Estrada Land Planning

Kimley - Horn and Associates, Inc.

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Volume 1 - Report

SAN YSIDRO MOBILITY STRATEGY

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San Ysidro Mobility Strategy

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CD IN BACK POCKET

The CD in the back pocket contains all major large graphics included in the report as well as additional graphics and animated computer traffic simulations of the key intersections before and after proposed projects. In addition, pdf files of the report and the appendix are included**.**

San Ysidro Mobility Strategy

1. INTRODUCTION

Mobility within a community is much more than the movement of vehicles, people and goods. It is the basic framework upon which land uses are based. Without mobility, land uses are basically isolated "bubbles" without any inter-relationships. This San Ysidro Mobility Strategy (SYMS) measures and evaluates the existing and future vehicular, pedestrian, bicycle, and transit travel patterns and needs for the San Ysidro Community. It is funded by the California Department of Transportation and administered by the City of San Diego, City Planning and Community Investment Department.

Purpose of the Strategy

- To utilize a public outreach strategy.
- To prepare a mobility assessment of vehicular traffic and parking, transit, pedestrians and bicycles.
- To develop a mobility plan that balances the needs of and integrates pedestrian, transit, vehicular, and bicycle travel along the major corridors of San Diego's San Ysidro community.
- To study traffic and pedestrian circulation and how it affects sustainable long-term economic growth, revitalization, mobility and parking throughout the community of San Ysidro.
- To identify strategies and improvement measures that improve traffic circulation, address parking demand, and promote walkability, bicycling and improved accessibility to transit use for residents, visitors and business people.
- To prepare conceptual streetscape designs.

Goals and Objectives of the Strategy

- To propose a vehicular and pedestrian circulation system that provides for the smooth, efficient and convenient flow

of traffic while allowing for a response to the social and economic needs of the community.

- To engage the community to help determine values, opportunities, deficiencies and needs and obtain community support for any improvements proposed in this study.
- To provide for smooth traffic flow and good accessibility to and from San Ysidro and outlying communities, including Mexico.
- To develop parking strategies that support planned land uses.
- To eliminate the barriers to pedestrian activity and enhance the pedestrian environment.

- To provide for an increased use of bicycles as a major means of transportation throughout the community.
- To improve the mass transportation system and increase its accessibility for San Ysidro residents, visitors and business people.

To provide a Mobility Strategy that:

- Develops strategies and measures that will be used to promote and encourage alternative transportation modes for trips in the San Ysidro area.
- Will help implement the goals of the San Ysidro Community Plan and help implement the City's smart growth efforts in the San Ysidro Community.
- Capitalizes on current developments and the existing energy in the neighborhoods.
- Encourages more business investment and development.
- Benefits the community by providing a safe pedestrian and vehicular environment, encouraging jobs, housing, and attractive open spaces.
- Protects the historical and cultural identity of the neighborhood.
- Improves the aesthetics of the environment.
- Maintains community pride.
- Is supported by the residential and business community.
- Is economically and sociologically feasible.

Selected images from the community are shown above.

There are several key elements that are necessary to create a walkable environment. These are shown below. It is a goal to encourage as many of the following elements as possible into this strategy.

Elements of a Walkable Environment

Element	Description
Sidewalk Design	In general a sidewalk should be wide enough to provide for four distinct zones: the *edge zone* that separates the roadway from the sidewalk; the *furnishing zone* providing space for street furnishing and landscape; the *throughway zone* that provides a minimum four foot width for ADA accessibility; and the *frontage zone* providing a "shy distance" between the throughway zone and building frontage/property line.
Access to Desired Uses	A successful pedestrian-oriented community or neighborhood should have a mix of complementary uses within convenient walking distance and connected with a comfortable pedestrian pathway network.
Access for Persons with Disabilities	Considerations must be made to ensure that persons with disabilities are provided with equal access to work, home, shops, and transit.
Ease of Crossing Street	Wide streets can be intimidating and more dangerous for pedestrians to cross. Methods for shortening crossing distances, providing a safer transition into the shared right-of-way, and building a stronger visual connection for pedestrians crossing the street must be employed.
Manageable Walking Distances	A typical comfortable walking distances from an origin to a destination is 1,200 feet to 2,000 feet or a 5 to 10 minute walking distance. Walking distances though are dictated by street patterns, and natural and man-made barriers. Provisions therefore should be made to provide passage through or across these barriers.
Scale	Pedestrian infrastructure such as signs, landscaping, paving, and building design detail should provide visual interest and be of human proportion.
Security	Pedestrian safety is greatly influenced by the amount, scale, intensity, and quality of lighting. Store fronts, office windows, and the windows of homes provide "eyes on the street."
Visual Interest and Community Identity	Good design should enhance the intimacy of the pedestrian environment, including open spaces such as plazas, courtyards, and squares, as well as the building facades that give shape to the space of the street.
Climate	Location and orientation of buildings, street trees, and architectural elements can make pedestrian areas more inviting by providing shade and protection from seasonal rains and winds.
Noise and Air Quality	Buffers between the roadway and sidewalks help to insulate the pedestrian from the harsher auto environment.
Efficient Parking	Sensitive planning and design of parking facilities can minimize the negative impacts of parking on the pedestrian realm while still providing good vehicular access to the community.

Community Participation

Extensive community meetings were held during the process of creating this Mobility Strategy. This included a bus tour of the entire study area. Every effort was made to accommodate the community's needs and desires. A written survey was prepared and the results of that survey are summarized in section 4 of this report. In addition, the community was asked to comment specifically on each of the proposed improvement projects. Those comments are reflected in this final report incorporating their issues and concerns. The following groups and organizations participated in the community input process.

- The San Ysidro Transportation Collaborative
- The San Ysidro Smart Border Coalition
- The San Ysidro Community Planning Group
- The Committee on Binational Regional Opportunities
- Casa Familiar

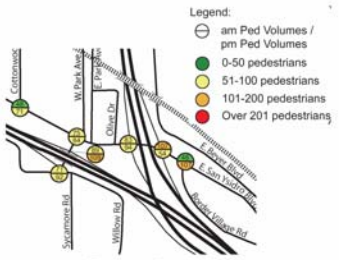
A typical meeting announcement is shown below.

A COMMUNITY WORKSHOP

Please join the **City of San Diego, Casa Familiar (Sin Limites Group), San Ysidro Transportation Collaborative** and **Estrada Land Planning** in a community workshop discussing ideas for improving how cars, trucks, buses, pedestrians, bicycles, and shuttles move within San Ysidro.

Please help us identify:

- ***particular traffic problem areas***
- ***ways to create a more walkable community***
- ***ways to make it safer and more pleasant for pedestrians and bicycles***
- ***ways to improve access to businesses***
- ***parking problem areas***
- ***ways to encourage public transit ridership***
- ***ways to improve freeway access***
- ***ways to minimize conflicts between automobile, bicycles and pedestrians***
- ***and many more***



When?
Monday July 23, 2007 - 5pm to 7pm

Where?

Casa Familiar Recreation & Civic Center
212 East Park Avenue
San Ysidro, California.

Please RSVP to 619 428-1115 ext 302 or 619 428-5200 by July 19.

2. EXISTING AND FUTURE CONDITIONS AND ANALYSIS

The community of San Ysidro is a diverse community located in the southernmost part of the city of San Diego. It is perhaps the most exciting community in the region as the energy from all of the commerce and the people from Mexico and the United States intersect here. The multi-modal trolley station is an incredible place that is buzzing with people and excitement on a Saturday morning as well as a Friday night. Many citizens within the San Ysidro community utilize walking as a primary means of mobility. In addition, a network of small shuttle buses transport people from the border to nearby shopping areas.

As shown in **Figures 2-1** and **2-2**, a bulk of the community is bounded by I-5, I-805 and SR-905. There are only 8 access points (shown in blue) where people within the subsequent triangle can travel to and from the community. In addition, the railroad/trolley right-of-way has created a large barrier that has split the community.

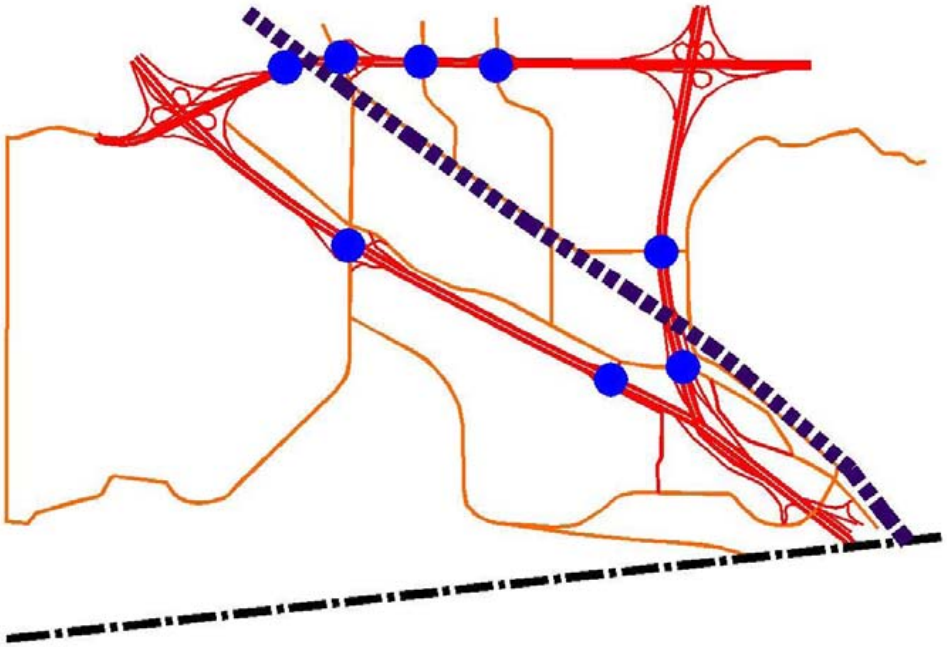


Figure 2-1

The existing circulation patterns make interconnectivity difficult due primarily to the freeways, the railroad/trolley right-of-way and the Tijuana River wetland area. In addition, the streets are not all designed to be appropriate for existing or projected traffic volumes. Many primary thoroughfares are without sidewalks, curbs and gutters, and many are much wider than they need to be.

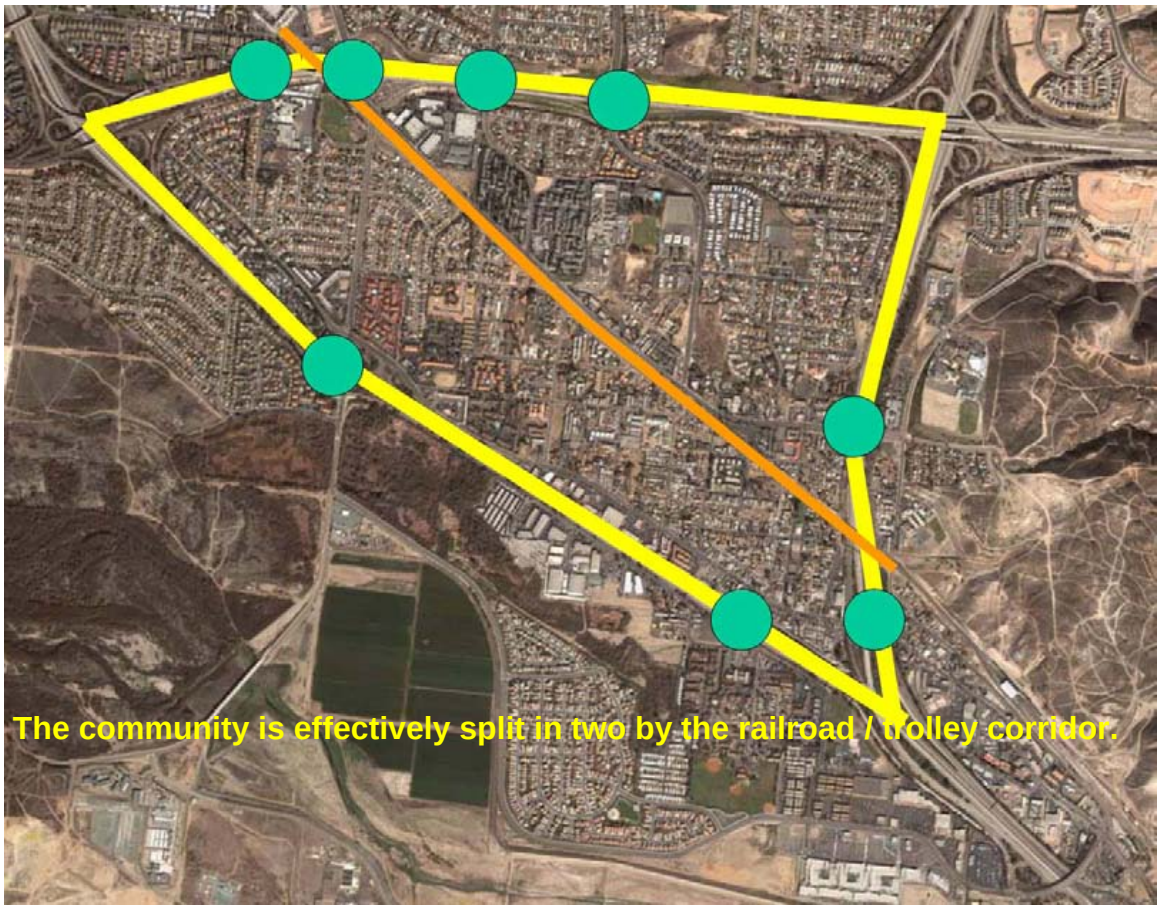


Figure 2-2

A. BACKGROUND INFORMATION

Figure 2-3 depicts the location of the community in a regional context. A map showing the roadway network within the community is provided as **Figure 2-4**.

The San Ysidro community is approximately 1,800 acres. Due to its proximity to the international border with Mexico, there are unique characteristics to the area including significant Hispanic heritage, strong border commerce opportunities, as well as traffic and circulation issues resulting from the current freeway infrastructure configuration as noted above. These are discussed in further detail later in this report.

The latest General Plan update from the City of San Diego includes smart growth strategies, higher densities and mixed-use areas which will be implemented in the proposed San Ysidro Pilot Village. This pilot village will result in a project development

plan along San Ysidro Boulevard between Cottonwood Road and Interstate 805 (I-805), on the north side of Interstate 5 (I-5).

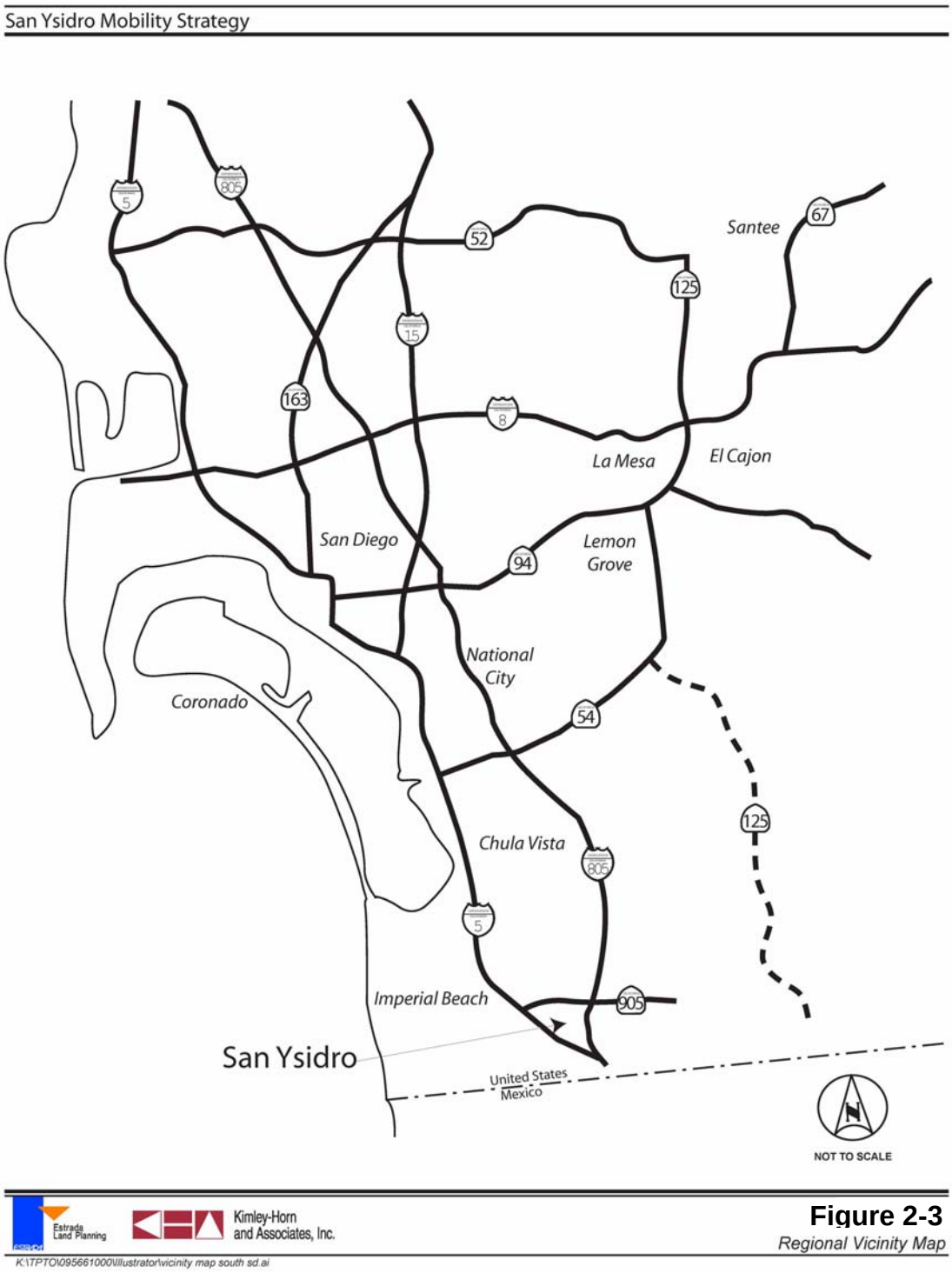


Figure 2-3
Regional Vicinity Map


San Ysidro Mobility Strategy
Figure 2-4
Roadway Network
San Diego Trolley
E. Beyer Boulevard
E. San Ysidro Blvd
Border Village Rd
Camino de la Plaza
Tia Juana St
USA/Mexico Border
Willow Road
Sycamore Road
W. Calle Primera
Camino de la Plaza
Otay Mesa Rd
Beyer Blvd
Alaquinas Dr
Avenida de la Madrid
Padre Tullio Dr
Mt. Carmel Dr
North Ln
Seaward Ave
W. Park Ave
E. Park Ave
Olive Drive
Smythe Ave
Cottonwood Rd
Foothill Rd
Alverson Road
Averill Road
Blackshaw Ln
Sunset Ln
Vista Lane
Tequila Way
Beyer Blvd
Dairy Mart Road
N. San Ysidro Blvd
Servando Avenue
Not to Scale
Kimley-Horn and Associates, Inc.
Estrada Land Planning
k:\TPTO\09566\1000\Illustrator\roadway network.ai

B. FORECAST METHODOLOGY

The following section describes the methodology used to forecast traffic volumes and complete the analysis process for this report.

Forecast Traffic Volumes

Forecast model runs were needed for the future year scenarios due to changes in the roadway network and on land use assumptions for the San Ysidro community area. Traffic models from SANDAG Series 10 were used for the analysis. These models included the full build-out of the San Ysidro community with the currently adopted land use designations and roadway network outlined in the San Ysidro Community Plan. Year 2030 forecast run is shown in **Appendix A**.

To estimate the future turning movement volumes (Year 2030) at the study intersections, the existing turning movements at each respective study intersection were factored up based on the forecast model's average daily traffic (ADT) volumes along each approach. Each respective movement would be derived using an iterative approach that balances the inflows and outflows for each approach. The input values include the existing turning movement volumes and future year peak-hour approach and departure volumes along each leg of the intersection. The future peak-hour approach volumes would be estimated by applying the existing peak-hour factor (K-factor) and directional distributional percentage (D-factor) to the future ADT volumes along each approach. A more detailed description of the methodology used to forecast turning movement volumes is contained in National Cooperative Highway Research Program (NCHRP) Report 255 Highway Traffic Data for Urbanized Area Project Planning and Design, Chapter 8.

Study Area Intersections

The study area was defined based on discussions with City staff and on input received from the community. The study area intersections selected for analysis are shown in **Table 2-1**.

TABLE 2-1
STUDY AREA INTERSECTIONS

	Intersection	Traffic Control
1	Dairy Mart Rd & I-5 SB ramps	Signal
2	San Ysidro Blvd & Dairy Mart Rd	Signal
3	San Ysidro Blvd & I-5 NB ramps	Signal
4	Beyer Blvd & Smythe Ave	Signal
5	San Ysidro Blvd & Cottonwood Rd	Signal
6	San Ysidro Blvd & Via de San Ysidro	Signal
7	Via de San Ysidro & I-5 NB ramps	TWSC
8	Via de San Ysidro & I-5 SB ramps	Signal
9	Via de San Ysidro & Calle Primera	Signal
10	San Ysidro Blvd & I-805 SB Ramps	Signal
11	San Ysidro Blvd & I-805 NB Ramps	Signal
12	San Ysidro Blvd & Border Village Rd (north)	Signal
13	San Ysidro Blvd & Border Village Rd (south)	Signal
14	San Ysidro Blvd & Beyer Blvd	Signal
15	E. San Ysidro Blvd & I-5 NB ramps	Signal
16	Camino de la Plaza & Willow Rd	Signal

Notes:
Signal = Traffic signal, TWSC = Two-Way Stop-Control

As shown in the table, all intersections are currently signalized in the study area except for Intersection 7, which is the I-5 NB ramps/Via de San Ysidro intersection. **Figure 2-5** displays the location of the study intersections.


San Ysidro Mobility Strategy
Figure 2-5
Study Intersections
Legend:
Signalized
Unsignalized
Not to Scale
Estrada Land Planning
Kimley-Horn and Associates, Inc.
N. San Ysidro Blvd
Servando Avenue
Dairy Mart Road
Camino de la Plaza
Tequila Way
Vista Lane
Blackshaw Ln
Sunset Ln
Averill Road
Beyer Blvd
Alverson Road
Foothill Rd
Smythe Ave
W. Calle Primera
Cottonwood Rd
Avenida de la Madrid
North Ln
Padre Tullio Dr
Mt. Carmel Dr
Seaward Ave
W. Park Ave
E. Park Ave
Olive Drive
Sycamore Road
Willow Road
Alaquinas Dr
Otay Mesa Rd
E. San Ysidro Blvd
Border Village Rd
E. Beyer Boulevard
San Diego Trolley
Tia Juana St
USA/ Mexico Border
5
805
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Analysis Process

The analysis process included determining the operations at the study intersections for the a.m. and p.m. peak-hours. Intersections were measured and quantified by using the Synchro traffic analysis software package.

Analysis Software

To analyze the operations of both signalized and unsignalized intersections, Synchro 6.0, a traffic software produced by Trafficware was used for the analysis. Synchro 6.0 uses the methodologies outlined in the 2000 *Highway Capacity Manual (HCM)*.

The peak-hour factor (PHF) was obtained from actual counts conducted in the field.

Intersections

The 2000 *HCM* published by the Transportation Research Board establishes a system whereby highway facilities are rated for their ability to process traffic volumes. The terminology "level of service" is used to provide a "qualitative" evaluation based on certain "quantitative" calculations, which are related to empirical values.

Level of service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and loss of travel time. Specifically, LOS criteria are stated in terms of the average control delay per vehicle for the peak 15-minute period within the hour analyzed. The average control delay includes initial deceleration delay, queue move-up time, and final acceleration time in addition to the stop delay. The LOS for unsignalized intersections is determined by the computed or measured control delay and is defined for each minor movement.

The criteria for the various levels of service designations are provided in **Table 2-2**.

TABLE 2-2
LOS CRITERIA FOR INTERSECTIONS

LOS	Signalized Control Delay (sec/veh) (a)	Unsignalized Average Control Delay (sec/veh) (b)	Description
A	≤10.0	≤10.0	Operations with very low delay and most vehicles do not stop.
B	>10.0 and ≤20.0	>10.0 and ≤15.0	Operations with good progression but with some restricted movement.
C	>20.0 and ≤35.0	>15.0 and ≤25.0	Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	>35.0 and ≤55.0	>25.0 and ≤35.0	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines.
E	>55.0 and ≤80.0	>35.0 and ≤50.0	Operations where there is significant delay, extensive queuing, and poor progression.
F	>80.0	>50.0	Operations that are unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.

Notes:
Delay represented in seconds per vehicle (sec/veh)
(a) 2000 Highway Capacity Manual, Chapter 16, Page 2, Exhibit 16-2
(b) 2000 Highway Capacity Manual, Chapter 17, Page 2, Exhibit 17-2

Within the city of San Diego, all signalized and unsignalized intersections are expected to operate at LOS D or better.

Roadway Segments

Table 2-3 has been developed by the City of San Diego and is used as a reference. The segment traffic volumes under LOS E as shown in this table are considered at capacity because at LOS E the v/c ratio is equal to 1.0.

TABLE 2-3
CITY OF SAN DIEGO ROADWAY SEGMENT CAPACITY AND LOS

Road Classification	Lanes	Level of Service (LOS) A	B	C	D	E
Freeway	8	60,000	84,000	120,000	140,000	150,000
Freeway	6	45,000	63,000	90,000	110,000	120,000
Freeway	4	30,000	42,000	60,000	70,000	80,000
Expressway	6	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Collector	4	10,000	14,000	20,000	25,000	30,000
Collector (No center lane) (Continuous left-turn lane)	4 2	5,000	7,000	10,000	13,000	15,000
Collector (No fronting property)	2	4,000	5,500	7,500	9,000	10,000
Collector (Commercial/Industrial fronting)	2	2,500	3,500	5,000	6,500	8,000
Collector (Multi-family)	2	2,500	3,500	5,000	6,500	8,000
Sub-Collector (Single family)	2	---	---	2,200	---	---

Notes:
The volumes and the average daily level of service listed above are only intended as a general planning guideline.
Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

Source: City of San Diego Traffic Impact Study Manual, Table 2, Page 8, July 1998.

A graphical representation of the LOS concepts for the different facilities is shown in **Figure 2-6**.

Source: 2000 HCM

Figure 2-6 Graphical Summary of LOS Concepts