual 2000.

*Roadway Segment Level of Service Standards and Thresholds*

Roadway segment LOS standards and thresholds provide the basis for analysis of arterial roadway segment performance. The analysis of roadway segment LOS is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing or forecast Average Daily Traffic (ADT) volumes. Table 4-6 presents the roadway segment capacity and LOS standards utilized to analyze arterial roadways. This table was developed based on similar standards currently utilized by jurisdictions throughout the San Diego region, and has been approved for use in the City of San Diego.

These standards are generally used as long-range planning guidelines to determine the functional classification of roadways. The actual capacity of a roadway facility varies according to its physical attributes. Typi-

cally, the performance and LOS of a roadway segment is heavily influenced by the ability of the arterial intersections to accommodate peak hour volumes. For the purposes of this traffic analysis, LOS D is considered acceptable for circulation element roadway segments.

*Peak Hour Intersection Level of Service Standards and Thresholds*

This section presents the methodologies used to perform peak hour intersection capacity analysis, including both signalized and unsignalized intersections.

SIGNALIZED INTERSECTION ANALYSIS

The analysis of signalized intersections utilized the operational analysis procedure as outlined in the *2000 Highway Capacity Manual (HCM)*, *Transportation Research Board Special Report 209*. This method defines LOS in terms of delay, or more specifically, average stopped delay per vehicle. Delay is a measure of driver and/or

TABLE 4-6: CITY OF SAN DIEGO CIRCULATION ELEMENT ROADWAY CLASSIFICATIONS AND LOS STANDARDS					
ROADWAY FUNCTIONAL CLASSIFICATION	LOS A	LOS B	LOS C	LOS D	LOS E
Expressway (6-lane)	< 30,000	< 42,000	< 60,000	< 70,000	< 80,000
Prime Arterial (6-lane)	< 25,000	< 35,000	< 50,000	< 55,000	< 60,000
Major Arterial (6-lane, divided)	< 20,000	< 28,000	< 40,000	< 45,000	< 50,000
Major Arterial (4-lane, divided)	< 15,000	< 21,000	< 30,000	< 35,000	< 40,000
Secondary Arterial/Collector (4-lane w/ center lane)	< 10,000	< 14,000	< 20,000	< 25,000	< 30,000
Collector (4-lane w/o center lane)	< 5,000	< 7,000	< 10,000	< 13,000	< 15,000
Collector (2-lane w/continuous left-turn lane)	< 5,000	< 7,000	< 10,000	< 13,000	< 15,000
Collector (2-lane no fronting property)	< 4,000	< 5,500	< 7,500	< 9,000	< 10,000
Collector (2-lane w/commercial fronting)	< 2,500	< 3,500	< 5,000	< 6,500	< 8,000
Collector (2-lane multi-family)	< 2,500	< 3,500	< 5,000	< 6,500	< 8,000
Sub-Collector (2-lane single-family)	-	-	< 2,200	-	-

Source: SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region, February 2004

passenger discomfort, frustration, fuel consumption and lost travel time. This technique uses 1,900 vehicles per hour per lane (VPHPL) as the maximum saturation volume of an intersection. This saturation volume is adjusted to account for lane width, on-street parking, pedestrians, traffic composition (i.e., percentage trucks) and shared lane movements (i.e., through and right-turn movements originating from the same lane). The LOS criteria used for this technique are described in Table 4-7. The computerized analysis of intersection operations was performed utilizing the *SYNCHRO 7.0* traffic analysis software.

#### UNSIGNALIZED INTERSECTION ANALYSIS

Unsignalized intersections, including two-way and all-way stop controlled intersections were analyzed using the 2000 Highway Capacity Manual (Section 10) unsignalized intersection analysis methodology. The *SYNCHRO 7.0* Traffic Analysis software supports this meth-

odology and was utilized to produce LOS results. The LOS for a two-way stop controlled (TWSC) intersection is determined by the computed control delay and is defined for each minor movement. Table 4-8 summarizes the LOS criteria for unsignalized intersections.

The City of San Diego considers LOS D or better during the AM and PM peak hours to be acceptable for intersection LOS.

#### Transit

The transit LOS is based on a combination of the access experience, the waiting experience, and the ride experience. The access experience is represented by the pedestrian LOS score (to be discussed later in this section) for pedestrian access to bus stops in the direction of travel along the street. The waiting and riding experiences are combined into a transit wait/ride score. The transit wait/ride score is a function of the average headway

**TABLE 4-7: SIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA**

LOS CATEGORY	DEFINITION OF OPERATION
<10.0	LOS A describes operations with very low delay. This occurs when progression is extremely favorable, and most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
10.1 – 20.0	LOS B describes operations with generally good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
20.1 – 35.0	LOS C describes operations with higher delays, which may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
35.1 – 55.0	LOS D describes operations with high delay, resulting from some combination of unfavorable progression, long cycle lengths, or high volumes. The influence of congestion becomes more noticeable, and individual cycle failures are noticeable.
55.1 – 80.0	LOS E is considered the limit of acceptable delay. Individual cycle failures are frequent occurrences.
>80.0	LOS F describes a condition of excessively high delay, considered unacceptable to most drivers. This condition often occurs when arrival flow rates exceed the LOS D capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay.

Source: Highway Capacity Manual 2000, TRB Special Report 209.

**TABLE 4-8: UNSIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA**

AVERAGE CONTROL DELAY (SEC/VEH)	LEVEL OF SERVICE (LOS)
<10	A
>10 and <15	B
>15 and <25	C
>25 and <35	D
>35 and <50	E
>50	F

Source: Highway Capacity Manual 2000, TRB Special Report 209.

between transit vehicles and the perceived travel time.

The following six variables are used to determine the transit LOS:

- Frequency of service
- Mean speed
- Reliability of service
- Load factors
- Quality of pedestrian access to transit stops
- Transit stop amenities

The computerized analysis of the transit LOS was performed utilizing the *Complete Streets LOS, A Multimodal Level of Service Toolkit*, Version 2 analysis software developed by Dowling Associates, Inc. This software outputs numerical ratings of the mode of travel, and these rating are then converted into the traditional A-F letter grade system. Table 4-9 displays the LOS letter grade numerical equivalents for transit, bicycle and pedestrian facilities.

**TABLE 4-9: LOS LETTER GRADE NUMERICAL EQUIVALENTS**

LOS MODEL OUTPUTS	LOS LETTER GRADE
Model < 2.00	A
2.00 < Model < 2.75	B
2.75 < Model < 3.50	C
3.50 < Model < 4.25	D
4.25 < Model < 5.00	E
Model > 5.00	F

Source: Transportation Research Board NCHRP Project 3-70.

### Bicycle

The bicycle LOS is a weighted combination of the bicyclists’ experiences at intersections and on street links in between the intersections. Bicycle LOS is a function of the following five variables:

- Lateral separation between bicycles and vehicular traffic
- Speed and makeup of the vehicular traffic
- Pavement conditions
- Directional vehicular traffic volumes
- Intersection crossing distance

The computerized analysis of the bicycle LOS was performed utilizing the *Complete Streets LOS, A Multimodal Level of Service Toolkit*, Version 2 analysis software developed by Dowling Associates, Inc.

## Pedestrian

The pedestrian LOS is a measure of the pedestrians' experiences at intersections and on street links in between the intersections. Pedestrian LOS is a function of the following number of variables:

- Lateral separation between pedestrians and vehicular traffic
- Width of sidewalk
- Speed and makeup of the vehicular traffic
- Difficulty of crossing arterial
- Directional vehicular traffic volumes
- Right-turn on red
- Left-turn during "Walk" phase
- Delay waiting to cross at signal
- Intersection crossing distance
- Cross-street vehicular traffic volume and speed
- Pedestrian density

The computerized analysis of the pedestrian LOS was performed utilizing the *Complete Streets LOS, A Multi-modal Level of Service Toolkit, Version 2* analysis software developed by Dowling Associates, Inc. Both pedestrian link and intersection LOS were evaluated as the experiences walking along the roadway/sidewalk could be very different than crossing an intersection.

Transit, bicycle and pedestrian LOS analysis were performed for Imperial Avenue and Commercial Street. Both corridors were divided into analysis segments, with each **segment** consisting of a length of street (link)

plus the downstream intersection at the end of the link. An intersection is any point on the street where through traffic is subject to signal control, stop-sign control, or yield-sign control. In the case of transit analysis, a segment included one or two transit stops.

## Level of Service Evaluation

LOS was analyzed for each mode of travel under existing conditions and the findings are documented below.

### Roadway Level of Service

Table 4-10 displays the LOS analysis results for key Planning Area roadway segments under existing conditions. As shown in the table, all of the roadway segments are currently operating at acceptable LOS B or better.

### Intersection Level of Service

Table 4-11 displays intersection LOS and average vehicle delay results for the key intersections under existing conditions. Intersection LOS calculation worksheets are provided in Appendix D6.

As shown in the table, all of the study intersections are currently operating at acceptable LOS D or better, with the exception of the two-way stop controlled intersection of 24<sup>th</sup> Street and Imperial Avenue which operates at substandard LOS E during the PM peak hour. This is primarily due to the limited gap opportunities for vehicles at the stop controlled 24th Street (approach to Imperial Avenue) to make left-turns and proceed through.

Figure 4-11 displays the existing LOS for both the Planning Area roadway segments and intersections.

**TABLE 4-10: EXISTING ROADWAY SEGMENT LOS RESULTS**

ROADWAY SEGMENT	CROSS-SECTION	AVERAGE DAILY TRAFFIC (ADT)	LOS D THRESHOLD	LOS
Imperial Avenue, between 17 <sup>th</sup> Street and 19 <sup>th</sup> Street	3-Ln	6,580	13,000	B
Imperial Avenue, between 19 <sup>th</sup> Street and 25 <sup>th</sup> Street	2-Ln w/TWLTL	5,200	13,000	B
Imperial Avenue, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	2-Ln w/TWLTL	5,260	13,000	B
Imperial Avenue, between 28 <sup>th</sup> Street and 30 <sup>th</sup> Street	2-Ln w/TWLTL	5,030	13,000	B
Imperial Avenue, between 30 <sup>th</sup> Street and 32 <sup>nd</sup> Street	2-Ln w/TWLTL	4,150	13,000	A
Commercial Street, between 19 <sup>th</sup> Street and 25 <sup>th</sup> Street	2-Ln	2,070	9,000	A
Commercial Street, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	2-Ln	1,070	9,000	A
Commercial Street, between 28 <sup>th</sup> Street and 30 <sup>th</sup> Street	2-Ln	930	9,000	A
Commercial Street, between 30 <sup>th</sup> Street and 32 <sup>nd</sup> Street	2-Ln	570	9,000	A
25 <sup>th</sup> Street, between Imperial Avenue and Commercial Street	4-Ln	5,700	13,000	B
28 <sup>th</sup> Street, between Imperial Avenue and Commercial Street	2-Ln	320	9,000	A
30 <sup>th</sup> Street, between Imperial Avenue and Commercial Street	2-Ln	2,990	9,000	A
32 <sup>nd</sup> Street, between Imperial Avenue and Commercial Street	2-Ln	3,130	9,000	A

Source: Fehr & Peer, June 2011.



**TABLE 4-11: EXISTING INTERSECTION LOS RESULTS**

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
	AVG. DELAY (SEC)	LOS	AVG. DELAY (SEC)	LOS
17 <sup>th</sup> St / Imperial Ave (signalized)	16.1	B	15.8	B
19 <sup>th</sup> St / Imperial Ave (signalized)	11.8	B	10.0	B
20 <sup>th</sup> St / Imperial Ave (two-way stop controlled) <sup>1</sup>	17.7	C	16.3	C
21 <sup>st</sup> St / Imperial Ave (two-way stop controlled) <sup>1</sup>	15.6	C	19.9	C
22 <sup>nd</sup> St / Imperial Ave (all-way stop controlled)	9.4	A	13.3	B
24 <sup>th</sup> St / Imperial Ave (two-way stop controlled) <sup>1</sup>	14.1	B	36.1	<b>E</b> <sup>2</sup>
25 <sup>th</sup> St / Imperial Ave (signalized)	12.5	B	14.5	B
26 <sup>th</sup> St / Imperial Ave (two-way stop controlled) <sup>1</sup>	13.6	B	17.6	C
27 <sup>th</sup> St / Imperial Ave (two-way stop controlled) <sup>1</sup>	11.4	B	15.4	C
28 <sup>th</sup> St / Imperial Ave (signalized)	16.9	B	17.7	B
29 <sup>th</sup> St / Imperial Ave (two-way stop controlled) <sup>1</sup>	12.0	B	15.2	C
30 <sup>th</sup> St / Imperial Ave (signalized)	10.8	B	10.8	B
31 <sup>st</sup> St / Imperial Ave (all-way stop controlled)	9.6	A	10.5	B
32 <sup>nd</sup> St / Imperial Ave (signalized)	14.1	B	15.4	B
19 <sup>th</sup> St / Commercial St (signalized)	13.8	B	16.4	B
22 <sup>nd</sup> St / Commercial St (two-way stop controlled) <sup>1</sup>	12.4	B	11.0	B
24 <sup>th</sup> St / Commercial St (one-way stop controlled) <sup>1</sup>	9.4	A	10.5	B
Harrison Ave / Commercial St (one-way stop controlled)	9.4	A	9.8	A
25 <sup>th</sup> St / Cesar Chavez Pkwy / Ocean View Blvd / Commercial St (signalized)	45.8	D	50.2	D
26 <sup>th</sup> St / Dewey St / Franklin Ave / Commercial St (two-way stop controlled) <sup>1</sup>	10.2	B	10.6	B
Evans St / Commercial St (two-way stop controlled) <sup>1</sup>	9.8	A	10.0	B
28 <sup>th</sup> St / Commercial St (signalized)	7.7	A	9.1	A
30 <sup>th</sup> St / Commercial St (signalized)	13.6	B	13.3	B
32 <sup>nd</sup> St / Commercial St (signalized)	8.7	A	11.0	B

1. For one or two-way stop controlled intersections, the delay shown is the worst delay experienced by any of the approaches.

2. Bold letter indicates unacceptable LOS E or F.

Source: Fehr & Peers, June 2011.

### Transit Level of Service

Table 4-12 and Figure 4-12 display transit LOS (bus and trolley) in the Planning Area under existing conditions. LOS calculation worksheets are provided in Appendix D7.

As shown, transit riders currently experience good service (LOS C or better) along both Imperial Avenue and Commercial Street.

### Bicycle Level of Service

Table 4-13 displays Bicycle LOS in the Planning Area under existing conditions. LOS calculation worksheets are provided in Appendix D8. Figure 4-13 illustrates both the Bicycle LOS for the Master Plan corridors.

As shown in Table 4-13, bicyclists often experience poor Levels of Service (E or F) when riding on segments along both Imperial Avenue and Commercial Street. This is due to the lack of designated bicycle facilities, lack of separation from traveling vehicles, relatively high truck traffic, and less than desirable pavement conditions.

### Pedestrian Level of Service

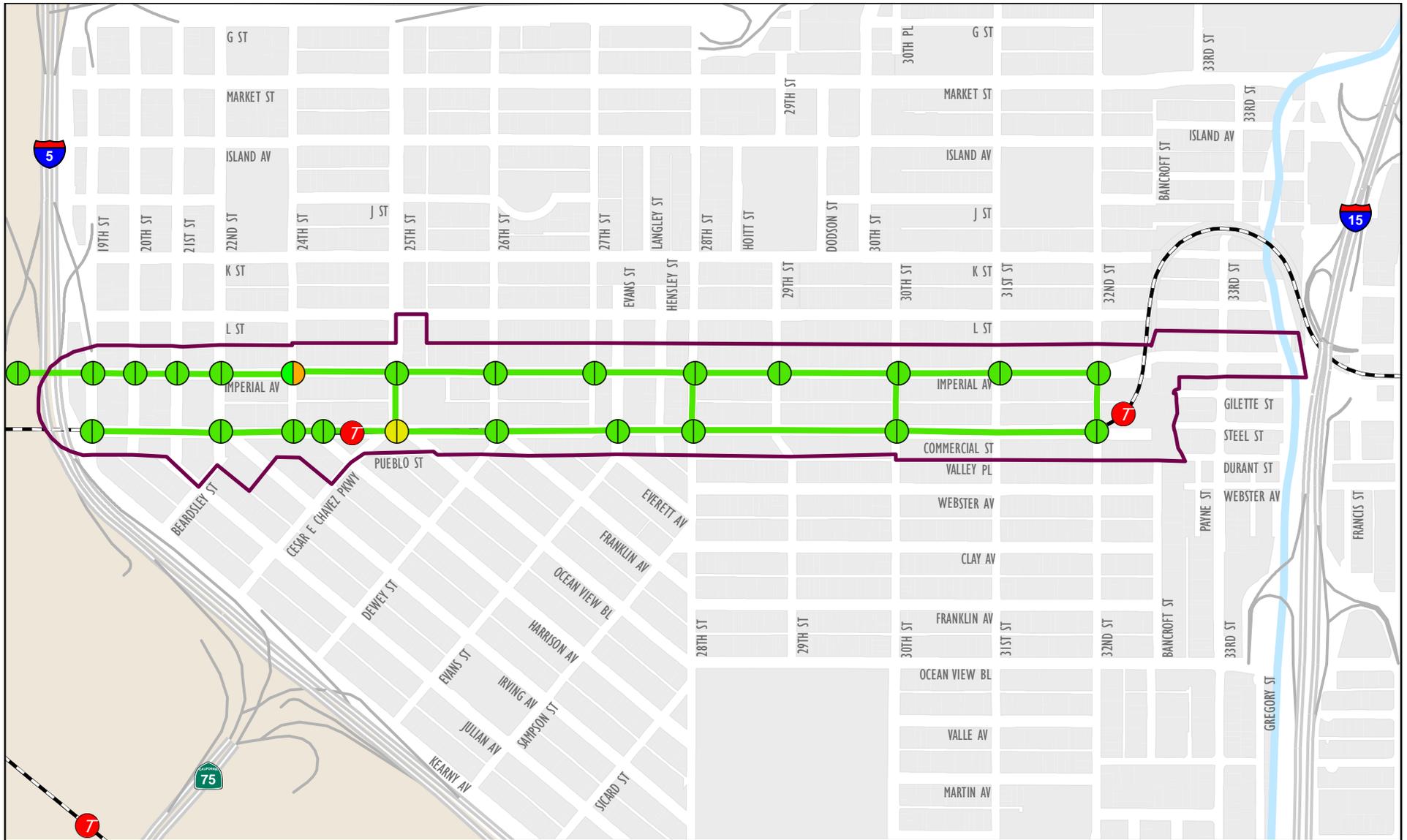
Tables 4-14 and 4-15 display Pedestrian Link LOS and Pedestrian Intersection LOS, respectively, in the Planning Area under existing conditions. LOS calculation worksheets are provided in Appendix D9. Figure 4-14 illustrates both the Pedestrian Link LOS and Pedestrian Intersection LOS for the Master Plan corridors.

As shown in Table 4-14, pedestrians experience very good levels of service when walking along both Imperial Avenue and Commercial Street, with the exception of Commercial Street between 29th Street and 30th Street (eastbound only), and between 30th Street and 32nd Street (both directions), due to the lack of sidewalks along these sections of the roadway.

As shown in Table 4-15, the pedestrian experience is generally very good when crossing streets at the controlled intersections along Imperial Avenue and Commercial Street.



FIGURE 4-11: Existing Roadway Segment and Intersection LOS



<b>Roadway Segment Level of Service</b>	<b>Intersection Level of Service</b>	<b>Study Area</b>
— A - C	⊙ AM / PM	▭ Trolley
— D		● Trolley Station
— E		
— F		

FEHR & PEERS

0 0.05 0.1 0.2 Mile

Source:  
Fehr & Peers (2011)

TABLE 4-12: EXISTING TRANSIT LOS RESULTS				
SEGMENT	EASTBOUND		WESTBOUND	
	LOS SCORE	TRANSIT LOS	LOS SCORE	TRANSIT LOS
Imperial Avenue, between 17 <sup>th</sup> and 19 <sup>th</sup> Streets	2.94	C	2.96	C
Imperial Avenue, between 19 <sup>th</sup> Street and 21 <sup>st</sup> Street	2.95	C	2.99	C
Imperial Avenue, between 21 <sup>st</sup> Street and 25 <sup>th</sup> Street	2.80	C	2.98	C
Imperial Avenue, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	2.98	C	2.96	C
Imperial Avenue, between 28 <sup>th</sup> Street and 30 <sup>th</sup> Street	2.96	C	2.90	C
Imperial Avenue, between 30 <sup>th</sup> Street and 31 <sup>st</sup> Street	2.93	C	2.88	C
Imperial Avenue, between 31 <sup>st</sup> Street and 32 <sup>nd</sup> Street	2.87	C	2.89	C
Commercial Street, between 17 <sup>th</sup> Street and 28 <sup>th</sup> Street	2.14	B	2.53	B
Commercial Street, between 28 <sup>th</sup> Street and 32 <sup>nd</sup> Street	2.39	B	2.24	B

1. For one or two-way stop controlled intersections, the delay shown is the worst delay experienced by any of the approaches.
2. Bold letter indicates unacceptable LOS E or F.

Source: Fehr & Peers, June 2011.

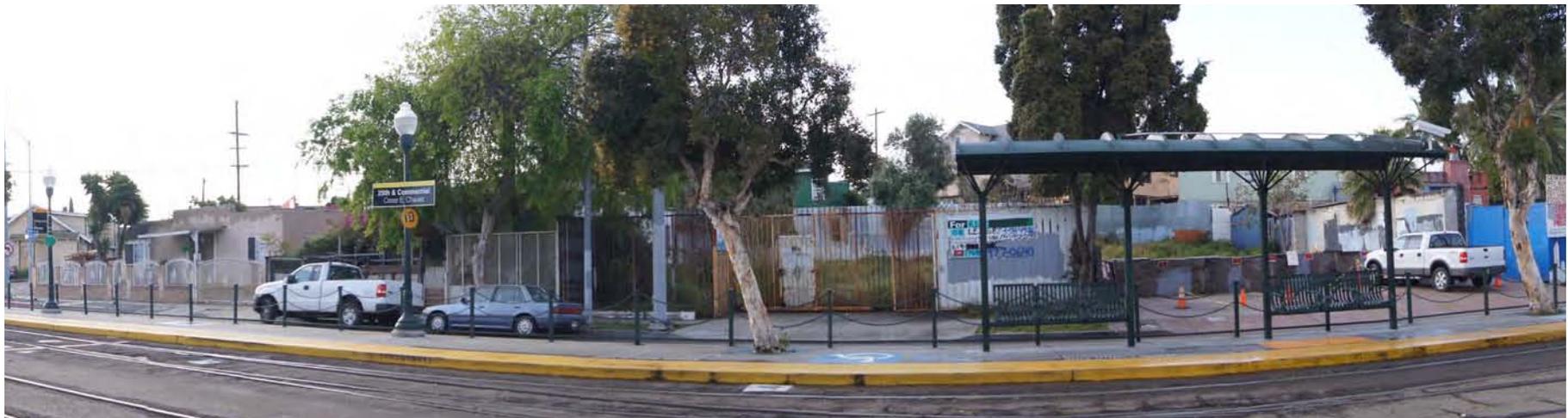
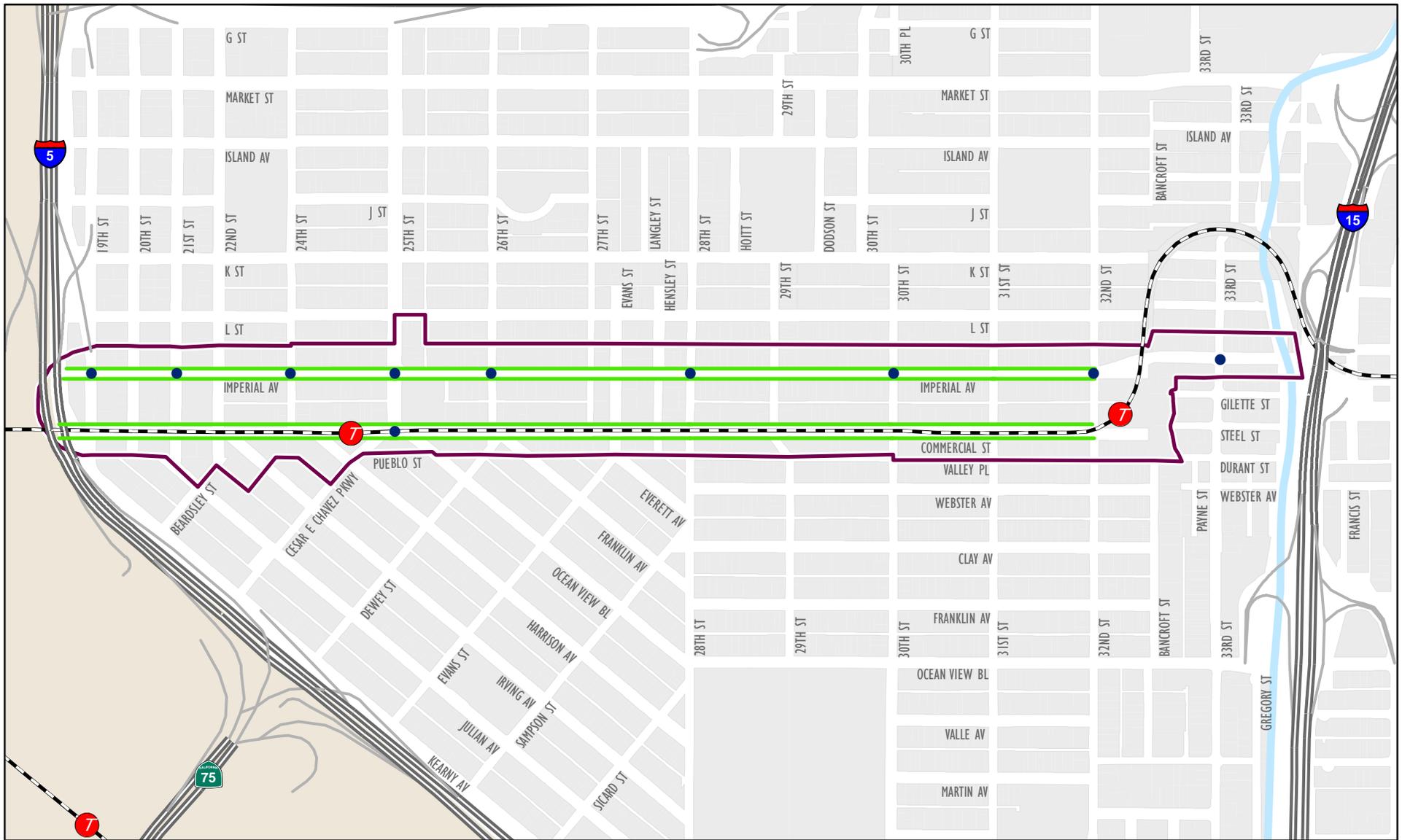


FIGURE 4-12: Existing Transit Level of Service: 4-39



Transit Level of Service

- A - C
- D
- E
- F

Study Area

Trolley

Trolley Station

• Bus Stop

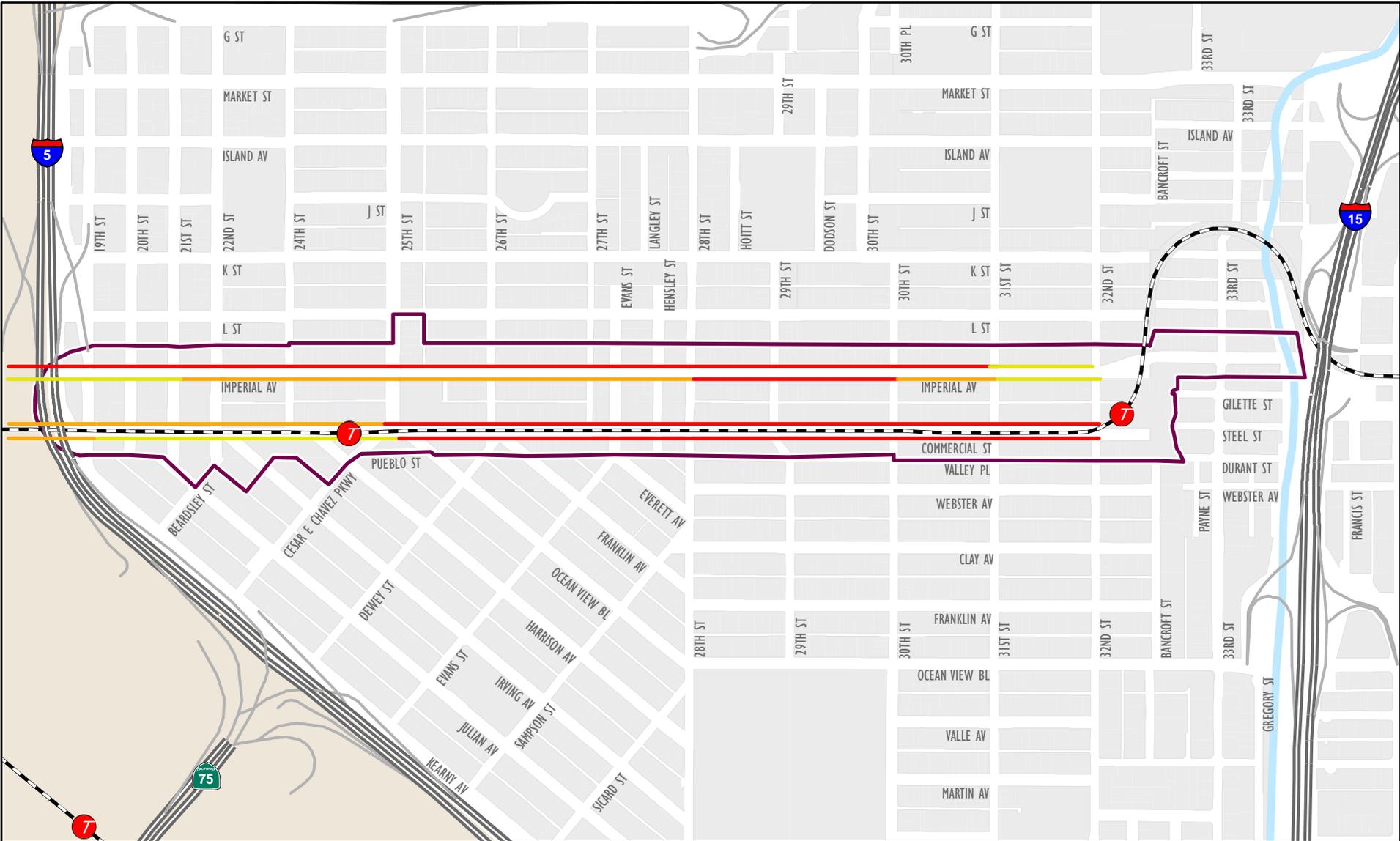


Source:  
Fehr & Peers (2011)

TABLE 4-13: EXISTING BICYCLE LOS RESULTS				
SEGMENT	EASTBOUND		WESTBOUND	
	LOS SCORE	BICYCLE SEGMENT LOS	LOS SCORE	BICYCLE SEGMENT LOS
Imperial Avenue, between 17 <sup>th</sup> Street and 19 <sup>th</sup> Street	3.79	D	4.43	F
Imperial Avenue, between 19 <sup>th</sup> Street and 21 <sup>st</sup> Street	4.18	D	5.50	F
Imperial Avenue, between 21 <sup>st</sup> Street and 25 <sup>th</sup> Street	4.26	E	6.01	F
Imperial Avenue, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	4.50	E	5.33	F
Imperial Avenue, between 28 <sup>th</sup> Street and 30 <sup>th</sup> Street	5.13	F	5.45	F
Imperial Avenue, between 30 <sup>th</sup> Street and 31 <sup>st</sup> Street	4.76	E	5.07	F
Imperial Avenue, between 31 <sup>st</sup> Street and 32 <sup>nd</sup> Street	4.03	D	3.80	D
Commercial Street, between 17 <sup>th</sup> Street and 19 <sup>th</sup> Street	4.25	E	4.39	E
Commercial Street, between 19 <sup>th</sup> Street and 25 <sup>th</sup> Street	3.91	D	4.65	E
Commercial Street, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	6.61	F	5.09	F
Commercial Street, between 28 <sup>th</sup> Street and 30 <sup>th</sup> Street	5.31	F	5.32	F
Commercial Street, between 30 <sup>th</sup> Street and 32 <sup>nd</sup> Street	5.75	F	6.22	F

Source: Fehr & Peers, June 2011.

FIGURE 4-13: Existing Bicycle Level of Service 4-41



Bicycle Level of Service

- A - C
- D
- E
- F

- Study Area
- Trolley
- 7 Trolley Station

FEHR & PEERS

0 0.05 0.1 0.2 Miles

Source:  
Fehr & Peers (2011)

TABLE 4-14: EXISTING PEDESTRIAN LINK LOS RESULTS				
SEGMENT	EASTBOUND		WESTBOUND	
	LOS SCORE	PEDESTRIAN LINK LOS	LOS SCORE	PEDESTRIAN LINK LOS
Imperial Avenue, between 17 <sup>th</sup> Street and 19 <sup>th</sup> Street	1.71	A	1.83	A
Imperial Avenue, between 19 <sup>th</sup> Street and 21 <sup>st</sup> Street	2.02	B	1.67	B
Imperial Avenue, between 21 <sup>st</sup> Street and 25 <sup>th</sup> Street	1.78	A	2.35	B
Imperial Avenue, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	1.74	A	2.06	B
Imperial Avenue, between 28 <sup>th</sup> Street and 30 <sup>th</sup> Street	1.48	A	1.89	A
Imperial Avenue, between 30 <sup>th</sup> Street and 31 <sup>st</sup> Street	1.61	A	1.76	A
Imperial Avenue, between 31 <sup>st</sup> Street and 32 <sup>nd</sup> Street	1.46	A	1.90	A
Commercial Street, between 17 <sup>th</sup> Street and 19 <sup>th</sup> Street	1.45	A	1.19	A
Commercial Street, between 19 <sup>th</sup> Street and 25 <sup>th</sup> Street	1.80	A	1.57	A
Commercial Street, between 25 <sup>th</sup> Street and 28 <sup>th</sup> Street	1.31	A	1.54	A
Commercial Street, between 28 <sup>th</sup> Street and 30 <sup>th</sup> Street	-	F	1.44	A
Commercial Street, between 30 <sup>th</sup> Street and 32 <sup>nd</sup> Street	-	F	-	F

Source: Fehr & Peers, June 2011.



**TABLE 4-15: EXISTING PEDESTRIAN INTERSECTION LOS RESULTS**

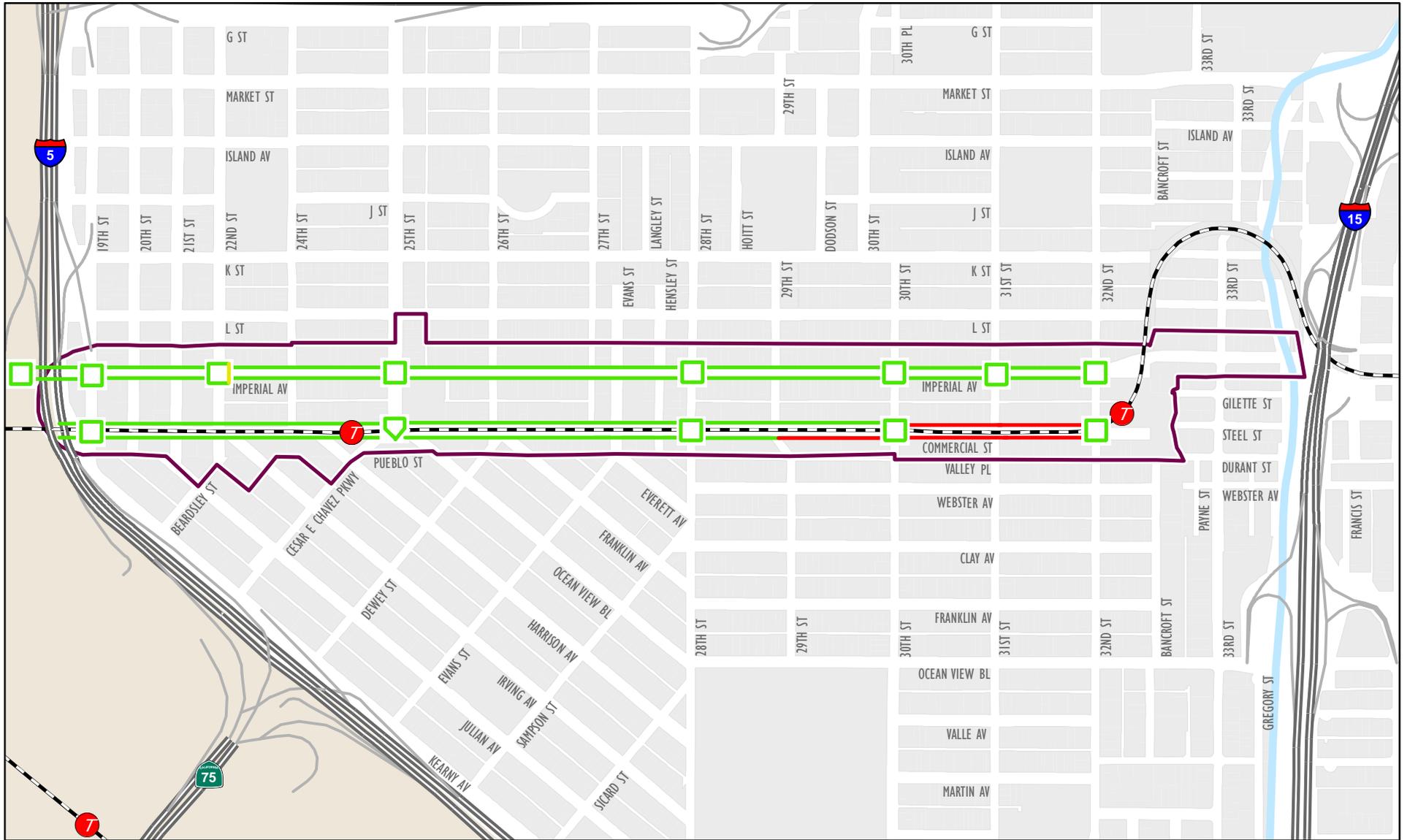
INTERSECTION	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	LOS SCORE	PED INT. LOS	LOS SCORE	PED INT. LOS	LOS SCORE	PED INT. LOS	LOS SCORE	PED INT. LOS
17 <sup>th</sup> St / Imperial Ave	2.31	B	1.82	A	3.08	C	2.40	B
19 <sup>th</sup> St / Imperial Ave	2.21	B	2.04	B	2.24	B	2.39	B
21 <sup>st</sup> St / Imperial Ave	1.75	A	1.77	A	2.20	B	2.17	B
25 <sup>th</sup> St / Imperial Ave	2.33	B	2.14	B	2.28	B	2.26	B
28 <sup>th</sup> St / Imperial Ave	2.07	B	2.00	B	2.17	B	2.20	B
30 <sup>th</sup> St / Imperial Ave	1.87	A	1.87	A	2.15	B	2.18	B
31 <sup>st</sup> St / Imperial Ave	1.84	A	1.79	A	2.19	B	2.15	B
32 <sup>nd</sup> St / Imperial Ave	1.97	A	1.85	A	2.57	B	2.16	B
19 <sup>th</sup> St / Commercial St	1.73	B	2.26	A	1.89	A	1.83	A
25 <sup>th</sup> St/Cesar Chavez Pkwy / Ocean View Blvd / Commercial St	2.09	B	2.12 / 1.85 <sup>1</sup>	B/A <sup>1</sup>	2.03	B	1.87	A
28 <sup>th</sup> St / Commercial St	2.26	B	2.21	B	1.83	A	1.84	A
30 <sup>th</sup> St / Commercial St	2.04	A	1.75	A	1.83	A	1.84	A
32 <sup>nd</sup> St / Commercial St	1.90	A	1.97	A	1.77	A	1.81	A

1. Score and LOS at Cesar Chavez Parkway / Ocean View Boulevard, respectively.

Source: Fehr & Peers, June 2011.



FIGURE 4-14: Existing Pedestrian Level of Service



**Pedestrian Level of Service (PLOS)**

- A - C
- D
- E
- F
- Intersection PLOS
- Study Area
- Trolley
- 7 Trolley Station



Source:  
Fehr & Peers (2011)

# 5 PLANNING ISSUES AND IMPLICATIONS



This chapter reviews key issues raised in the preceding chapters and through the initial community outreach process that will need to be addressed through the Commercial/Imperial Master Plan process.



### **1. Locations for Mixed-Use Development**

Community stakeholders have expressed a desire for a more vibrant Commercial/Imperial corridor with a greater mix of local-serving retail uses, housing (especially affordable housing), and community amenities, including education services and open space. Determining where these uses may be located will be an essential part of the planning process. While the opportunity site analysis in Chapter 2 provides an overview of potential sites, the trolley stations should be highlighted as real amenities for the corridor that can help stimulate development and revitalization. The trolley stations provide opportunities for transit-oriented development that can capitalize on transit by providing foot traffic for businesses and convenient access for existing and future residents without the need for large amounts of parking.

The Commercial and 25<sup>th</sup> streets intersection is a natural hub for multi-modal activity. Community stakeholders and existing adopted plans have identified this intersection (including the Imperial Avenue segment just to the north) as a priority for public gathering space and a mix of commercial, residential, civic, and transit uses. This area already takes advantage of reduced parking requirements afforded by the Transit Overlay Zone. Although it has slightly lower ridership and is surrounded by more industrial uses, the 32<sup>nd</sup> Street station is also well used and provides access to housing and jobs in and around the station. Designating this station with the Transit Overlay Zone and considering targeted development opportunities and public realm improvements could support transit ridership and more active corridor.

### **2. Appropriate Development Intensities**

The corridor (particularly Imperial Avenue) enjoys walkable blocks and streets, in part due to the small lot sizes and varied land uses. However, small lot sizes and diverse ownership patterns can make development costly or impractical. Incentives for lot consolidation may be helpful in achieving higher densities and encouraging new uses.

In general, community stakeholders have suggested that three or four stories are appropriate building heights for the corridor. The proposal for Comm22 and some of the newer projects, such as Los Vientos in Barrio Logan, suggest what these new residential developments might look like.

### **3. Future of Industrial Uses and Junkyards on Commercial Street**

Community stakeholders have provided varying opinions about their vision for the future of Commercial Street. In general, stakeholders would like to see junkyards eliminated. However, many community members would like to see industrial and auto-related uses remain. They provide jobs, convenient services (in the case of auto repair), and exemplify the character of the corridor. Consistent with this sentiment, the current Southeastern San Diego Community Plan recommends prohibiting auto dismantling, junk yards, and recycling industries. However, these recommendations have not yet been adopted into Planned District Ordinance and it is unclear where else these uses would be located. This is a complex issue, but this planning process may be able to assist in developing alternatives by looking at

options for relocating industrial uses or relocating the trolley stop to provide more options for development.

In the short-term, potential conflicts between industrial uses and sensitive receptors (i.e., residential and pedestrian-oriented uses) need to be addressed. As described in Chapter 2 and the existing land use diagram, in some cases, homes are directly next door to industrial users. The analysis of potentially hazardous sites in Chapter 3 shows that there are open release sites within the Planning Area that are still undergoing investigation and possibly remediation. Moreover, the presence of the 32<sup>nd</sup> Street trolley stop and ridership and pedestrian counts described in Chapter 4 reveal that there is pedestrian activity along Commercial Street. Providing transitions, buffers, and public improvements can help alleviate the incompatible and ensure safety and community health. The Southeastern Community Plan already recommends establishing standards to improve the aesthetic and environmental quality of industrial uses through screening, landscaping, and prohibition of toxic materials.

#### 4. Market Demand and Site Availability

A market analysis of the Planning Area is being prepared in tandem with this report and will help inform the demand and feasibility for various land uses. Keyser Marston Associates projected the following demand potential for three key land use types, identifying a range with low and high estimates, as shown in Table 5-1. The study envisions office and retail uses in mixed use developments (e.g. commercial development on the ground floor and residential units above). Projected demand is primarily for residential uses.

TABLE 5-1: PROJECTED MARKET DEMAND BY 2030		
LAND USE TYPE	LOW	HIGH
Office (sf)	27,000	53,000
Retail/Restaurant (sf)	16,500	35,000
Residential (units)	530	1,100

Source: Keyser Marston Associates, *Commercial Street and Imperial Avenue Corridor Master Plan—Market and Economic Analysis*, June 2011.

Assuming non-residential development at an FAR of 0.75 and residential development at average density of 25 dwelling units per acre, 21 to 44 acres would be needed to meet the low and high demand estimates, respectively.

Chapter 2 of this report analyzes potential opportunity sites (i.e., sites that are vacant or underutilized) that may be appropriate for revitalization or redevelopment. The analysis concluded that up to 45 acres may be available (exclusive of sites that are currently residential in use) to meet this market demand, thus satisfying the high end of projected market demand by 2030. In reality, the actual match between market demand and site availability is more nuanced. This analysis does not take into account existing land use regulations, operations or site conditions. The bulk of market demand is for residential, but residential units are not currently permitted or appropriate used on certain sites, such as along the east end of Commercial Street.

## 5. Public Space Opportunities

During the first community workshop, several participants mentioned the need for additional public space in the neighborhood, such as plazas or community gardens. Several vacant lots and unused parcels exist along both Commercial and Imperial, providing opportunities for public space enhancements. In addition, there are opportunities to enhance the existing public space amenities which are not currently being utilized. As described by community stakeholders, open space improvements could include:

- Roof top patios and gathering spaces, including planted “green” roofs
- Use of alleyways as linear green linkages or “green-belts”
- Better maintenance and awareness to increase use of existing neighborhood parks
- Places for kids, music, events, farmers market, and community gardens
- Plazas and other smaller community gathering spaces

Both trolley stations in the corridor have adjacent vacant parcels with potential for public space development. At 32<sup>nd</sup> and Commercial Streets, the station is flanked by a large vacant property on its south side and unimproved rights-of-way on the south side as well as the slopes above Imperial Avenue as the trolley descends, as shown in Figure 5-1. Just west of the 25<sup>th</sup> Street station, several contiguous parcels are vacant on the south side of Commercial Street. These parcels are slated for development under the COMM22 project.

Both of these opportunities present great synergies in terms of large potential development area, multi-modal transit access, and high visibility.

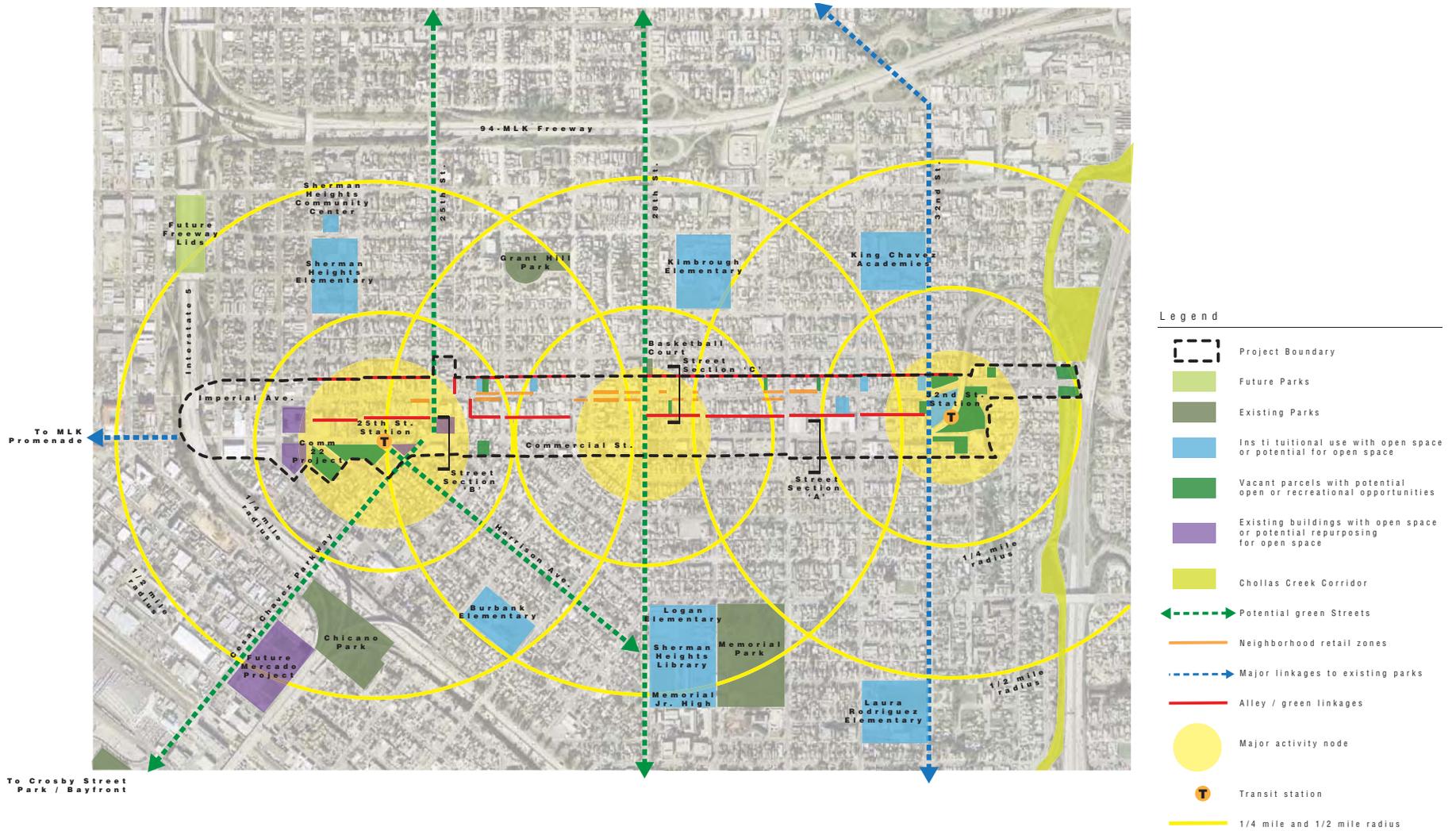
Also adjacent to the eastbound 25<sup>th</sup> street station, a smaller undeveloped parcel at the south side of the street may be conducive to development as a pocket park as identified by several community residents during community outreach activities. North of this station, the Police Station volunteer center is currently vacant and its future use is unknown. This community amenity is ideally located at a south-facing corner with generous setbacks from the street. These parcels have great potential as a public plaza space with direct interaction with the trolley at an important neighborhood circulation hub.

Along Imperial Avenue, public space opportunities exist on a smaller scale, with several vacant parcels that could be developed as pocket parks or plazas. The greater potential may lie in the streetscape itself, by leveraging restaurants for sidewalk café spaces, and further enhancing the properties of several neighborhood community institutions.

## 6. Connectivity Improvements

A long-term vision for the corridor Planning Area would have to look into developing the roles of each of the major streets within the Planning Area, including Commercial, Imperial, 25<sup>th</sup>, 28<sup>th</sup>, 30<sup>th</sup>, Cesar Chavez, and Ocean View as major linkages. These streets form existing circulation hubs that can be enhanced to become open space assets, and to set up mobility and open space connections outside of the corridor. Examples

FIGURE 5-1: Public Space Opportunities



COMMERCIAL AND IMPERIAL  
CORRIDOR MASTER PLAN  
CITY OF SAN DIEGO

SPURLOCK POIRIER

1" : 400"  
Spurlock Poirier Landscape Architects, July 2011.

might be to consider the street section of Commercial Street: how it functions now as a multi-modal street and its potential as “green street,” with mobility, stormwater, and planting improvements, as suggested in Figure 5-1. In addition, Commercial Street is designated as a proposed Class I bike route under the recently adopted Bicycle Master Plan and could create a good linkage from the corridor to the surrounding neighborhoods.

The possible widening of Imperial Avenue, identified in the Southeastern San Diego Community Plan, may be antithetical to creating a multi-modal network that supports vehicular as well as pedestrian, bicycle, and transit circulation. Moreover, street widening may negatively impact the small businesses along this commercial corridor, should additional right-of-way be taken from existing on-street parking or sidewalks.

## 7. Pedestrian and Streetscape Improvements

The pedestrian network should function as the basic building block of transportation and land use planning. Built environments that provide high levels of comfort for pedestrians will ensure active and lively communities. Pedestrian-friendly environments will also serve an important social justice goal by allowing for the elderly, youth and disabled to access opportunities within their communities.

Three major components of pedestrian facilities include sidewalks, curb or corner zones, and crosswalks. While Imperial Avenue provides an inviting environment for pedestrians, Commercial Street could improve its

facilities by adding sidewalks east of 29<sup>th</sup> Street, constructing curb ramps at intersections of 22<sup>nd</sup>, 26<sup>th</sup>, 30<sup>th</sup>, and 31<sup>st</sup> streets. Other potential enhancements to the pedestrian environment include provision of marked crosswalks at controlled and uncontrolled locations (with adequate enhancements), countdown pedestrian signals, and wayfinding signs, especially around transit stops. Additionally, urban design opportunities such as additional street trees, pedestrian scale lighting, public art, and consistent site furnishings along the corridor will help unify the corridor and provide a more safe and appealing corridor for pedestrians and neighborhood residents. Adequate lighting was a particular concern expressed by several community members. Lastly, it is recommended that school-based education and enhancement programs promoting walking and cycling be pursued by the City.

## 8. Safe Streets

The street network in the Planning Area presents a high degree of connectivity, which allows for shorter travel distances between destinations and greater dispersal of traffic. Users of all modes benefit from shorter trips and multiple route options. In combination with the generally low traffic volumes, there are currently no major operation issues along Imperial Avenue and Commercial Street. However, a total of 191 collisions (165 auto, 11 bicycle related, and 15 pedestrian related) have occurred in the Planning Area between 2005 and 2010, with approximately 60 percent of these occurring along Imperial Avenue.

Traffic calming is considered a very effective tool for improving safety. It is generally defined as a combina-

tion of design approaches that serve to reduce motor vehicle speeds and improve conditions for non-motorized street users. Physical design, complementary road striping and other strategies can be employed to slow motorists to speeds that are appropriate to their context and increase the safety and comfort of pedestrian and cyclists. Typical traffic calming measures include reductions in lane widths, reductions in the number of lanes, adding textures to travel lanes, sidewalks or crosswalks, adding raised or landscaped medians, edge treatments, street trees, curb extensions, roundabouts, widening sidewalks, and adding on-street parking. Many of these measures could be implemented in the Planning Area, particularly along Imperial Avenue.

## 9. Convenient Transit Facilities

One of the most important facets to creating lively, walkable community spaces is the provision of public transit so that pedestrians and cyclists have an alternative to driving in situations where longer trips are required. Bus Routes 3 and 4, as well as the Orange Line Trolley provide public transit in the Planning Area. While numerous transit stops are located along Imperial Avenue, Commercial Street, and 25<sup>th</sup> Street, additional bus routes along the north-south streets (such as 28<sup>th</sup>, 30<sup>th</sup>, 31<sup>st</sup>, or 32<sup>nd</sup> streets) could be beneficial to local transit riders. It is important to locate transit stations/stops in areas that attract shoppers, visitors, and workers, and nearby amenities, such as child care, restaurants, and drug stores that can benefit transit users, as well as near major trip generators or attractors such as schools, offices, shopping centers, and recreational facilities.

It is also critical to design station areas with the pedestrian and bicyclist in mind, since these modes are often utilized to access transit. Pedestrian and bicycle connections between the station and nearby land uses should be clear and safe. Secure bicycle parking should be provided at transit stations in case buses or trains do not have the capacity to allow cyclists to bring their bikes on board. Bicycle parking should be located in high traffic areas to provide natural surveillance by pedestrians and drivers. Station areas should feel safe and comfortable for waiting passengers, including adequate shelter from rain and intense sunshine. Transit schedules are informative for riders, along with real-time arrival and departure information if possible. Field observation indicates that many of the transit stops/stations in the Planning Area could improve their amenities by providing sitting, shelter, and bicycle parking.

## 10. Improved Bicycle Facilities

Bicycle facilities are much desired in the Planning Area as none (other than the Class III bike route located on 28<sup>th</sup> Street) exists today. According to both the SANDAG's Regional Bike Master Plan and the City of San Diego's Bicycle Master Plan, various levels of bicycle facilities are proposed along Imperial Avenue, Commercial Street, and 22<sup>nd</sup>, 25<sup>th</sup>, 30<sup>th</sup> & 32<sup>nd</sup> streets. These potential improvements will significantly improve bicycle circulation and encourage bicyclists to use the roads. It is recommended that the City pursue school-based education and enhancement programs promoting walking and cycling as this would initiate long-term shifts in travel culture and mind-set from motorized to active, non-motorized transportation.

On the regional level, SANDAG extended the Bike to Work Day program to the entire month of May in 2011. It was a resounding success as more people have participated than ever before. In addition, in March 2010, the County of San Diego Health and Human Services Agency (HHSA) received \$16.1 million from the Centers for Disease Control and Prevention (CDC) to fund the Communities Putting Prevention to Work (CPPW) project in the San Diego region. HHSA partnered with SANDAG in implementing the components of the project related to regional planning, active transportation, and safe routes to school.

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