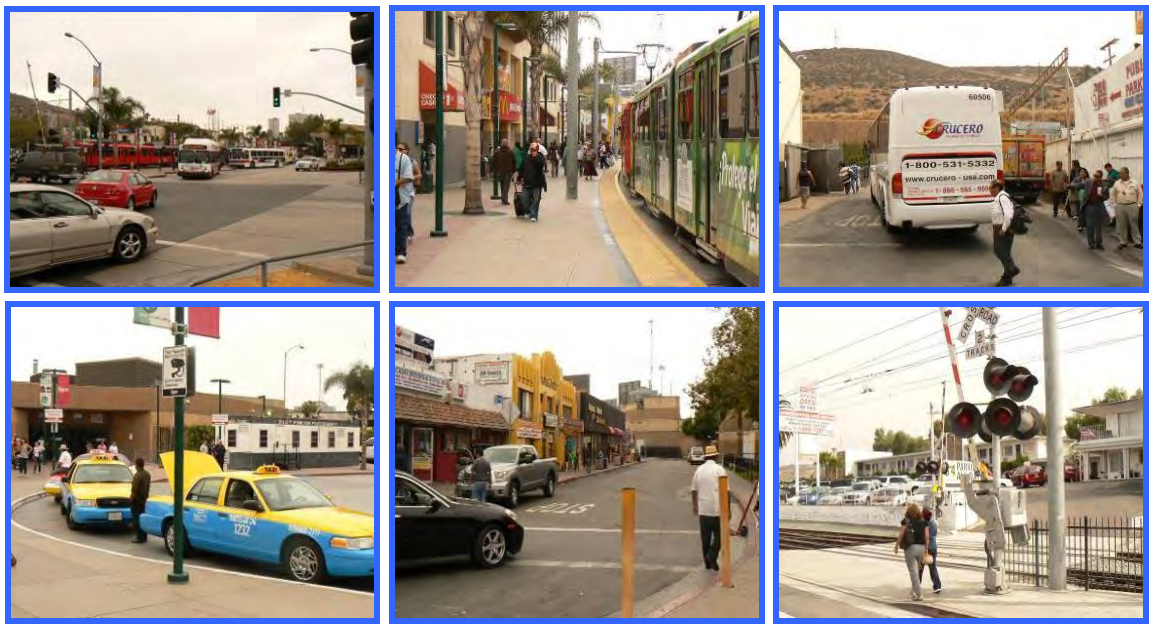
San Ysidro Port of Entry
Reconfiguration Mobility Study

DRAFT



Prepared for:

America's Finest City
THE CITY OF SAN DIEGO

Prepared by:

PB PARSONS BRINCKERHOFF
100 YEARS

ESTRADA
Estrada Land Planning

November 2009

Table of Contents

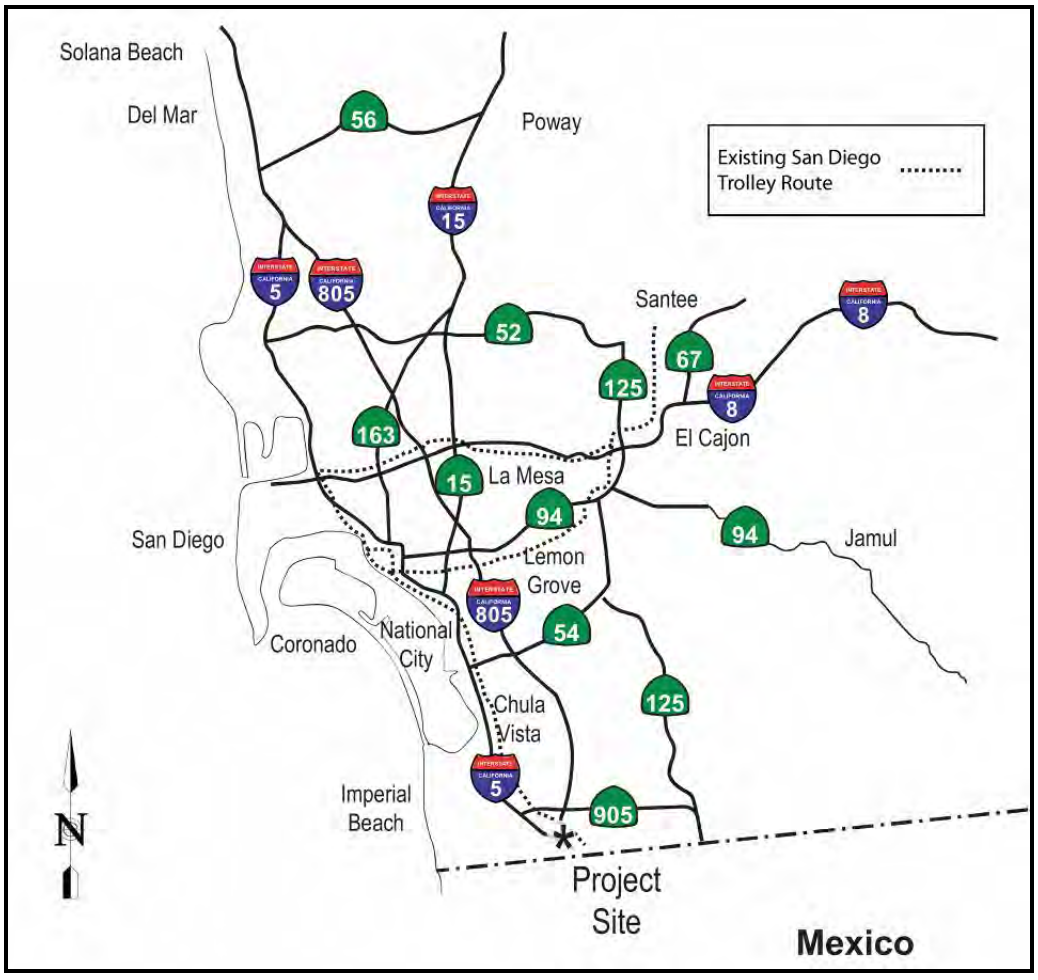
List of Figures

List of Tables

1.0 STUDY PURPOSE

The San Ysidro Port of Entry (POE) is the busiest international land crossing along the United States-Mexico border, and among the busiest ports of entry in the world.[1] Each day, tens of thousands of people cross the border from Mexico to the United States on foot and in cars, buses, and shuttles. These border crossers are funneled through the U.S. General Services Administration (GSA) border inspection facilities and converge north of the border before dispersing throughout the San Ysidro and South Bay communities, the San Diego region, and even the state (**Figure 1**). Transportation facilities and services available to transport border crossers to their destinations include Interstates 5 (I-5) and 805 (I-805), local streets, the San Diego Trolley light rail (Trolley), local public buses, private intercity buses, shuttles, jitneys, and taxis. While there are many transportation options available, the large volumes of people and vehicles, and the configuration of transportation facilities and services at the border, has resulted in conflicts and inefficiencies in circulation, service provision, and mobility.

FIGURE 1: VICINITY MAP



[1] *Economic Impacts of Wait Times at the San Diego-Baja California Border, Final* Report, January 19, 2006, San Diego Association of Governments and Caltrans, District 11, Forward, p. v.

The GSA has plans to upgrade and expand both pedestrian and vehicular border inspection facilities at the San Ysidro POE (**Figure 2**). The three-phased plan extends on both the east and west sides of I-5, with the first two phases focused on the east. The GSA plans will accommodate higher volumes of people and vehicles and affect existing circulation and facilities, further exacerbating the transportation and mobility conflicts and deficiencies at the border. Pedestrian border crossings (including those who arrive at or depart from the border via public and private transit) are projected to increase by over 40 percent by 2014 to approximately 78,000 daily north- and southbound crossings.[2]

FIGURE 2: GSA PREFERRED ALTERNATIVE

The San Ysidro community has long been at the heart of border activity, yet has not fully benefited or capitalized on the large volumes of people crossing the border and traveling to and through the community. Community members and business and property owners have identified improved access to the community and economic development as key goals to support community enhancement and revitalization. They understand that better integrating transportation, land use, urban design, and economic opportunities at the border is critical to promoting successful linkages to the community and community-wide economic development.

In response to GSA border facility expansion plans and anticipated growth in border crossings, the City of San Diego applied for and received a Caltrans Planning Grant to evaluate border mobility issues and develop a transportation reconfiguration concept to address circulation, access, and community integration at the border. This study, funded through the planning grant:

- Identifies existing and future conflicts and deficiencies in transportation, circulation, and access at the border.

[2] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study (*KOA Corporation, April 30, 2009*),* page 55.

- Establishes transportation facility needs for autos, light rail, public buses, private buses, jitneys, shuttles, taxis, bicycles, and pedestrians.
- Addresses integration of border facilities, circulation, and access with the San Ysidro community.
- Creates a concept for reconfiguring border transportation facilities to address the conflicts, deficiencies, access, and needs.

The study builds on existing transportation infrastructure and services, and past transportation studies of the border area.[3] It also takes into account the relationship of border transportation, circulation, and access to community planning goals in an effort to support a future update of the San Ysidro Community Plan. While the GSA expansion plans span both sides of the freeway, the study focuses primarily on the implications of the first two phases for the transportation facilities and services on the east side of I-5. The study's border reconfiguration mobility concept concentrates on consolidating transportation services and facilities on the east side of I-5 into an Intermodal Transportation Center (ITC) to reduce conflicts; improve efficiencies and access; become a gateway to the community, region, state, and country; and act as a catalyst for community economic development in San Ysidro. The broader study area relative to GSA's three-phased expansion plans, and the east-side study focus area (where GSA Phase 1 and 2 plans will occur) are shown in **Figure 3**.

FIGURE 3: FULL AND FOCUSED STUDY AREAS

[3] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study (*KOA Corporation, April 30, 2009*)* and *San Ysidro Mobility Strategy (*Kimley-Horn and Associates, Inc., January 2009)

The study mobility analysis and reconfiguration concept is the first step toward defining a new ITC for the San Ysidro POE, and will set the direction for future phases that will include more detailed site design, environmental analysis, community integration, funding strategies, and project implementation.

2.0 PROJECT CONTEXT

2.1 EXISTING SETTING

The San Ysidro POE is located at the southern end of the community of San Ysidro in the City of San Diego. According to the City of San Diego:

> More than a century of settlement and development makes San Ysidro a changing, dynamic community with a village atmosphere. The architectural and cultural qualities from its evolving history have been retained and are captured in this village feel. San Ysidro began as an experiment to preserve rural America and has emerged as a multicultural area attempting to maintain its sense of community. Some neighborhoods are characterized by older homes with well-tended gardens where residents know their neighbors while newer, urban neighborhoods and infill development have recently added to the mix of housing stock. Commercial activity occurs along the historic San Ysidro Boulevard and in the new Las Americas Center on Camino de la Plaza. Cohesion of the community is fragmented by the Trolley system, and Interstates 5 and 805. In 1996, 776 acres in the community plan area [43%] were designated as a redevelopment project area. San Ysidro is a community that is both a small town and bustling city; a gateway to San Diego and the United States.[4]

The San Ysidro POE extends east-west along the international border from the freight railroad tracks on the east to the southbound pedestrian crossing adjacent to the west side of I-5 at Camiones Way (**Figure 4**). I-5 terminates at the border with vehicles required to pass through southbound and northbound vehicular crossing inspection facilities.

Currently 24 northbound GSA inspection lanes are provided for vehicles and one inspection lane is provided for buses entering the U.S. About two miles north of the border, I-805 splits from I-5. On the west side of I-5, at the southern end of Camiones Way, there is a southbound-only pedestrian border crossing. Adjacent to this crossing, at the Camiones Way cul-de-sac, there are curbside facilities for public and private bus access, taxis, jitneys, and private auto pick-up/drop-off. On the east side of I-5 immediately north of the POE pedestrian border crossing facilities, a variety of regional and inter-regional transportation facilities and services mix with the local street system and land uses. In this area, which is bounded by the border on the south, I-5 on the west, the freight railroad tracks on the east, and Camino de la Plaza on the north, there is currently a functioning commotion of transportation and commercial activity that accommodates pedestrian border crossers, including:

- GSA passenger border inspection facilities and offices
- San Diego Trolley light rail tracks and station
- A transportation “circle” that provides space for:
  - Metropolitan Transit System (MTS) local public buses
  - Taxis
  - Private jitneys
  - Private cross-border shuttles

[4] San Diego Community Profile: San Ysidro, http://www.sandiego.gov/planning/community/profiles/sanysidro/index.shtml

  - Private intercity bus facilities
  - Informal private vehicle passenger drop-off/pick-up
- East San Ysidro Boulevard, including the Camino de la Plaza intersection and the I-5 northbound freeway ramps/Rail Court intersection
- Pedestrian plaza and sidewalks
- GSA employee and private parking lots
- Retail, restaurant, office, and motel land uses

The I-5 on- and off-ramps penetrate the center of this eastside site, providing the most direct access to and from the community and commercial areas along San Ysidro Boulevard. The following section describes the existing transportation context on both the east and west sides of I-5 in more detail.

FIGURE 4: EXISTING SAN YSIDRO PORT OF ENTRY (POE)

2.1.1 Border Area Transportation Facilities and Services

2.1.1.1 Freeways and Access Ramps

I-5 terminates at the San Ysidro POE. Five southbound lanes take autos, trucks, buses, and other vehicles to the border crossing facilities to enter Mexico. Approximately 500 feet north of the POE, the last southbound freeway on- and off-ramps connect to Camino de la Plaza at Camiones Way, providing access to and from the San Ysidro community. Northbound, all vehicles are funneled into five northbound freeway lanes after exiting one of the 24 border inspection stations. Immediately north of the POE facilities, the first northbound on- and off-ramps provide community access via a connection to the intersection of East San Ysidro Boulevard at Rail Court, which is also the entrance to the existing transportation center. Due to the configuration of the border crossing facilities, the northbound off-ramp is only accessible from the three easternmost lanes exiting the POE inspection facilities (see **Figure 4**).

Approximately one-half mile north of the border, I-805 splits from I-5. I-5 continues north along San Diego Bay toward Chula Vista, National City and downtown San Diego, while I-805 veers inland. I-5 on- and off-ramps provide additional access to the San Ysidro community at Via de San Ysidro and West San Ysidro Boulevard. I-805 provides access ramps to the north end of East San Ysidro Boulevard.

2.1.1.2 Street Network

East San Ysidro Boulevard, on the east side of I-5, is the primary north-south arterial street in the community and study area. It extends from the freeway ramps at Rail Court on the south, northward through the community's commercial core. After crossing under I-805, its name changes to West San Ysidro Boulevard to its terminal at State Route (SR) 905. South of Camino de la Plaza, East San Ysidro Boulevard is one lane in the northbound direction and two lanes in the southbound direction with no on-street parking. North of Camino de la Plaza, East San Ysidro Boulevard widens to two lanes northbound and three lanes southbound to Border Village Road, then narrows again to one lane in each direction, with some segments containing dual-way center left-turn lanes. On-street parking is time restricted on the east side of the street. Development along the street is generally characterized by a mix of smaller-scale, older street frontage, strip commercial, and retail services. Sidewalks on both sides of the street provide pedestrian access to retail and other commercial uses. Between Camino de la Plaza and the freeway on- and off-ramps at Rail Court, the San Diego Trolley light rail parallels the east side of

the street. The entire street, including the segment with the Trolley, contains numerous driveway access points across the sidewalks and light rail tracks.

One block north of the I-5 northbound freeway ramps/Rail Court intersection, East San Ysidro Boulevard intersects with Camino de la Plaza. Camino de la Plaza is the primary east/west arterial street in the study area. It spans I-5 about a 1,000 feet north of the POE, connecting the east and west sides of the San Ysidro community. The first intersection west of the freeway is the southbound freeway on- and off-ramps at Camiones Way. Camiones Way leads to a large, private parking lot (that primarily serves border crossers) and ends in a cul-de-sac at a southbound-only pedestrian border crossing. Several curbside facilities for public and private bus access, taxis, jitneys, and private auto pick-up/drop-off are provided adjacent to the crossing on Camiones Way. Further west, Camino de la Plaza intersects with Virginia Avenue and continues westward to provide access to Las Americas shopping center. East of the freeway and East San Ysidro Boulevard, Camino de la Plaza turns into East Beyer Boulevard, although most traffic on Camino de la Plaza turns to and from East San Ysidro Boulevard to access the community's commercial core. Camino de la Plaza is generally two lanes in each direction with left-turn lanes at intersections. It is lined mostly with parking lots and driveway access points with little developed street frontage or pedestrian activity. On the segment spanning the freeway, taxis queue along the curb adjacent to the eastbound lanes to wait for open stalls at the transit center.

2.1.1.3 Public and Private Transit and Transportation Facilities and Services

I-5 Eastside

The area east of I-5 immediately north of the POE consists of a wide variety of transportation facilities and services aimed at the large volumes of pedestrians crossing the border in both north- and southbound directions. The San Diego Trolley and local buses provide public transit access to and from the POE at the San Ysidro/International Border Station and adjacent bus transit center (Rail Court). In addition to public transit, taxis, private jitneys, and shuttle buses use the transit center. Separate from the Trolley station and transit center but adjacent to these facilities, private intercity bus companies provide facilities and services for pedestrian border crossers. In addition to these transportation services, several private parking lots just north of the Trolley station, transit center, and intercity bus facilities serve those who wish to park near the border and walk across. Finally, informal auto passenger pick-up and drop-off also occurs in the vicinity of these public and private transportation facilities. A more detailed description of the public and private transportation facilities and services is included below (**Figure 5**).

San Diego Trolley. The San Diego Trolley San Ysidro/International Border Station is the southern terminal of the Trolley Blue Line. The Blue Line extends north through Chula Vista, National City, and downtown San Diego to its northern terminal at Old Town, and connects with the Orange and Green Lines in downtown San Diego and Old Town, respectively. The San Ysidro Station is the busiest station on the 53-mile Trolley light rail system with over 20,000 trip ends (ons and offs) a day in 2008. The Trolley operates with three- and four-car trains serving San Ysidro approximately every 7.5 minutes during the weekday peak periods and 15 minutes during weekday off-peak and weekends. The station consists of two tracks and three passenger platforms (side and center platforms), which are approximately 100 feet from the northbound pedestrian border crossing bridge exit, providing convenient access to Trolley services.

FIGURE 5: PUBLIC AND PRIVATE TRANSPORTATION FACILITIES AND SERVICES

Public Transit Buses. Two MTS bus routes serve the transit center adjacent to the Trolley station at the San Ysidro POE. Characteristics of these local bus routes are shown in **Table 1**.

Table 1: San Ysidro POE MTS Bus Service

MTS Route	Weekday Vehicle Trips	Weekday Peak Frequency	Weekend Peak Frequency	Weekday Daily Ridership San Ysidro Blvd/Int'l Border		Weekday Daily Ridership Camiones Way/Int'l Border	
				Boardings	Alightings	Boardings	Alightings
929	63	15	30	922	593	11	517
932	66	15	20	784	658	N/A	528

Source: SANDAG 2008 Passenger Counting Program

There are three bus bays designated for these routes in the transit center, including one layover bay. Like the Trolley, the public transit bus bays are approximately 100 feet from the northbound pedestrian border crossing bridge exit, providing convenient access to local bus services.

Taxis. Privately operated taxis deliver and pick up passengers at the transit center. There are three designated spaces for taxis to wait for passengers within the transit center circle. Up to 30 additional taxis queue along the curb adjacent to the eastbound travel lanes of the Camino de la Plaza span over the freeway waiting for one of the three designated spaces in the transit center to become available. The taxi drivers can see the transit center from the bridge span. The first driver in the queue moves into an open space.

Jitneys/Shuttles. There are also three spaces available in the transit center for private, licensed jitneys and shuttle buses. The jitneys operate on quasi-fixed routes, primarily transporting passengers between the border crossing and swap meets located on the west side of the freeway. Shuttle buses include those operating within the community as well as cross-border shuttles that access I-5 via the freeway ramps to get to and from the vehicular border crossing.

Intercity Buses. Up to 15 intercity bus companies provide service to the POE using facilities east of the Trolley station and transit center behind retail storefronts that line the Trolley platform and southbound pedestrian crossing access. Several of these companies have ticketing offices on the site. Passengers wait at minimal facilities where 10 diagonal parking stalls for these buses line the back of the retail buildings. Pedestrian access to the waiting area is via indirect and incomplete pathways that conflict with circulating buses. One intercity company boards passengers at the far southern end of the site adjacent to the southbound pedestrian crossing. The intercity buses access the facilities via Rail Court through the intersection of East San Ysidro Boulevard/Rail Court/northbound freeway ramps. To depart, these buses must make a U-turn at the cul-de-sac adjacent to the bus parking stalls or circulate around the retail buildings and through the pedestrian area at the front of the stores and near the Trolley station and transit center.

Kiss-and-Ride. There is no formal designated area within the POE vicinity for private auto passenger drop-off and pick-up (kiss-and-ride). As a result, kiss-and-ride occurs in a somewhat chaotic manner, but most often along Rail Court and in the Jack in the Box parking lot, both just east of the Trolley tracks. Given the volume of pedestrians crossing the border, there is a high occurrence of kiss-and-ride activity.

Bicycles. Approximately 100 bicycle racks are located at the northwest corner of the East San Ysidro Boulevard/northbound freeway ramps/Rail Court intersection. Field observations indicate that there is very little demand for these bicycle facilities.

Parking Lots. Six parking areas exist between the POE and Camino de la Plaza. Three of these are GSA employee facilities not available to the public. The other three are privately operated fee lots with over 450 spaces, catering to people crossing the border. One is accessible from East San Ysidro Boulevard, and the other two from Rail Court.

Other Activity. In addition to the public bus, taxi, jitney, and shuttle use of the transit center, the center includes space for emergency vehicles, transit supervisor and maintenance vehicles, and public safety vehicles. Another, somewhat problematic use at and near the POE transportation facilities, is the presence of “wildcat” transportation operators. Wildcatters provide illegal

transportation services that compete with legal public and private providers. They often wait for passengers either in spaces designated for legal uses, or in areas that impact traffic circulation and create access conflicts.

All of these transportation services obtain access to their respective transportation facilities through the intersection of East San Ysidro Boulevard/northbound freeway ramps/Rail Court. This access activity, combined with auto access to and from the freeway, internal community circulation in the area, and the large number of pedestrians that continue their trips to San Ysidro on foot through the intersection and along East San Ysidro Boulevard, has resulted in multiple demands on limited space and a variety of conflict points.

Finally, limited commercial and retail uses are scattered throughout the area between the POE and Camino de la Plaza. These uses include retail, restaurant, and service businesses adjacent to and south of the Trolley platforms, and the Jack-in-the-Box and a motel on East San Ysidro Boulevard between the transit center and Camino de la Plaza. The community's core commercial area is north of Camino de la Plaza, a short distance away from the transient activity adjacent to the border.

I-5 Westside

On the west side of I-5 at the southern end of Camiones Way, there is a southbound-only pedestrian border crossing. Public and private buses, taxis, jitneys, and kiss-and-ride provide access to this crossing. However, the primary access for southbound border crossers in this location is by driving and parking at a large private parking lot near the crossing.

Public Transit Buses. MTS Routes 929 and 932 have a stop at the southbound pedestrian border crossing along the cul-de-sac curb of Camiones Way. Both of these routes also serve the east side POE, travel north along East San Ysidro Boulevard and continue through Chula Vista and National City (Route 929 travels on Third Avenue and Highland Avenue, while Route 932 travels along Broadway and National City Boulevard). Route 932 terminates at the 8th Street Trolley Station in National City. Route 929 terminates in downtown San Diego. Frequencies and ridership are shown in **Table 1**.

Taxis/Jitneys. Taxis and jitneys also provide access to the southbound border crossing along the curb at the terminal of Camiones Way.

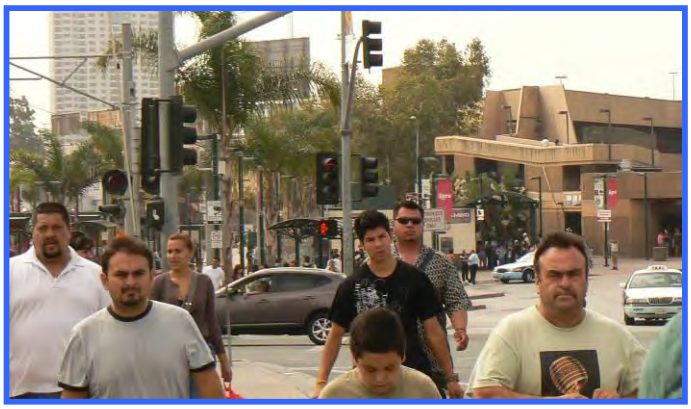
Parking Lots. Between the border and Camino de la Plaza, along Camiones Way, there is a privately owned 1,178-space parking lot adjacent to the southbound pedestrian border crossing. This fee lot serves as public parking for border crossers and customers of the Duty Free America store located adjacent to the lot. North of Camino de la Plaza, another 600 space commercial fee lot serves border crossers and adjacent commercial buildings.

2.1.2 Border Crossings

Vehicular. In 2008, 13.7 million northbound vehicles crossed the border at the San Ysidro POE to enter the U.S., including almost 88,000 buses. These vehicles carried over 26.0 million people. Most likely as a result of the global economic crisis and security concerns in Mexico, the 2008 number is down from a high of 17.7 million vehicles carrying 34.4 million people in 2004.[5]

[5] www.sandag.org: U.S. Department of Transportation, Research and innovation Technology Administration, Bureau of Transportation Statistics, Border Crossing/Entry Data, based on the U.S. Department of Homeland Security, Customs and Border Protection.

While southbound vehicular border crossing data for 2008 are not available, the general assumption can be made that a balanced travel demand exists and a similar number of vehicles cross southbound from the U.S. into Mexico on an annual basis. Vehicles crossing the border at the San Ysidro POE primarily use I-5 and I-805 to and from the region. Those with origins in the San Ysidro community access the border via the southbound ramps off Camino de la Plaza. Those with destinations in San Ysidro access the community via northbound ramps to East San Ysidro Boulevard.



Pedestrian. In addition to people crossing into the U.S. by car or bus, approximately 7.3 million northbound pedestrians walked across the border at the San Ysidro POE in 2008 (also down from the 9.4 million northbound pedestrian crossings in 2004), according to the U.S. Department of Transportation.[6] In January 2009, KOA Corporation (KOA) conducted on-site directional pedestrian counts over an 18-hour period (3:00 AM–9:00 PM) and extrapolated the data to a 24-hour daily pedestrian count. According to the KOA data, 54,000 daily pedestrians (31,400 northbound and 22,700 southbound) cross the border each day, with 3,400 crossing during the morning peak hour and 3,900 crossing during the evening peak hour.[7] Work and shopping are the primary trip purposes for pedestrians crossing the border, comprising almost two-thirds of all pedestrian trips. Other trip purposes include tourism, school, business/social, and medical trips.[8]

Pedestrian Mode of Access. The San Diego Trolley is, by far, the primary mode of access to and from the San Ysidro POE for pedestrians crossing the border on foot, with almost 42 percent of border pedestrians using the Trolley (**Figure 6**).[9] Other access modes to and from the San Ysidro pedestrian POE include private vehicles (pick-up/drop-off) (22 percent), public and private buses (17 percent), and taxis (5 percent). Over 14 percent remain pedestrians walking to and from the San Ysidro community.[10] Extrapolating data from the numbers of northbound pedestrian border crossings in 2008, these pedestrians generate over 2.0 million walking trips, or an average of almost 6,000 pedestrian trips a day radiating from the border.[11]

[6] www.sandag.org: U.S. Department of Transportation, Research and innovation Technology Administration, Bureau of Transportation Statistics, Border Crossing/Entry Data, based on the U.S. Department of Homeland Security, Customs and Border Protection.

[7] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009), page 11.

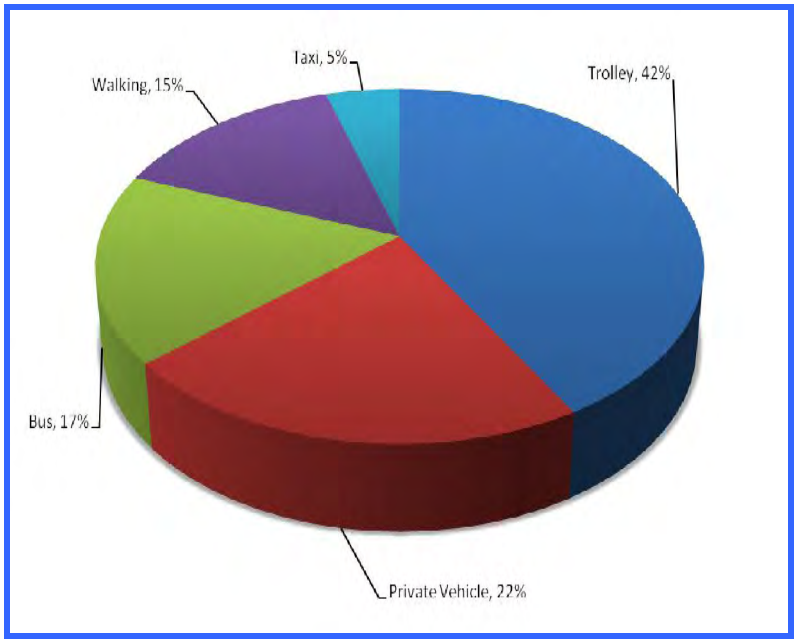
[8] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009), page 12.

[9] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009), page 13.

[10] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009), page 13.

[11] Assuming 7.3 million northbound pedestrian crossings X 2 (for return trips) X 14.5% pedestrian mode of access to border = 2.1 million walk access/365 days/year = 5,800 walking trips to and from the San Ysidro POE.

FIGURE 6: SAN YSIDRO POE EXISTING PEDESTRIAN MODE OF ACCESS



Source: *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009)

Public Transit Ridership: As a result of high volumes of pedestrian border crossers accessing the POE via Trolley, Trolley trip ends (ons and offs) at the San Ysidro/International Border Station exceeded 20,000 each weekday (or over 6.4 million annually[12]) in 2008, making this station, by far, the highest volume station in the light rail system (serving over five times more passengers than the second highest volume station).[13] As shown in **Table 1**, ridership on MTS buses average approximately 3,000 passenger ons and offs each weekday at the two border crossing bus stops.

2.1.3 Area Traffic Analysis

The following section summarizes the existing mobility elements and primarily focuses on the area closest to the existing POE.

[12] Based on a 320 day annualization factor
[13] SANDAG Passenger Counting Program, www.SANDAG.org

2.1.3.1 Traffic Volumes

Traffic volumes at the study intersections during the weekday AM peak period (7:00 AM to 9:00 AM) and PM peak period (4:00 PM to 6:00 PM) were obtained in May 2008. These traffic volumes are shown in Figures 3-3 and 3-4 contained in the *San Ysidro Land Port of Entry (LPOE) Station Expansion Traffic Study* (KOA Corporation, April 30, 2009).

Table 2 summarizes the total number of vehicles passing through each respective intersection during the peak hour. As shown in the table, the intersection of Camino de la Plaza and the I-5 southbound ramps has the highest peak-hour volume going through the intersection in both peak periods. It should also be noted that the majority of vehicles traveling during the peak periods pass through the study intersections during the PM peak hour.

Table 2: Existing Traffic Volume Summary at Study Intersections

		Peak Hour	Existing
1	Camino de la Plaza & Virginia Ave	AM	454
		PM	1,457
2	Camino de la Plaza & I-5 SB Ramps	AM	979
		PM	2,701
3	East San Ysidro Blvd & Camino de la Plaza/East Beyer Blvd	AM	950
		PM	1,952
4	East San Ysidro Blvd & I-5 NB Ramps	AM	817
		PM	1,083

Note: Traffic volumes represent the total number of vehicles passing through an intersection during the peak hour.

2.1.3.2 Traffic Operations

Intersections

The 2000 *Highway Capacity Manual (HCM)* published by the Transportation Research Board (TRB) 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. At a one-way or two-way stop control intersection, the delay reported represents the worst movement, which is typically the left turns from the minor street approach. The criteria for the various LOS designations are provided in **Table 3**.

Table 3: 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:
(a) 2000 *Highway Capacity Manual*, Chapter 16, Page 2, Exhibit 16-2
(b) 2000 *Highway Capacity Manual*, Chapter 17, Page 2, Exhibit 17-2

As discussed earlier, the focused study area is located near the existing POE. The following four key intersections were identified in the focused study area:

1. Camino de la Plaza & Virginia Avenue
2. Camino de la Plaza & I-5 SB Ramps
3. East San Ysidro Boulevard & Camino de la Plaza/East Beyer Boulevard
4. East San Ysidro Boulevard & I-5 NB Ramps/Rail Court

All of these intersections are signalized except for the Virginia Avenue/Camino de la Plaza intersection, which is stop-controlled on Virginia Avenue. **Figure 7** illustrates the key intersections within the focused study area.

The LOS results for the study intersections are taken from the *San Ysidro Land Port of Entry (LPOE) Station Expansion Traffic Study* (KOA Corporation, April 30, 2009) and are summarized in **Table 4**. As shown in the table, all intersections currently operate at an acceptable LOS C or better during both peak periods. However, field observations during the peak periods indicate much worse operations with queues occasionally extending back into adjacent intersections. The results shown in the table do not take into account the effects of queuing, and the actual delay and operations are slightly worse than what is reported.

FIGURE 7: FOCUSED AREA STUDY INTERSECTIONS

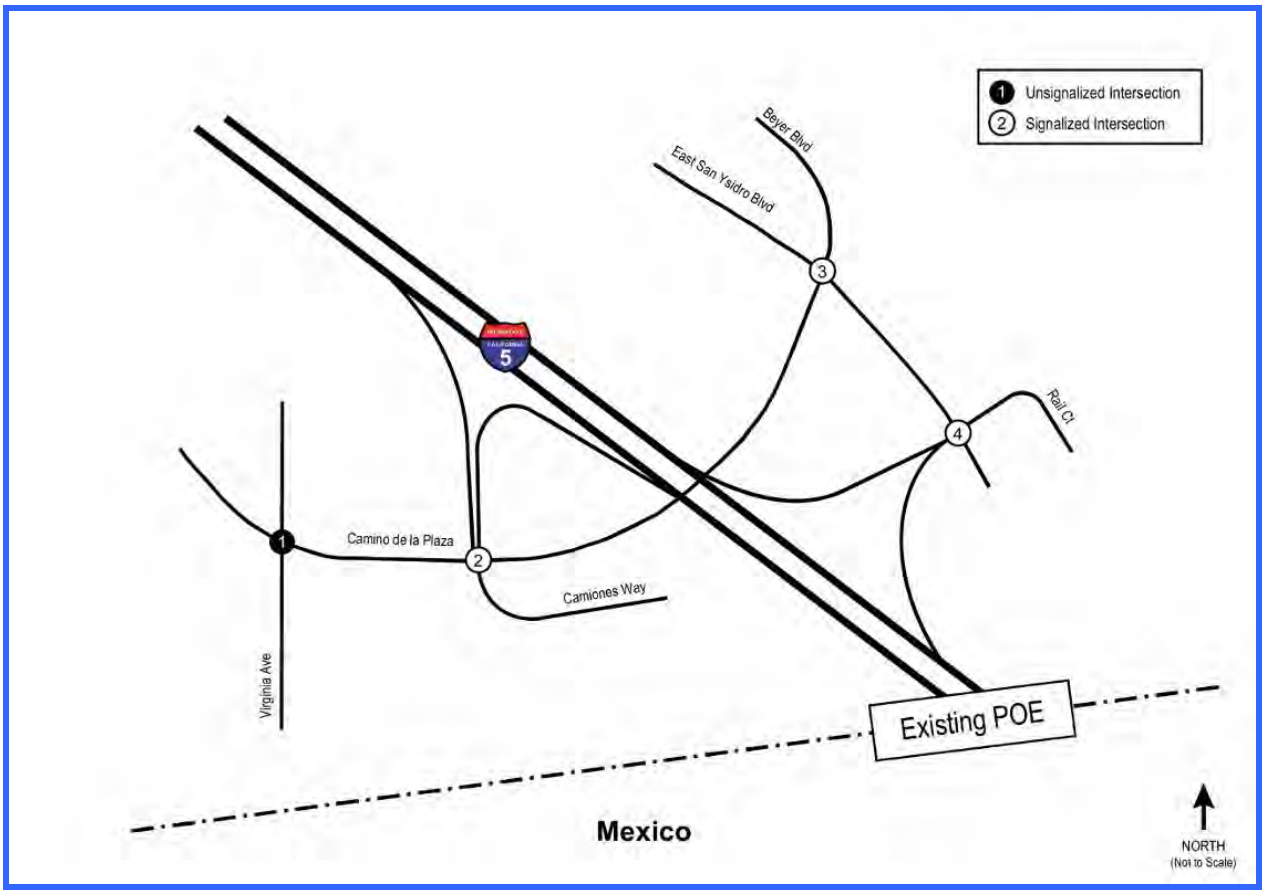


Table 4: Existing Intersection LOS Summary

Intersection		Peak Hour	Existing Conditions	
			Delay [a]	LOS [b]
1	Camino de la Plaza & Virginia Ave	AM	11.7	B
		PM	23.6	C
2	Camino de la Plaza & I-5 SB Ramps	AM	23.6	C
		PM	30.2	C
3	East San Ysidro Blvd & Camino de la Plaza/East Beyer Blvd	AM	16.4	B
		PM	8.4	A
4	East San Ysidro Blvd & I-5 NB Ramps	AM	21.3	C
		PM	19.5	B

Source: *San Ysidro Land Port of Entry (LPOE) Station Expansion Traffic Impact Study* (KOA Corporation, April 30, 2009), Table 3-3.

Notes:
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Traffix 7.9/8.0

Queuing

Queuing at intersections was not specifically addressed as part of the traffic analysis contained in the *San Ysidro Land Port of Entry (LPOE) Station Expansion Traffic Study* (KOA Corporation, April 30, 2009). The traffic analysis analyzed each intersection as an isolated intersection and did not take into account queues that spilled back into adjacent intersections.

2.1.4 Existing Conflicts and Deficiencies

The general mobility context of the area adjacent to the San Ysidro POE can be characterized by:

- Large volumes of pedestrian and vehicular border crossings.
- A high demand for transportation services.
- A wide variety of transportation modes and services converging on the area.

This unique situation at the San Ysidro POE strains and challenges the circulation system, infrastructure, and community. It both creates and results in conflicts, inefficiencies, and deficiencies for transportation access and community enhancement. Specific conflicts and deficiencies that exist at the San Ysidro POE are discussed below and shown in **Figure 8**.

2.1.4.1 Circulation and Traffic

Traffic and circulation conflicts and deficiencies in the study area include:

A. **Competing Modes at Northbound I-5 Freeway Ramps/East San Ysidro Boulevard/Rail Court Intersection.** The northbound I-5 on- and off-ramps connect directly to East San Ysidro Boulevard at Rail Court and the entrance to the transit center. This requires auto and truck traffic traveling between the freeway and the San Ysidro community to travel through this multimodal intersection where buses, taxis, jitneys, shuttles, and the Trolley access the POE. While the traffic analysis indicates an acceptable LOS at this intersection, the variety of modes competing for access, combined with the large volumes of pedestrians crossing the intersection, and the Trolley crossing gates which lower 16 times an hour during peak periods to allow Trolley passage to the border station, result in ongoing conflicts throughout the day.

B. **Limited Access to Northbound I-5 Off-Ramp.** The exit from northbound I-5 to East San Ysidro Boulevard is located within a few hundred feet of the northbound vehicular POE. Due to the configuration of the POE inspection facilities, only the four easternmost crossing lanes (out of 24 lanes) can access the off-ramp, limiting the value of the off-ramp for northbound border crossers desiring to access the San Ysidro community.

C. **Indirect Freeway Access to Community Commercial Core.** The San Ysidro community and commercial core (and future pilot village) are primarily north of Camino de la Plaza. Camino de la Plaza provides the most direct arterial street access to the northern community. Funneling all northbound freeway traffic through the on- and off-ramps at East San Ysidro Boulevard and Rail Court creates an indirect route for traffic to and from the heart of the community and commercial core and compounds the vehicular conflicts at the ramp ingress/egress.

D. **Limited Capacity Along East San Ysidro Boulevard South of Camino de la Plaza.** East San Ysidro Boulevard north of Camino de la Plaza is three lanes southbound and two lanes northbound with additional left-turn lanes at the Camino de la Plaza

intersection. South of Camino de la Plaza, East San Ysidro Boulevard narrows to two lanes southbound and one lane northbound (with additional capacity at intersections). Given that this southern segment provides the only access to the transit center, freeway ramps, parking lots, and businesses, and accommodates many large buses, the narrower street segment imposes limits on efficient circulation and access.

E. Frequent Trolley Crossing Gate Closures that Impact Access. The San Diego Trolley light rail tracks parallel the east side of East San Ysidro Boulevard from Camino de la Plaza to the transit center at the POE. The tracks cross Rail Court at-grade on the eastern leg of East San Ysidro Boulevard/Rail Court. They also cross two driveways to a motel and a Jack-in-the-Box restaurant. At 7.5-minute peak-period frequency in each direction, the grade crossing gates lower 16 times an hour, impeding access to Rail Court for intercity buses, businesses, and a commercial parking lot. These at-grade rail crossings aggravate the competing demands for access in the area.

F. Lack of Kiss-and-Ride Facilities that Contribute to Circulation Conflicts. There are no formal facilities at the transit center or in the vicinity of the POE for private auto pick-up and drop-off (kiss-and-ride) for pedestrians crossing the border. As a result, kiss-and-ride informally occurs in several locations, primarily in the Jack-in-the-Box parking lot on the northeast corner of East San Ysidro Boulevard and Rail Court and along Rail Court itself. Autos traveling through the area while drivers look for an available place to stop, and autos waiting in areas that impede traffic, result in circulation conflicts for other traffic in the area.

G. Illegal Wildcatters that Contribute to Confusion and Disorder. Licensed taxis, jitneys, and shuttles have legal access and designated passenger loading zones in the transit center. However, there are a number of illegal operators ("wildcatters") that wait and load passengers throughout the area, including along Rail Court. Like kiss-and-ride activity, these wildcatters exacerbate the confusion and disorder associated with passenger pick-up and drop-off outside the formal transit center and intercity bus facilities.

H. Camiones Way South of Camino de la Plaza Operates at LOS F. Because Camiones Way, south of Camino de la Plaza is a two-lane street that provides access to both an 1,100-space parking lot and the southbound pedestrian crossing on the west side of I-5, it experiences high traffic volumes on a daily basis and functions at LOS F.[14]

[14] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study*, Table 3-1 (KOA Corporation, April 30, 2009).

FIGURE 8: EXISTING CONFLICTS AND DEFICIENCIES IN STUDY AREA

A. Competing Modes at Northbound I-5 Freeway Ramps/East San Ysidro Boulevard/Rail Court Intersection
B. Limited Access to Northbound Off-Ramp
C. Indirect Freeway Access to Community Commercial Core
D. Limited Capacity along East San Ysidro Boulevard South of Camino de la Plaza
E. Frequent Trolley Crossing Gate Closures that Impact Access
F. Lack of Kiss-and-Ride Facilities that Contribute to Circulation Conflicts
G. Illegal Wildcatters that Contribute to Confusion and Disorder
H. Camiones Way South of Camino de la Plaza Operates at LOS F
I. Competition with Multiple Users at Entrance to Transit Center
J. Inadequate Facilities for Public Buses
K. At-Grade Crossings that Impede Trolley Operations
L. Inability to Increase Trolley Frequency
M. Substandard Intercity Bus Circulation and Constrained Operating Space
N. Inadequate Intercity Bus Facilities
O. Lack of Staging Areas for Taxis
P. Limited Pedestrian Plaza Area
Q. Inadequate Pedestrian Walkways to Intercity Bus Waiting Facilities
R. Undesirable Southbound Pedestrian Border Crossing Facilities
S. Pedestrian Volumes that Exceed Crosswalk Capacity
T. Pedestrian Conflicts at At-Grade Trolley Crossings
U. Lack of Pedestrian-Friendly Sidewalks and Routes
V. GSA Parking Access is through the Transit Center
W. Encumbered Access to and from Private Parking Lots
X. Weak Connections/Linkage between Border Area Businesses and Community
Y. Minimal Investment in Property and Businesses
Z. Border Lacks Image as Gateway

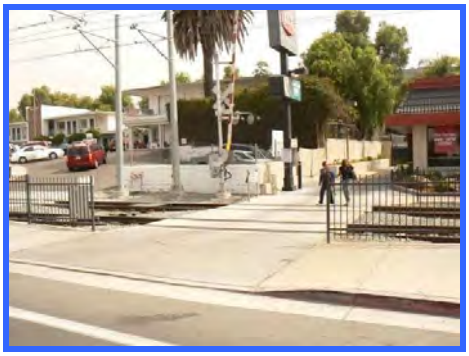
2.1.4.2 Transit (Bus and Rail), Taxis, Jitneys, Shuttles

Conflicts and deficiencies that affect transit, taxis, jitneys, and shuttles include:

I. Competition with Multiple Users at the Entrance to Transit Center. As discussed in "A" above, the entrance and access to the transit center is located on the southern leg of the intersection of East San Ysidro Boulevard/Northbound freeway ramps/ Rail Court. Buses, taxis, jitneys, shuttles, transit supervisor and maintenance vehicles, and public safety and emergency vehicles use the transit center facilities. In addition, GSA employees must travel through the transit center to access an approximate 20-space employee parking lot adjacent to the center. There is no transition for this volume and variety of trips between the transit center and the public intersection where these transit center vehicles compete for access through the intersection with freeway ramp traffic, intercity buses turning to/from Rail Court, private autos accessing parking and businesses or loading/unloading passengers, and pedestrians crossing the intersection. The entrance layout and multiple demands on the intersection create a challenging environment for transit center access.

J. Inadequate Facilities for Public Buses. In addition to facilities for taxis, jitneys, and shuttles, there are two standard bus stops along the outside curb of the POE transit center, one bus layover zone in the median, and median curb space for two transit supervisor or maintenance vehicles. MTS would prefer to have three bus stops along the curb, including one for an articulated bus.

K. At-Grade Crossings that Impede Trolley Operations. As noted in "E" above, the Trolley has an at-grade crossing at Rail Court, two at-grade driveway crossings along East San Ysidro Boulevard and a third driveway crossing just east of East San Ysidro Boulevard on East Beyer Boulevard. These four at-grade crossings within a relatively short distance in this highly active area result in the potential for both vehicular and pedestrian conflicts. This operating environment requires slower Trolley speeds and can impede efficient operations as the Trolley approaches its terminal station.



L. Inability to Increase Trolley Frequency. The San Diego Trolley Blue Line between the international border and downtown San Diego is the heaviest traveled segment on the system, often reaching and exceeding passenger capacity at peak load points during peak periods. More frequent service (additional trips) would help accommodate passenger demand either now or in the future. However, increasing frequency would require a third track at the San Ysidro/International Border Station to accommodate end of line layovers and operations. There are currently only two tracks at the border station.

M. Substandard Intercity Bus Circulation and Constrained Operating Space. Intercity buses access passenger loading areas via Rail Court. Because they enter and exit at the same location, these large buses must either make a U-turn just south of the ten diagonal intercity bus bays, or circulate around the retail facilities through a poorly defined access alley behind the businesses and continue along a substandard width roadway in front of the businesses. Inadequate roadway space inhibits general operations and turning movements for these large buses, and is compounded by the fact that pedestrians share the narrow roadway to access waiting areas and businesses.

N. Inadequate Intercity Bus Facilities. Passenger waiting facilities for the intercity bus carriers lack standard passenger amenities for transit stations or stops such as sufficient waiting space off the parking and travel ways, benches, shelters, and signage. In particular, passenger loading for southernmost carriers occurs in the parking lot and driveway. Ticketing offices are not centralized for passenger convenience.

O. Lack of Staging Areas for Taxis. The existing transit center has three stalls for taxis to wait for passengers. Up to 30 taxis queue on the Camino de la Plaza bridge to wait their turns to move into an available taxi stall in the transit center. This improvised staging area currently works because the taxi drivers have a line of sight from the bridge to the transit center, and there is sufficient curb lane space on the bridge for the queue. There is no dispatching or other communication to manage and control taxi access to the transit center. Should this informal approach break down (i.e., line-of-sight blocked or parking restrictions imposed on the bridge), the staging area would be lost.

2.1.4.3 Pedestrian

Pedestrian conflicts and deficiencies in the study area include:

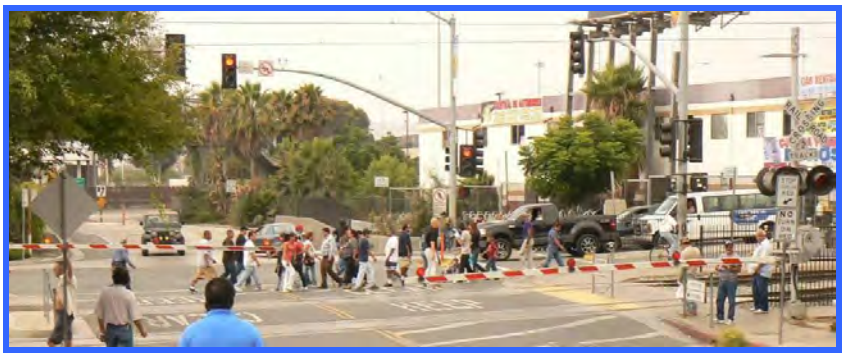
P. **Limited Pedestrian Plaza Areas.** The northbound POE pedestrian bridge delivers pedestrians onto a relatively small plaza area between the GSA facilities, transit center, and Trolley station given the pedestrian volumes exiting the bridge. That plaza area also houses an intercity bus ticketing building, from which waiting lines often extend into the plaza area, and accommodates southbound pedestrian cross traffic. The limited space, high pedestrian volumes, and competing uses result in an often crowded plaza area.

Q. **Inadequate Pedestrian Walkways to Intercity Bus Waiting Facilities.** As discussed in "M" above, to access the intercity bus passenger waiting area off Rail Court, pedestrians must walk in the narrow roadway shared with buses and autos or along a substandard sidewalk past dumpsters and other obstructions, then follow a narrow pathway up a hill to the intercity bus loading area. For those passengers needing to walk between the northern and southern intercity bus loading areas, there are no pedestrian facilities along the alley access connecting the two.

R. **Undesirable Southbound Pedestrian Border Crossing Facilities.** Pedestrians crossing into Mexico from the east side of I-5 must access the southbound pedestrian crossing facilities located on the west side of I-5 via a pedestrian bridge over the freeway lanes. To access the bridge, pedestrians must walk up steep 8 percent grade ramps, which are not ADA (Americans with Disabilities Act) compliant. Approaches are also missing curb cuts and adequate lighting inside the passageways. On the bridge section over I-5, border crossers are exposed to sun and rain due to the lack of cover. In general, the bridge crossing lacks amenities and inhibits pedestrians.

S. **Pedestrian Volumes that Exceed Crosswalk Capacity.** The *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009) identified insufficient sidewalk landing capacity for pedestrians at the East San Ysidro Boulevard/I-5 Northbound Freeway Ramps/Rail Court intersection. The high pedestrian volumes at this intersection currently result in pedestrian LOS D at the northwest and southeast intersection crosswalk landings and pedestrian LOS F at the northeast crosswalk landing, causing pedestrians to spill into the street at the corners and in the crosswalk.[15]

[15] San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study, KOA Corporation, April 30, 2009, Table 2-5.



T. **Pedestrian Conflicts at At-Grade Trolley Crossings.** As identified in "K" above, the San Diego Trolley at-grade street and driveway crossings create conflicts with both vehicles and pedestrians. At the Rail Court at-grade crossing, pedestrians waiting at the intersection can get caught between the tracks and the down crossing gate. Pedestrians use the driveway at-grade crossings at access points between the sidewalk and the businesses.

U. **Lack of Pedestrian-Friendly Sidewalks and Routes.** The pedestrian pathway along East San Ysidro Boulevard, south of Camino de la Plaza leading from the border crossing to the San Ysidro commercial core, is generally not pedestrian friendly. It is lined with parking, driveways, rail tracks, and street traffic. Few businesses front the street to create a pleasant pedestrian environment. As a result, there is no physical draw or visual connection from the border to the community and commercial core. For pedestrians crossing between the east and west sides of I-5, the Camino de la Plaza bridge is also an isolated and unfriendly pedestrian pathway.

2.1.4.4 Parking

Parking conflicts and deficiencies in the study area include:

V. **GSA Parking Access is Through the Transit Center.** The GSA has a small, approximately 20-space employee parking lot that is only accessible through the transit center. The introduction of autos and other GSA vehicles into the transit center circulation and loading activities creates an undesirable mixture of these vehicles with border transportation services.

W. **Encumbered Access to and from Private Parking Lots.** There are two private commercial parking lots that obtain access from Rail Court east of East San Ysidro Boulevard, and one that is accessed from southbound East San Ysidro Boulevard. These parking lots create a "destination" point for autos in a confined area that primarily serves as a connection point and pass-through for most other vehicles. These "destination" autos exacerbate the access and circulation conflicts with other transportation modes and pedestrians in the area. In addition, there are no left turns from the commercial lot and several business lots on East San Ysidro Boulevard requiring drivers accessing these lots to travel circular routes and make U-turns in the key intersection at the entrance to the transit center to access and exit these lots. Finally, the four points of access to all parking lots on the east side of East San Ysidro Boulevard (including the one on East Beyer Boulevard) requires vehicles to cross the Trolley tracks.

2.1.4.5 Land Use and Economic Development

A few land use and development-related deficiencies can be identified in the study area, including:

X. **Weak Connections/Linkages Between Border Area Businesses and Community.** There is weak connection between the border area businesses and the community due to the traffic, circulation, access, and pedestrian conflicts and barriers from the border facilities along East San Ysidro Boulevard to Camino de la Plaza.

Y. **Minimal Investment in Property and Businesses.** Many properties and businesses between Camino de la Plaza and the border are either underdeveloped or candidates for reinvestment. Given the volume of people that pass through the border area on a daily basis, it appears that existing development at and near the border has yet to take full advantage of the market opportunities in the area.

Z. **Border Lacks Image as Gateway.** Given that the San Ysidro border is one of the busiest border crossings in the world, it lacks an image as a gateway to the community, region, and country. The facilities and businesses lack a unique architecture or iconic design that would announce to border crossers that they are entering or leaving the country. As a result, the community and region are not able to take advantage of the gateway to create a sense of place that would help support economic activity.

2.2 PROJECTED 2030 SETTING

Over the next 20 years, vehicular and pedestrian border crossings are projected to grow by almost two-thirds. The GSA has a three-phase plan to expand the existing San Ysidro POE to improve capacity, operational efficiency, security, and safety for cross-border travelers and federal agencies. And, there are several planned private developments that may also alter travel patterns in the border area, including the Las Americas – East Parcel Site Plan project on the west side of I-5, which proposes a 100,000–300,000 square-foot community shopping center.

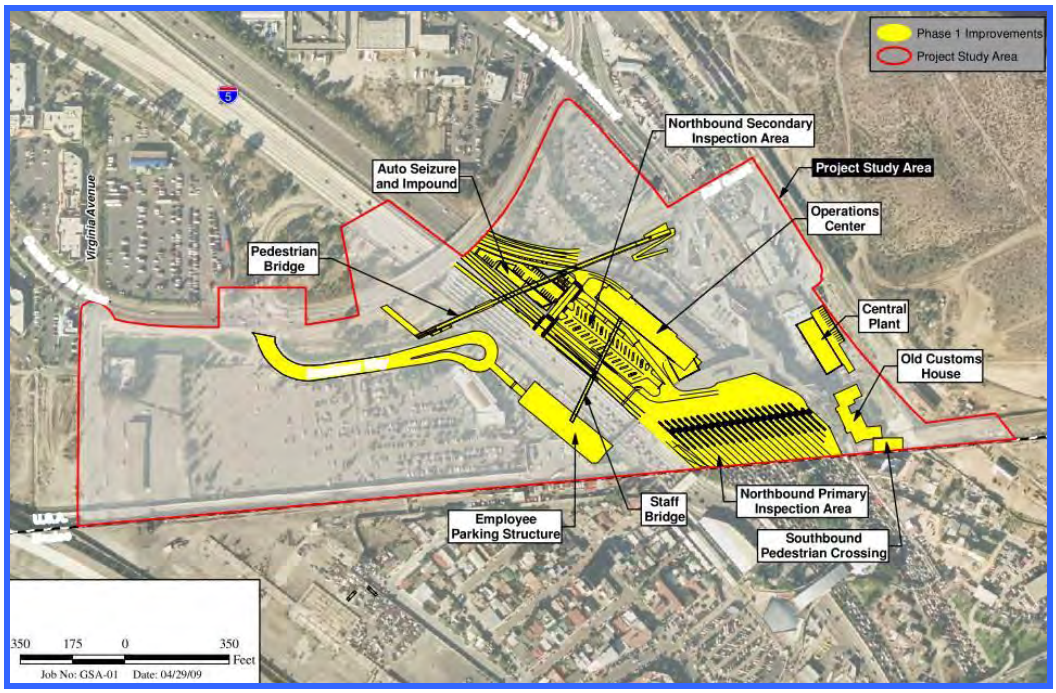
2.2.1 General Services Administration (GSA) Plans

The GSA expansion project would demolish most of the existing border inspection and support facilities and construct new facilities. The new facilities would include new primary and secondary inspection areas, an administration building, a pedestrian building, a central plant, one pedestrian bridge, a parking structure, and other support structures. The expansion would consist of approximately 210,000 gross square feet (gsf) of building space, 31 northbound inspection lanes, 6 southbound inspection lanes, 2 new southbound pedestrian crossings, and a new southbound roadway connecting with Mexico's planned El Chaparral POE facility.

Phases 1 and 2. The first two phases of the GSA expansion project primarily consist of improvements on the east side of I-5 (**Figure 9** and **Figure 10**). These east-side improvements include reconfiguration of the northbound vehicle facilities to increase inspection processing, operational efficiency, expansion of pedestrian facilities, reconfiguration of the eastern operational area, and construction of new support buildings. On the west side of I-5, Camiones Way would be truncated north of its existing terminal and a new GSA employee parking lot would be built between the new Camiones Way cul-de-sac and the border. A new pedestrian bridge would span the freeway lanes to provide connections between the southbound pedestrian crossing on the west and the northbound pedestrian crossing on the

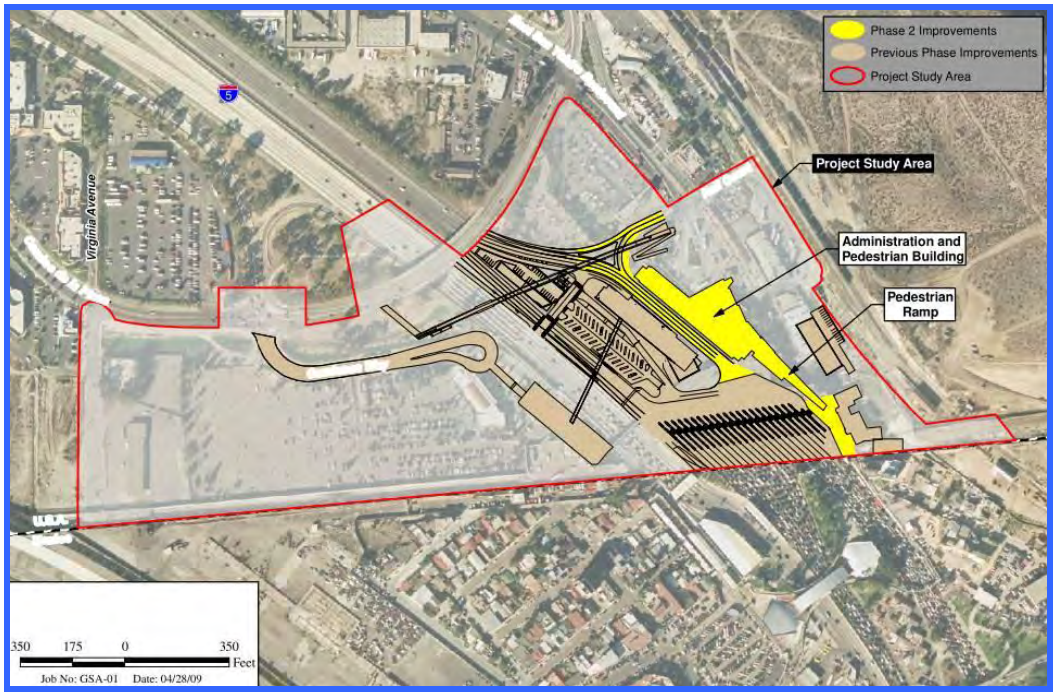
east. A second employee-only pedestrian bridge would connect the west-side employee parking lot to east-side GSA facilities.

FIGURE 9: GSA PREFERRED ALTERNATIVE – PHASE 1 IMPROVEMENTS



Source: *San Ysidro Land Port of Entry Improvements Project Draft Environmental Impact Statement* (GSA, May 2009)

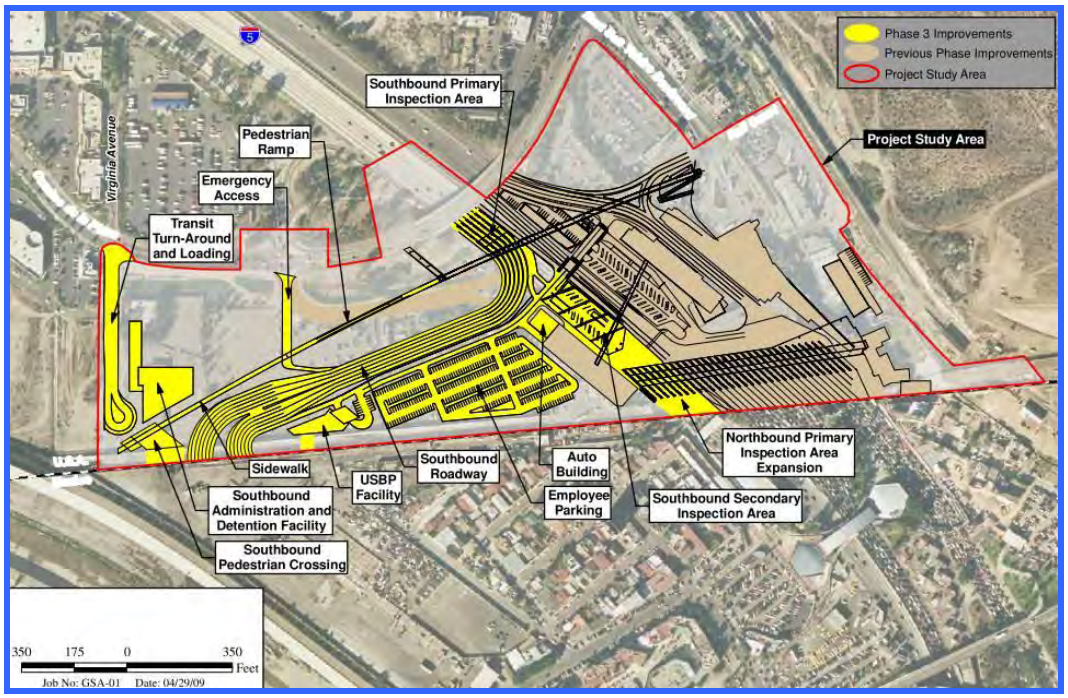
FIGURE 10: GSA PREFERRED ALTERNATIVE – PHASE 2 IMPROVEMENTS



Source: *San Ysidro Land Port of Entry Improvements Project Draft Environmental Impact Statement* (GSA, May 2009)

Phase 3. GSA Phase 3 would occur entirely on the west side of I-5. Phase 3 consists of the removal of Camiones Way and the large commercial border parking lot to accommodate a significant realignment of the southbound I-5 freeway lanes to the west. The realigned freeway lanes would connect with Mexico's planned El Chaparral POE facility just east of Virginia Avenue (**Figure 11**). Additional northbound vehicle inspection lanes would be constructed in the void left by the realigned southbound lanes. A new GSA employee parking lot would be located between the realigned freeway lanes and the border. Virginia Avenue would be enhanced and would include transit turn-around and loading areas near a new pedestrian crossing at its connection with the border. The pedestrian bridge over the freeway would be extended to Virginia Avenue. Phase 3 is a longer-term plan that is dependent on coordination with Mexico's new POE facilities and connecting roadways.

FIGURE 11: GSA PREFERRED ALTERNATIVE – PHASE 3 IMPROVEMENTS



Source: *San Ysidro Land Port of Entry Improvements Project Draft Environmental Impact Statement* (GSA, May 2009)

2.2.2 Traffic and Circulation

2.2.2.1 Traffic Volumes

Table 5 summarizes the total number of vehicles passing through each respective intersection during the peak hour for the Year 2030 scenario and compares these traffic volumes with Existing Conditions. Year 2030 traffic volumes have been adjusted up by a 62.7 percent growth factor[16] as determined from a comparison of future year and existing San Diego Association of Governments (SANDAG) travel forecasts.

[16] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009).

Table 5: Year 2030 Projected Traffic Volume Summary at Study Area Intersections

		Peak Hour	Existing	Year 2030
1	Camino de la Plaza & Virginia Ave	AM	454	1,079
		PM	1,457	3,263
2	Camino de la Plaza & I-5 SB Ramps	AM	979	1,498
		PM	2,701	4,144
3	East San Ysidro Blvd & Camino de la Plaza/East Beyer Blvd	AM	950	1,701
		PM	1,952	3,656
4	East San Ysidro Blvd & I-5 NB Ramps	AM	817	1,460
		PM	1,083	2,049
Note: Traffic volumes represent the total number of vehicles passing through an intersection during the peak hour.				

In addition, traffic volumes associated with a planned expansion of Las Americas (Las Americas – East Parcel Site Plan) were added to the intersections in the study area. This project is located south of Camino de la Plaza and west of Virginia Avenue. At the time of this study, the current project consists of approximately 147,000 square feet of gross leasable area, which corresponds to an estimated trip generation of 308 AM peak-hour trips (185 in, 123 out) and 1,027 PM peak-hour trips (514 in, 513 out). These project trips were distributed through the study intersections based on existing travel patterns in the area, which generally consisted of 60 percent of the trips traveling to/from the east and 40 percent of the trips traveling to/from the west.

As shown in **Table 5**, the number of vehicles passing through each respective intersection is expected to increase between the Existing and Year 2030 scenarios. As is true in Existing Conditions, the majority of peak-hour trips would occur in the PM peak hour. Also, the intersection of Camino de la Plaza and the I-5 southbound ramps/Camiones Way would continue to be the most heavily used intersection.

2.2.2.2 Traffic Operations

Intersections

Table 6 summarizes the LOS for the study intersections under the Year 2030 scenario, which includes the project trips related to the GSA expansion project and the proposed Las Americas – East Parcel Site Plan project. In addition, the analysis included the improvements associated with several intersections as a result of impacts related to the GSA project. At the Camino de la Plaza and Virginia Avenue intersection, the identified improvements consisted of constructing a traffic signal at this location and widening Camino de la Plaza to include a second westbound through lane. At the Camino de la Plaza & I-5 SB Ramps intersection, the identified improvement consisted of restriping the I-5 SB Ramps to an exclusive left, shared-through-right, and exclusive right lanes.

As shown in the table, all intersections would operate at an acceptable LOS D or better except at the following locations:

- Camino de la Plaza & I-5 SB Ramps/Camiones Way (LOS F – PM Peak)
- East San Ysidro Boulevard & Camino de la Plaza/East Beyer Boulevard (LOS F – PM Peak)
- East San Ysidro Boulevard/I-5 NB Ramps/Rail Court (LOS E – PM Peak)

Table 6: Year 2030 Study Area Projected Intersection LOS Summary

Intersection		Peak-Hour	Year 2030 Conditions	
			Delay [(a)]	LOS [(b)]
1	Camino de la Plaza & Virginia Ave[(c)]	AM	17.8	B
		PM	26.5	C
2	Camino de la Plaza & I-5 SB Ramps[(c)]	AM	18.0	B
		PM	**94.5**	**F**
3	East San Ysidro Blvd & Camino de la Plaza/East Beyer Blvd	AM	38.0	D
		PM	**91.8**	**F**
4	East San Ysidro Blvd/NB Freeway Ramps/Rail Ct	AM	25.3	C
		PM	**65.0**	**E**

Notes:
Bold and Shaded values indicate intersections operating at LOS E or F.
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
(b) LOS calculations are based on the methodology outlined in the 2000 *Highway Capacity Manual* and performed using Synchro 7.
(c) Improvements associated with the GSA's impacts have been assumed to be constructed and in operation.

Although the analysis already assumes improvements at the Camino de la Plaza & I-5 southbound ramps intersection, the additional traffic volumes from the Las Americas – East Parcel Site Plan project worsens the traffic conditions during the PM peak-hour at most of the study intersections.

Queuing

As noted in the queuing discussion in Section 2.1.3.2, the analysis shown in the table does not take into account the effects of queues that would spill back into adjacent intersections. As a result, the delays could actually be worse than what is reported.

2.2.3 Border Crossing Projected Growth

The same 62.7 percent growth rate determined for vehicular border crossings (see Section 2.2.2) was applied to existing pedestrian border crossing data to estimate the Year 2030 pedestrian crossings at the POE facility.[17] This growth rate reflects growth used by GSA and SANDAG Series 10 forecast models developed specifically for the San Ysidro POE Expansion project.

Table 7 summarizes the expected pedestrian crossings at the POE facility in the Year 2030. As shown in the table, there would be 88,000 daily projected pedestrian crossings and 5,500 and 6,000 projected pedestrian crossings during the AM and PM peaks, respectively.

[17] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009).

Table 7: Year 2030 Projected Pedestrian Border Crossings at San Ysidro POE

	Existing Pedestrian Crossings	Growth Factor	Year 2030 Pedestrian Crossings[(a)]
AM Peak	3,400[(a)]	62.7%	5,500
PM Peak	3,900[(a)]		6,000
Daily Total	54,100[(a)]		88,000
Daily Northbound	31,400		51,100
Daily Southbound	22,700		36,900

Source: *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009)

Note:
(a) Includes the total pedestrians processed in both directions at the POE facility.

2.2.4 2030 Setting Implications for Conflicts and Deficiencies

The GSA border inspection facility expansion plans and projected growth in border crossings by 2030 have implications for the existing circulation and mobility in the border area. In general, the projected 2030 condition will exacerbate the existing condition conflicts and deficiencies discussed in Section 2.1.4. More specifically:

- Projected growth in vehicular and pedestrian border crossings will contribute to the circulation and mobility conflicts and deficiencies discussed in Section 2.1.4 and shown in **Figure 8**.
- Projected growth in pedestrian border crossings will increase the demand for transportation services at the border, requiring more capacity for Trolley, bus and taxi/jitney/shuttle/kiss-and-ride facilities, and increases in transit and intercity bus service frequencies.
- Projected growth in pedestrian border crossings will result in pedestrian LOS E and F during the morning and afternoon peak periods at the northeast, northwest and southeast sidewalk landings at the intersection of East San Ysidro Boulevard/I-5 Northbound Ramps/Rail Court.[18]
- The GSA Phase 1 expansion plan (the central plant) encroaches onto the southernmost intercity bus ticketing, waiting, and loading areas, eliminating (without proposing replacement) of these facilities. This expansion also impacts existing retail and commercial businesses in this southern location on the site.
- The GSA Phase 1 expansion plan includes a new pedestrian bridge over I-5 to connect pedestrians to the southbound border crossing. The new bridge landings on both the west and east sides of the freeway lengthen the walking distance to the southbound crossing.
- The GSA Phase 1 expansion plan will add a southbound pedestrian crossing on the east side of I-5 (currently the only southbound pedestrian crossing is on the west side of I-5). This will create a new pedestrian circulation pattern on the east side of I-5 through an area that is currently somewhat isolated, constrained, and not pedestrian-friendly.
- The GSA Phase 1 expansion plan will truncate Camiones Way further from the southbound border crossing, removing bus, taxi, jitney, shuttle, and kiss-and-ride access further from the

[18] *San Ysidro Land Port of Entry (LPOE) Expansion Mobility Study* (KOA Corporation, April 30, 2009), Table 10-3.

border and increasing walking distance for travelers from transportation connections on Camiones Way to the border crossing.

- The GSA Phase 2 expansion plan extends the Administration and Pedestrian Building into the existing pedestrian plaza area, shrinking the space available for pedestrian circulation on the site even while increases in pedestrian border crossings are projected.
- The GSA Phase 3 expansion plan calls for realigning the southbound I-5 lanes to the west, eliminating the 1,178-space commercial parking lot and Camiones Way. Vehicular access to the new southbound crossing would be from Virginia Avenue, which will alter travel patterns and traffic volumes on the west side of the freeway, particularly at the Virginia Avenue/ Camino de la Plaza intersection.
- Elimination of the large parking lot on the west side of I-5 as part of GSA Phase 3 expansion plans could push demand for border parking into the community.
- The elimination of Camiones Way as part of GSA Phase 3 expansion plans shifts transit connections to the southbound border crossing to Virginia Avenue, which will require new passenger loading areas and result in a change in transit operations. Loading areas for taxis, jitneys, shuttles, and kiss-and-ride vehicles will also be required on Virginia Avenue.

3.0 PUBLIC INVOLEMENT AND OUTREACH

The San Ysidro community has a unique and somewhat conflicting relationship with the border as a result of it's proximity to the San Ysidro POE. The community bears the brunt of the impacts from transportation, crossing volumes and other activity at the border. Conversely, it is also in a position to reap the economic and cultural benefits from the tens of thousands of people who cross the border daily and travel to and through the San Ysidro community.

Several community groups are actively engaged in promoting the well being and enhancement of the San Ysidro community and have a keen interest in the *San Ysidro Port of Entry Reconfiguration Mobility Study*. In addition, there are a number of public agencies that have various responsibilities for providing coordinated and efficient transportation and pedestrian access and circulation at and near the border to ensure that border crossers move efficiently to and from their destinations in the community, region, state, and beyond. To address the multiple community and agency interests in the area, the *San Ysidro Port of Entry Reconfiguration Mobility Study* included a comprehensive public involvement and outreach program that incorporated project stakeholders and engaged community members and the public.

The public involvement and outreach program was structured around three primary components:

- Project Working Group (PWG)
- Community and General Public Outreach
- Technical Working Group (TWG)

These groups and activities allowed for input, review, and comment on the study goals, evaluation criteria, reconfiguration alternatives, alternatives analyses and evaluation, and a preferred alternative concept. Details of the composition and activities of each public involvement and outreach program component are discussed below.

3.1 PROJECT WORKING GROUP (PWG)

The PWG included representatives from both community organizations and public agencies with stakeholder interest in the project. These stakeholder groups and agencies were invited by the City of San Diego to participate on the PWG to ensure that a cross-section of interests was involved in the study process. Each community group and agency selected a representative who could commit to ongoing, active participation on the PWG, represent the interests of his or her respective group or agency, and act as the communication liaison between the PWG and his/her group or agency. The PWG met four times over the six month study period to help guide the study by:

- Establishing study and project concept objectives and priorities
- Identifying and defining individual stakeholder and common project goals
- Providing community, technical, and policy perspective to study activities and analyses
- Providing input on over 20 mobility and reconfiguration alternatives and variations
- Evaluating reconfiguration concept alternatives
- Identifying a preferred reconfiguration and mobility concept
- Providing review and input on the final study report.

Table 8 identifies each PWG meeting, the meeting purpose and the activities undertaken at the meeting. PWG members represented the following community groups and public agencies.

3.1.1 San Ysidro Community Planning Group

The City of San Diego has recognized community planning groups as formal mechanisms for community input in decision-making processes. Community planning groups provide citizens with an opportunity for involvement in advising the City Council, the Planning Commission, and other decision-makers on development projects, general or community plan amendments, rezonings, and public facilities. The recommendations of the planning groups are integral components of the planning process. The San Ysidro Community Planning Group represents the San Ysidro community, which includes the border area. The planning group is particularly interested in the role the border area can play in promoting economic development and revitalization throughout the community, and in using the results of this study as input to the future update of the San Ysidro Community Plan.

3.1.2 San Ysidro Chamber of Commerce

The San Ysidro Chamber of Commerce supports business owners and operators in the San Ysidro community, particularly small and micro-businesses, through events, programs, marketing, and networks that help businesses succeed. The Chamber of Commerce views the "reconfiguration of the San Ysidro Port of Entry [as] an unparalleled opportunity to create a showcase of the integration of commerce, community and security", and states that "San Ysidro must have a 'Port of the Future' – one that creates Americas Finest Front Door."[19]

3.1.3 San Ysidro Transportation Collaborative

The San Ysidro Transportation Collaborative was founded by the San Ysidro Business Association to create a way for a broad cross-section of San Ysidro community organizations, public transportation agencies, businesses, and individuals to discuss and provide input to the design of transportation solutions that will enhance and revitalize the business and residential community of San Ysidro.[20]

3.1.4 City of San Diego

The City of San Diego is the lead agency for this study. The city is responsible for planning, implementing and maintaining public streets and roads in the community; ensuring and improving circulation and mobility; planning and regulating land use; and promoting community development, redevelopment, and revitalization. The city initiated this study to assess the mobility and community impacts of the GSA border facility expansion plans on existing infrastructure and circulation, and to evaluate opportunities to reconfigure the border area to improve access, mobility, and community development. The city plans to use the results of this study to support a future update of the San Ysidro Community Plan.

[19] http://www.sanysidrochamber.org/
[20] http://sanysidrobid.org/content/view/18/31/

Table 8: San Ysidro POE Reconfiguration Mobility Study – Project Stakeholder Meetings

Mtg.	Date	Group	Location	Purpose
1	June 2, 2009	Project Working Group	City of San Diego Office	• Introduce consultant team & PWG • Provide overview of scope of work • Establish project milestones & schedules • Identify initial project concept objectives and priorities
1	June 10, 2009	General Services Administration	The Front / San Ysidro	• Clarify GSA expansion plan parameters
2	July 7, 2009	Project Working Group	City of San Diego Office	• Provide overview of ProjectSolve • Review initial draft concept alternatives (A, A2, B, & C)
3	July 21, 2009	Project Working Group	City of San Diego Office	• Review priorities developed by PWG • Review refined concept alternatives and variations (D)
1	August 4, 2009	Technical Working Group	Consultant Team Office / Downtown San Diego	• Refine goals and principles • Provide initial facility and capacity needs • Identify best elements of refined concept alternatives
2	August 10, 2009	Caltrans	Caltrans Office	• Assess the viability of relocating the I-5 freeway northbound on- and off-ramps
2	August 13, 2009	Technical Working Group	Consultant Team Office / Downtown San Diego	• Review refined project goals & principles • Discuss examples of intermodal transportation centers • Review four further refined concept alternatives • Review initial concept alternatives evaluation
3	August 18, 2009	Technical Working Group	Golden Hall / Downtown San Diego	• Clarify refined project goals and principles • Review 7 refined concepts plans and comparative evaluation results • Review traffic simulation (I-5 NB ramp relocation) • Review facilities needs table
1	August 20, 2009	Community	Consultant Team Office / Downtown San Diego	• Review study purpose • Review and discuss the project goals and principles • Provide input on the 3 highest ranking project concepts • Advise and establish format for upcoming San Ysidro Community Planning Group/general public meeting
2	August 24, 2009	Community / Public	The Front / San Ysidro	• Present project overview to San Ysidro Community Planning Group/general public • Obtain input & preferences from Planning Group and community on the 3 highest ranking project concepts
4	November 17, 2009	Project Working Group	Consultant Team Office / Downtown San Diego	• Summarize draft study report, conclusions and recommendations • Share preferred concept site plan and cross-section • Obtain input for final study report
3	December 14, 2009	Community / Public	The Front / San Ysidro	• Provide study overview • Summarize draft study report, conclusions and recommendations • Obtain input for final study report from Planning Group/general public

3.1.5 San Diego Association of Governments (SANDAG)

SANDAG is the regional planning agency comprised of representatives from the 18 cities and county government in San Diego County. As the forum for regional decision-making, SANDAG builds consensus; makes strategic plans; obtains and allocates resources; plans, engineers, and builds public transportation; and provides information on a broad range of topics pertinent to the region's quality of life, including the social, community, economic, and infrastructure issues at the border. The foundation of SANDAG's 2030 Regional Transportation Plan (RTP) "lies in better connecting our freeways, transit, and road networks to our homes, schools, work, shopping and other activities." SANDAG's 2004 Regional Comprehensive Plan (RCP) "serves as a foundation for integrating land uses, transportation systems, infrastructure needs, and public investment strategies within a regional smart growth framework."[21] As a result, SANDAG is interested in ensuring that transportation and land use in the border area supports regional goals for mobility, smart growth, and economic development.

3.1.6 San Diego Metropolitan Transit System (MTS)

MTS operates and maintains the public transit system, including the local buses and San Diego Trolley that serve the border. MTS' primary objective is to deliver safe, convenient, efficient, and cost-effective transit access and service to residents and visitors in a manner that supports the mobility and sustainability goals of the region. Public transit services and facilities at the San Ysidro border crossing provide access and mobility to the high volumes of border crossers. MTS is interested in improving transit service, facilities, and operations at the border.

3.1.7 California Department of Transportation (Caltrans)

Caltrans is the agency responsible for building, operating, and maintaining the state's freeway network. In the border area, Caltrans is charged with ensuring adequate traffic operations on I-5 and I-805, and at ramp junctions to the freeways. Because I-5 terminates at the border with north- and southbound vehicle inspection facilities, there are unique coordination issues with border infrastructure and circulation. In addition, a Caltrans planning grant funded the study.

3.1.8 Federal General Services Administration (GSA)

The GSA is responsible for the border inspection and operations infrastructure and activities. It has an extensive three-phased plan to expand the vehicular and pedestrian border inspection and support facilities that will reconfigure the freeway inspection facilities and pedestrian access on both the west and east sides of I-5 at the border. The GSA wants to ensure that any other proposed public or private infrastructure reconfiguration does not impact its expansion plans, and that safety and security at the border is maintained.

3.2 COMMUNITY AND GENERAL PUBLIC OUTREACH

In addition to the formal PWG, the public involvement and outreach program included public meetings and workshops with the San Ysidro Community Planning Group and general public. These meetings and workshops provided an opportunity for a broad cross-section of the community to obtain information about the study and offered a forum to receive general public input. Three community/general public meetings and workshops were help as follows:

[21] 2030 San Diego Regional Transportation Plan (November 2007), page 1-1.

- **August 20, 2009** – This meeting, held at project team offices in downtown San Diego, included the community leaders represented on the PWG. These leaders were provided an opportunity apart from the agency stakeholders to provide input and perspective on the study. They reviewed and commented on the study purpose and the project goals and principles as identified by the PWG. In addition, they addressed the reconfiguration concept alternatives evaluation and provide input on the three alternatives that performed best in the evaluation. Finally, this group of community leaders was asked for advice on the best methods for presenting the study, concepts and evaluation to the general community and public.
- **August 24, 2009** – Based on the advice received at the August 20, 2009 meeting with community leaders, a presentation and workshop on the study and project was held for the general public. The study purpose, evaluation process, and highest ranking reconfiguration concept alternatives were presented to the community and general public for review and input at a meeting of the San Ysidro Community Planning Group. The meeting was held at "The Front" meeting hall on East San Ysidro Boulevard in the San Ysidro community. Approximately 35 people attended. The workshop format that allowed people in attendance to ask questions and provide verbal input. In addition, attendees were encouraged to provide written comments on the concept alternatives at a workshop "station" in which comment cards, pencils and Spanish translation was available. Finally, the attendees were provided voting "stickers" and asked to indicate their concept alternative preference. Results of these workshop exercises in included in Section 5.2.2.
- **December 14, 2009** – A second general public meeting was held as part of the San Ysidro Community Planning Group meeting to update the community and general public on the draft study analyses, reconfiguration concept, remaining issues and next steps. Again, the meeting was held at "The Front" meeting hall on East San Ysidro Boulevard in the San Ysidro community. Approximately XX people attended. Community members and the general public were asked for comment and input on the draft study report prior to completion of the final study report. As appropriate, comments and input have been incorporated into the final study report.

Table 8 includes the dates and the purpose of the community meetings and workshops.

3.3 TECHNICAL WORKING GROUP (TWG)

In addition to the PWG and community meetings/workshops, the study included a Technical Working Group (TWG) comprised of the agency stakeholder representatives identified above (City of San Diego, SANDAG, MTS, Caltrans, and GSA). The TWG provided technical support and input to the study, including data and information on agency plans and policies, infrastructure and capacity requirements for transportation and border crossing services and facilities, and identification of operating, maintenance, safety and security issues and requirements for their respective areas of responsibility. The TWG met three times during the reconfiguration concept alternatives development study phase (August 4, 13 and 18) to support the study technical evaluation. **Table 8** includes the TWG meetings.

3.4 OTHER STUDY MEETINGS

Several other meetings were held with project stakeholders during the course of the study:

- **June 10, 2009** – A meeting among the City of San Diego, project consultant team and GSA staff occurred to gather information GSA's expansion plans and clarify implications for the study mobility and reconfiguration analysis.
- **August 10, 2009** – A meeting with Caltrans staff was held to evaluate the viability of relocating the I-5 freeway northbound on- and off-ramps that connect with East San Ysidro Boulevard and Rail Court at the entrance to the existing transit center. Based on the meeting, Caltrans concluded that, while approval of design exceptions may be required, there are no apparent fatal flaws associated with a proposal to relocate the northbound ramps to Camino de la Plaza and that project reconfiguration concepts that include ramp relocation could move forward for further consideration and analysis.

4.0 COMMUNITY AND PROJECT GOALS

The San Ysidro border area has long been the focus of regional, community and site specific plans. These plans are based on both wide-ranging community goals and specific border area goals, many of which are mutually supportive. The San Ysidro POE reconfiguration concept project goals, developed through the Project Working Group, incorporate the community plans and goals, as well as individual stakeholder goals for the border area, to move toward a project concept that addresses a broad range of mobility, access, economic, and urban design objectives.

4.1 SAN YSIDRO COMMUNITY PLAN GOALS

A clear and consistent theme in the San Ysidro Community Plan (adopted by the City of San Diego in 1990 and amended through 2003), focuses on creating an international gateway at the border – "a grand entrance into the United States, the City of San Diego, and the community of San Ysidro".[22] The Community Plan recognizes that the existing border area lacks a coordinated, efficient, and iconic sense of place and currently:

> is congested with many different types of vehicular traffic including the trolley, jitneys, buses, taxis, passenger cars and service vehicles. These vehicles conflict with one another and threaten the safety of the many pedestrians that use this area (page 73)

Throughout the Plan, additional references are made to mobility and circulation conflicts at the border, including:

> The area is congested with both pedestrian and vehicular traffic. (page 54)
>
> Traffic congestion … detract[s] from its potential. (page 71)
>
> Pedestrians and autos conflict on San Ysidro Boulevard and at the border crossing. (page 139)

The Community Plan also recognizes that "despite the community's proximity to the border, San Ysidro businesses have not been able to benefit from this potential market". (page 72) The plan states that

> the entrances into the community, especially at the border crossing are ill-defined. (page 72)
>
> [the border area] lacks unifying design elements and is an uninviting entrance into the community and the country. (page 54)
>
> [the border area] could be enhanced by quality building and urban design, the rehabilitation of existing structures and improved traffic circulation. (page 73)

As a result, the Community Plan establishes a number of goals and objectives for the community and border area that relate specifically to creating an international gateway, promoting economic development, and enhancing urban design. Key goals and objectives are

[22] San Ysidro Community Plan, City of San Diego, adopted 1990, amendment through December 2, 2003, page 71.

highlighted below, along with the page number from the Community Plan where they can be found:

- **International Gateway/Economic Development/Urban Design**
  - Develop the areas immediately adjacent to the border as an International Gateway, a richer, symbolic image of entry into San Ysidro, San Diego and the United States (page 74)
  - Facilitate the development of an International Gateway, a regional retail/visitor center (page 51)
  - Redevelop the International Gateway area with regional commercial development and infill projects to provide jobs for San Ysidro residents and improve the physical appearance of the area (page 58)
  - Create an area of "International Commercial Support" which would serve as a transition from the International Border to the neighborhood-serving commercial area north of the border crossing. This area would allow some auto-oriented commercial uses and include some tourist parking, yet also enhance the existing pedestrian us of the area. (page 82)
  - Transform the border area into an aesthetically appealing International Gateway (page 54)
  - Create a sense of entry into the community (page 75)
  - Increase commercial retail development at the border (page 75)
  - Develop parking strategies that support land use (page 131)

The Community Plan recognizes the importance of mobility and access to the success of the international gateway, economic development and overall plan, and includes, as an overarching theme, a variety of mobility, circulation and access goals and objectives, as highlighted below:

- **Mobility, Circulation and Access**
  - Improve the transportation system at the border to provide for the smooth flow of traffic and minimize conflicts between vehicles and pedestrians (page 75)
  - Discourage through traffic on San Ysidro Boulevard at the Border Trolley Station (page 77)
  - Minimize pedestrian/auto conflict on San Ysidro Boulevard and at the border crossing (page 141)
  - Locate transit stops/stations (trolley and bus) to maximize access and optimize transit service and pedestrian connections (page 141)
  - Develop a circulation system that provides for the smooth flow of vehicular traffic while allowing for a response to the social and economic needs of the community (page 131)
  - Provide for smooth traffic flow and good accessibility to and from San Ysidro and outlying communities (page 131)
  - Eliminate barriers to pedestrian activity and enhance the pedestrian environment (page 131)
  - Improve the mass transportation system (page 131)
  - Develop pedestrian pathways throughout San Ysidro (page 141)

4.1.1 Intermodal Transportation Center

In concluding the discussion of the international gateway proposal, and to address the transportation and mobility conflicts at the border, the Community Plan proposes development of a "Grand Central Station" immediately adjacent to the border crossing." It defines the Grand Central Station as a bold and dramatic architectural statement that would include a terminal complex for the trolley, buses, taxis and jitneys, as well as commercial development. The Plan continues by stating that the Grand Central Station would be designed to discourage automobile traffic, and that vehicular traffic on San Ysidro Boulevard at the end of East Beyer Boulevard would be limited to emergency vehicles and freeway access.[23]

4.2 PROJECT GOALS

At PWG and TWG meetings conducted during the course of the study, project stakeholders were asked to identify and refine their goals and objectives for border area mobility, transportation facilities and services, and community development. Key project goals for individual stakeholders can be summarized as follows:

- **City of San Diego**
  - Resolve existing vehicular and pedestrian circulation conflicts and deficiencies
  - Consolidate transportation facilities and services at the border to focus activity and minimize community impacts
  - Promote economic development, community integration, and a sense of place
  - Seek opportunities for public-private partnerships
  - Accommodate intercity bus operations and facility needs
- **SANDAG**
  - Provide transportation services and facilities that accommodate existing and future border crossing demand
  - Give transit priority access to increase transit ridership
  - Consolidate transportation facilities and services at the border to simplify understanding of transportation choices
  - Improve walkability, connectivity, access, and circulation in the border area
  - Promote economic development, community integration, and a sense of place
  - Accommodate intercity bus operations and facility needs
  - Provide border crossers with fast easy access to transportation and other services
- **MTS**
  - Ensure close, easy, priority access to transit at the border
  - Provide services and facilities that increase transit ridership
  - Minimize vehicular and pedestrian conflicts with transit to improve operational efficiency and minimize operating costs
  - Support access improvements to the community and region

[23] San Ysidro Community Plan, City of San Diego, adopted 1990, amendment through December 2, 2003, page 81.

- **Caltrans**
  - Improve traffic flow and operations of freeways and access ramps at the border
  - Minimize vehicular conflicts
- **GSA**
  - Minimize interference and impacts on GSA border facilities expansion plans
  - Ensure border security
  - Provide pedestrian access to and from border crossing facilities
- **Community**
  - Transform the border into a transit-oriented activity center with a sense of place
  - Promote revitalization and economic development
  - Energize pedestrian areas
  - Consolidate transportation at the border to minimize community impacts
  - Integrate the border facilities into the community
  - Create a gateway to San Ysidro and the region

Incorporated into key stakeholder goals was an understanding that the project concept would strive to create an international gateway and Intermodal Transportation Center (ITC) consistent with the San Ysidro Community Plan goals and objectives (see Section 4.4).

Table 9 displays the specific study goals identified by each stakeholder at PWG and TWG meetings. When reviewing the specific stakeholder goals, it became evident that there are several key themes that are common among many of the stakeholders.

Therefore, the table also identifies, by color code, goals that have a common objective or theme. These themes were considered to be the guiding “principles” for developing the border area reconfiguration concept.

4.3 GUIDING PRINCIPLES

The reconfiguration concept guiding principles, derived from common themes among stakeholder study goals, are identified in **Table 10**. These principles were used to guide the development of concept alternatives for reconfiguring transportation facilities and services to improve border area mobility. The principles were also used as the criteria to evaluate the reconfiguration project concept alternatives.

The principles were grouped into two categories. The “Essential Principles” are considered those principles or criteria that are essential for mobility and transportation at the border. The “Complementary Principles” are those principles or criteria that either support broader Community Plan goals or are desired goals of a mobility and transportation reconfiguration concept.

Table 9: San Ysidro POE Reconfiguration Mobility Study – Specific Study Goals

Goals/Objectives

City of San Diego	SANDAG	MTS	Caltrans	Private Operators*	GSA	Business	Community	Border Crossers (Commuters)*
Resolve existing / projected conflicts & deficiencies	Minimize conflicts with transit	Minimize conflict with transit operations	Minimize vehicular conflicts	Minimize vehicular conflicts	Minimize interference with GSA plans	Increase public transit use	Increase public transit use	Minimize pedestrian conflicts
Minimize pedestrian conflicts	Minimize pedestrian conflicts	Eliminate track crossings	Improve vehicular and pedestrian safety	Provide efficient & convenient vehicular access	Provide safe employee access to GSA facilities (parking + walking)	Maximize access to businesses	Create walkable / TOD area	Provide Fast and easy access to transit and other transportation services
Improve traffic circulation	Increase public transit use	Resolve existing deficiencies	Balance multi-modal movements	Maximize customers / Customer access	Provide continous pedestrian flow north of the border crossing	Maximize visibility	Improve connectivity between border & commercial businesses	Provide pedestrian linkages to community
Improve pedestrian connectivity and access	Maintain / provide access to transit	Increase public transit use	Avoid impacts to freeway operations (I-5, I-805, SR-905)	Provide flexibility for expansion	Maintain existing GSA facilities concept	Promote redevelopment and business opportunities	Create *destination* place that is iconic	Accommodate border crossing demands
Improve pedestrian circulation	Provide walkability / connectivity / access	Make public transit the first priority	Provide convenient freeway access to / from the community	Eliminate wildcatters	Ensure border security	Provide sufficient & convenient parking	Create a gateway / landmark ITC	Provide amenities and services
Create a gateway / landmark ITC	Accommodate border crossing demands	Maintain / provide direct pedestrian access to transit (minimize distances)	Reduce traffic congestion			Minimize disruption during construction	Create a public plaza	
Provide transportation choices in one location	Incorporate future expansion possibilities for all elements	Create functional circulation (including vertical circulation)	Provide adquate pick-up / drop-off sites			Minimize private property acquisition	Promote revitalization & economic development	
Create new transportation and land use strategy to include in CPU	Maintain transit operational efficiency	Provide facilities to meet existing and future demand	Improve pedestrian circulation			Provide opportunities for public / private partnerships	Reconnect east and west sides of community	
Community revitalization / economic development	Minimize operating costs	Accommodate future LRT frequency increases	Support economic development in surrounding community				Energize pedestrian areas	
Integrate private investment into ITC	Create a gateway / landmark ITC	Maintain / improve transit operational efficiencies (including maintenance vehicle access)	Provide adequate private vehicle parking (GSA Phase 3)				Integrate GSA facilities & ITC into community	
Create a phasable/constructable plan	Provide transportation choices in one location	Minimize capital & operating costs					Eliminate wildcatters	
Create a feasible (cost) plan	Enhance commercial economic development	Avoid service disruption / Create a phasable plan					Provide opportunities for public / private partnerships	
Provide opportunities for public / private partnerships	Create TOD							
	Create a phasable plan / Avoid service disruption							
	Minimize capital costs							
	Provide opportunities for public / private partnerships							

*Not Represented as Study Stakeholder on Project Working Group or Technical Working Group

Guiding Principles

Essential Principles

1. Pink	Resolve / Eliminate Deficiencies and Conflicts
2. Lime	Increase Public Transit Use / Give Transit Priority
3. Butter	Improve Traffic Circulation
4. Gold	Enhance Pedestrian Walkability, Connectivity and Access
5. Lavendar	Accommodate Demand and Future Expansion
6. Green	Maximize Operating Efficiencies / Minimize Operating Costs

Complementary Principles

7. Sky	Create Gateway / Landmark
8. Seafoam	Promote Revitalization / Economic Development
9. Salmon	Create Concept that can be Phased to Minimizes Disruption
10. Rust	Minimize Relative Capital Cost
11. Gray	Eliminate Illegal Use of Facility
12. Teal	Provide Opportunities for Public / Private Partnerships
13. Turquoise	Independent Goals

Table 10: San Ysidro POE Reconfiguration Mobility Study – Guiding Principles

Essential Principles
1. Resolve/Eliminate Deficiencies and Conflicts
2. Increase Public Transit Use/Give Transit Priority
3. Improve Traffic Circulation
4. Enhance Pedestrian Walkability, Connectivity, and Access
5. Accommodate Border Crossing Demand and Future GSA Facilities Expansion
6. Maximize Operating Efficiencies/Minimize Operating Costs
Complementary Principles
7. Create a Gateway/Landmark at the Border
8. Promote Community Revitalization and Economic Development
9. Create a Concept that can be Phased to Minimize Disruption
10. Minimize Relative Capital Cost
11. Eliminate Illegal Use of Transportation Facilities
12. Provide Opportunity for Public/Private Partnerships

4.4 Overarching Goal

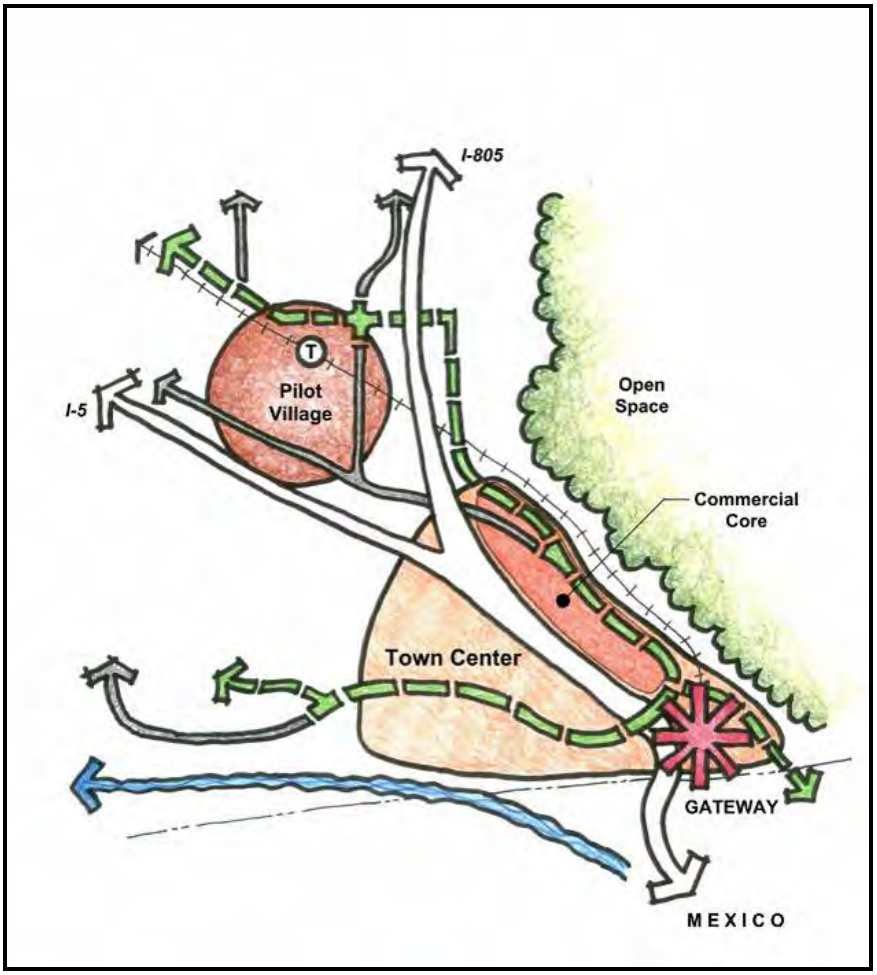
Community and stakeholder goals and guiding principles coalesced into an overarching goal for the reconfiguration study to consolidate transportation facilities and services at the border into an Intermodal Transportation Center (ITC) that combines elements of the Grand Central Station and International Gateway goals from the San Ysidro Community Plan. Reconfiguring the area into an ITC that provides sufficient physical facilities, efficient operations, and proximity to both the border and community for all modes of transportation serving the border was seen as a solution to resolving existing and future conflicts and deficiencies, and supporting community goals for an iconic gateway and economic catalyst. Since the majority of border transportation access (most significantly the San Diego Trolley), the first two phases of the GSA expansion plans, and the heaviest volume of pedestrian border crossings occur on the east side of I-5, development of POE reconfiguration concepts concentrated on the "focused study area" on the east side of I-5 between the border and Camino de la Plaza.

The guiding principles, particularly the Complementary Principles, highlight a strong objective among stakeholders to integrate the border area reconfiguration concept with the broader San Ysidro community. On a community-wide scale, goals and guiding principles indicate that stakeholders desire to create a border area that:

- Improves pedestrian and vehicular connections and mobility to, from, and within the community;
- Integrates border facilities and services into the larger community; and
- Creates a gateway to the community (and region) that provides a catalyst for community revitalization and economic development.

Reconfiguration of the border area to address existing conflicts and deficiencies would support the overarching goal to create a International Gateway and ITC. As discussed in Section 2.1.4 and shown in Figure 8, many of the existing conflicts and deficiencies at the border inhibit access to, and integration with, the community. As a result, it is difficult for the community to take full advantage of the economic potential generated by the high volumes of border crossings that could help achieve community development and revitalization goals. As illustrated in **Figure 12**, the existing San Ysidro commercial core is located north of Camino de la Plaza, and a planned City of San Diego Smart Growth Pilot Village area is located approximately two miles to the northwest of the San Ysidro POE. The community's current plans include development of a "green spine" concept that would provide a pedestrian-friendly link between the Pilot Village area and the San Ysidro POE, continuing across I-5 to the west. This green spine is intended to enhance connections among existing and planned activity centers in the community, and facilitate access between the community and the border. Reconfiguration of the border area to improve mobility, circulation, and access can support this community vision by providing an opportunity to enhance direct vehicular and pedestrian-friendly connections to the green spine, commercial core, and Pilot Village. In addition, transforming border transportation facilities into an efficient and welcoming gateway to the broader community (and region) can strengthen the synergistic relationship between the border and community and support broader community goals

FIGURE 12: SAN YSIDRO COMMUNITY VISION



Finally, reconfiguration of transportation facilities at the border would provide opportunities to create an architectural landmark that would further promote community revitalization and economic development goals. By incorporating bold or unique architectural features and designs, a San Ysidro POE ITC could be an internationally recognized symbol for the "bridge" to the San Ysidro community, San Diego region, California, and the United States. Examples of intermodal transportation centers that have incorporated landmark architectural treatments are shown in **Figure 13**.

FIGURE 13: LANDMARK INTERMODAL TRANSPORTATION CENTERS

5.0 SAN YSIDRO POE RECONFIGURATION MOBILITY CONCEPTS

Study mobility analyses were conducted for the Full Study Area which, as defined in Section 1.1 and shown in **Figure 14**, encompasses the area on both the east and west sides of I-5 that would be impacted by all three phases of the GSA POE expansion plans. However, the reconfiguration concept alternatives were developed primarily for the Focused Study Area on the east side of I-5 because of the following:

- San Ysidro Community Plan goals and objectives, and project stakeholder goals and guiding principles coalesced into an overarching goal to consolidate transportation facilities and services into an International Gateway and Intermodal Transportation Center (ITC) (see Section 4).
- The majority of border transportation access, particularly the San Diego Trolley, is currently located on the east side of I-5.
- Phases 1 and 2 of the GSA POE expansion plans are concentrated on the east side of I-5; Phase 3 (west side of I-5) is a longer-term project.
- The highest volumes of pedestrian border crossings occur on the east side of I-5, and are projected to continue to occur on the east side of I-5 after implementation of the three-phased GSA expansion plans.
- Reconfiguration of the east side of I-5 can act as a catalyst for addressing mobility and community goals both west and north of the Focused Study Area.

FIGURE 14: FULL AND FOCUSED STUDY AREAS

While the reconfiguration concepts focus on the creation of an ITC on the east side of I-5, ancillary facilities for the Full Study Area that would be required to accommodate an ITC and study area traffic, circulation, and access goals are included in the study recommendations. Initial study activities included development of concept schematics that incorporated the Full Study Area as shown in **Figure 15**. These initial schematics can be used to supplement the Focused Study Area reconfiguration concept recommendations, particularly as they relate to proposals for addressing border area parking needs.

FIGURE 15: INITIAL FULL STUDY AREA SCHEMATICS

5.1 FOCUSED STUDY AREA RECONFIGURATION CONCEPTS

Once the study focused on the east side of I-5, a variety of general concepts was crafted in an effort to address the stakeholder goals and guiding principles. These general concepts are included in **Appendix A**. Most did not satisfactorily address the essential principles, nor did they fully speak to the complementary principles. Some failed to effectively concentrate transportation facilities and services into a coordinated and convenient Intermodal Transportation Center. Others shifted the Trolley away from the pedestrian POE facilities. None

of them fully eliminated the conflicts inherent with mixing auto traffic and circulation with large volumes of pedestrians. Most did not improve and, in some cases, degraded public and private transit operational conflicts. And, finally, most struggled to create an integrated connection with the San Ysidro community.

In crafting these general concepts, it soon became apparent that there were four factors driving the development of the reconfiguration concepts. By focusing on these factors, reconfiguration concepts could be developed that allowed for an assessment of trade-offs in the evaluation of the concept alternatives.

5.1.1 Driving Factors for Concept Development

The four factors deemed to be driving the development of concepts for the Focused Study Area are:

- **Location of Trolley Platform.** Because the Trolley serves over 42 percent of pedestrian border crossers, requires over 360 feet of linear platform space (and connecting tracks to approach the platform), calls for close proximity to both the north- and southbound pedestrian border facilities, and would be the centerpiece of transportation modes in an ITC, its location on the site drives the options for the other transportation, pedestrian, and commercial components. The existing Trolley platform is located in the southern half of the Focused Study Area, close to the northbound pedestrian crossing outlet. There are three general options for the Trolley platform location in the Focused Study Area:
  - Retain the platform in its existing location
  - Relocate the platform to the east
  - Relocate the platform to the north

- **Type of Intermodal Transportation Center (ITC).** Another driving factor affecting the reconfiguration concept relates to availability of space for the physical, operational, and circulation needs of the ITC. An ITC is an assembly of transportation facilities and services coordinated and integrated by proximity and purpose, and including common customer information, facilities and amenities, and pedestrian connections and spaces. An ITC can incorporate multiple transportation modes in one large facilitiy, or it can include several facilities in proximity to each other that operate in a cohesive, interrelated and comprehensive manner. As a result, two primary options for incorporation of an ITC in the Focused Study Area exist:
  - An at-grade ITC
  - A vertical ITC

  An at-grade facility would need to accommodate all transportation, pedestrian, and commercial components and circulation requirements at ground level, limiting the options for the accommodating facility needs. A vertical ITC would increase available acreage for components and circulation by creating a multi-level ITC, which would house some activities and facilities on the ground level and others on one of more upper levels of an ITC structure. The additional space would expand facility design options. It is possible that a hybrid ITC option would be developed that includes both vertical and at-grade components.

- **Location of Freeway Ramps.** A third factor that significantly affects the reconfiguration concept is the location of the northbound I-5 on- and off-ramps. These ramps extend into the center of the site and their presence significantly impacts site design. In addition, as

discussed in Section 2.1.4, one of the primary conflict points on the site is the intersection of the ramps with East San Ysidro Boulevard and Rail Court. Relocation of these ramps would dramatically change options for the reconfiguration concept. The driving factor is whether the:

- Northbound I-5 ramps remain in their existing location
- Northbound I-5 ramps relocate to the Camino de la Plaza bridge

- **Access to ITC.** The final driving factor affecting the reconfiguration concept relates to how public and private buses would access the ITC. Bus access routes to an ITC will affect how pedestrian and other vehicular circulation occurs on and near the site, and how well the site concept minimizes circulation conflicts. Access routes also impact bus operating efficiencies. In general, there are two options for bus access to and from the site and an ITC:
  - Bus access from the East San Ysidro Boulevard/Camino de la Plaza intersection
  - Bus access off East Beyer Boulevard via a new site access point
  - A third option would be access using the northbound I-5 freeway ramps, but this option has limited feasibility for bus routes that don't use the freeway.

5.1.2 Reconfiguration Concepts

Taking into account the driving factors for the reconfiguration concept, the TWG identified seven driving factor permutations as the basis for the concept alternatives. As shown in **Table 11**, alternatives include various combinations of Trolley platform locations, at-grade and vertical ITC facilities, freeway ramp locations, and bus access. In developing concept alternatives, it became apparent that the most significant driving factor was the location of the freeway ramps. As a result, the concepts were divided into two categories – those that relocated the freeway ramps (new ramps or "NR") and those that retained the freeway ramps in their existing location (existing ramps or "ER").

Table 11: Summary of Key Features for ITC Alternatives

	Location of Trolley Platform [a]			Type of ITC [b]		Freeway Ramps Location [c]		Access to ITC [d]	
Alternative	Existing	East	North	At-Grade	Vertical	Existing	New	Beyer Blvd	San Ysidro Blvd
NR-A		◆			◆		◆	◆	
NR-B		◆			◆		◆		◆
NR-C		◆		◆			◆		◆
NR-D	◆				◆		◆	◆	
NR-E			◆		◆		◆		◆
ER-A		◆			◆	◆			◆
ER-B	◆				◆	◆		◆	

Notes:
NR = New freeway ramp location
ER = Existing freeway ramp location
◆ Indicates feature included in alternative
(a) The three options for the location of the Trolley platform include the existing location, moving the platform to the east, or moving the platform to the north.
(b) The two options include an all at-grade ITC or a vertical ITC.
(c) The two options include the existing I-5 NB Ramps location or a new ramp to/from Camino de la Plaza.
(d) The two options for bus access to the ITC include access from Beyer Boulevard or from the East San Ysidro Boulevard/Camino del la Plaza intersection.

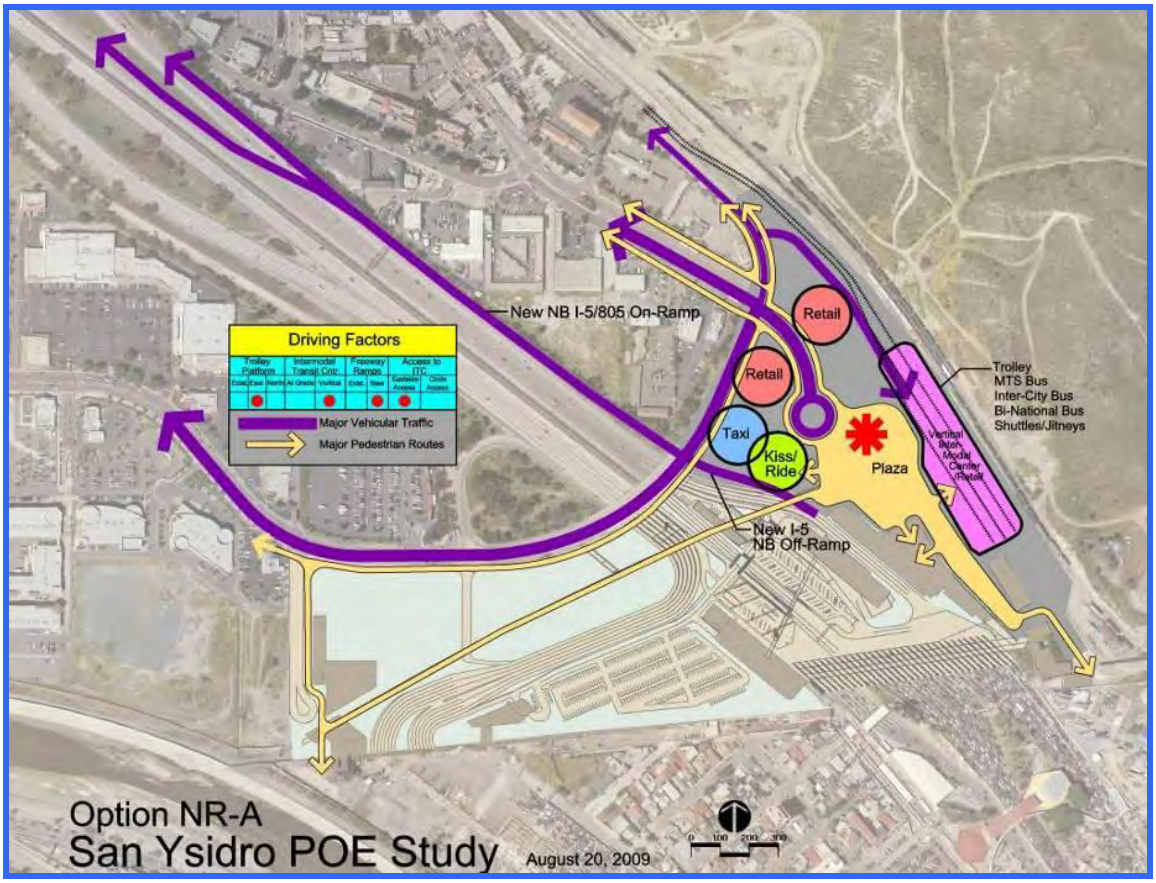
Development of the concept alternatives focused on general location, relative size, and inter-relationships of the ITC and other site features rather than specific site designs. This more abstract approach allowed for an evaluation of the options presented by the driving factors relative to the guiding principles and evaluation criteria discussed in Section 4, and a narrowing of concept alternatives for further consideration. More detailed conceptual design has been performed on the preferred alternative and is discussed in detail in Section 6.

5.1.2.1 New Ramps-A (NR-A) Concept

The NR-A concept (**Figure 16**) addresses the driving factors in the following ways:

- Relocates the Trolley platform to the east
- Includes a vertical ITC
- Relocates the I-5 northbound ramps to/from the Camino de la Plaza bridge
- Accesses the ITC from East Beyer Boulevard

FIGURE 16: NR-A CONCEPT



By shifting the Trolley platform to the eastern edge of the site, relocating the freeway ramps to connect with the Camino de la Plaza bridge, and placing local and intercity bus facilities above the Trolley platform, a large space in the middle of the site becomes available for a pedestrian plaza, and taxi, jitney, and kiss-and-ride facilities. The approaching Trolley tracks would also shift to the east providing room for a bus access ramp to the second level bus platform from East Beyer Boulevard. This configuration shifts the entrance to the ITC to East San Ysidro Boulevard at Camino de la Plaza. The new entrance leads to the internal access roadway and cul-de-sac “circle” for taxi, jitney, and kiss-and-ride access and facilities. This internal roadway is lined by a pedestrian pathway connecting the pedestrian plaza to the entrance intersection. Small-scale retail and commercial uses would be provided for on the site.

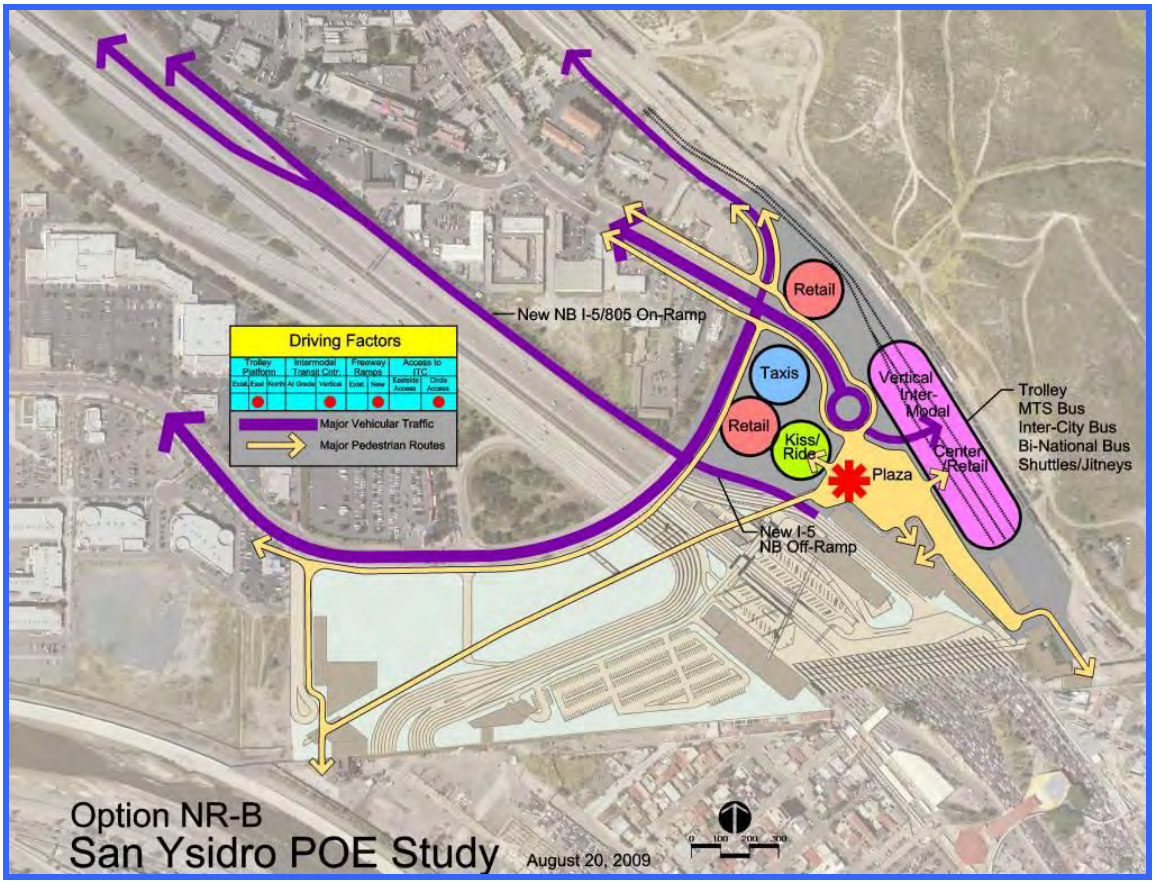
5.1.2.2 New Ramps-B (NR-B) Concept

The NR-B concept (**Figure 17**) addresses the driving factors in the following ways:

- Relocates the Trolley platform to the east
- Includes a vertical ITC
- Relocates the I-5 northbound Ramps to/from the Camino de la Plaza bridge
- Accesses the ITC from East San Ysidro Boulevard and the internal ITC circle

This concept includes the same features as Concept NR-A, except that local and intercity buses would access the second level bus platform via the East San Ysidro Boulevard/Camino de la Plaza intersection and through the taxi, jitney, kiss-and-ride internal road and circle. Because the buses need to reach the second story level, the bus access ramp would begin its ascent from the circle, encroaching on the pedestrian plaza, and possibly requiring a larger circle. Small-scale retail and commercial uses would be provided for on the site.

FIGURE 17: NR-B CONCEPT



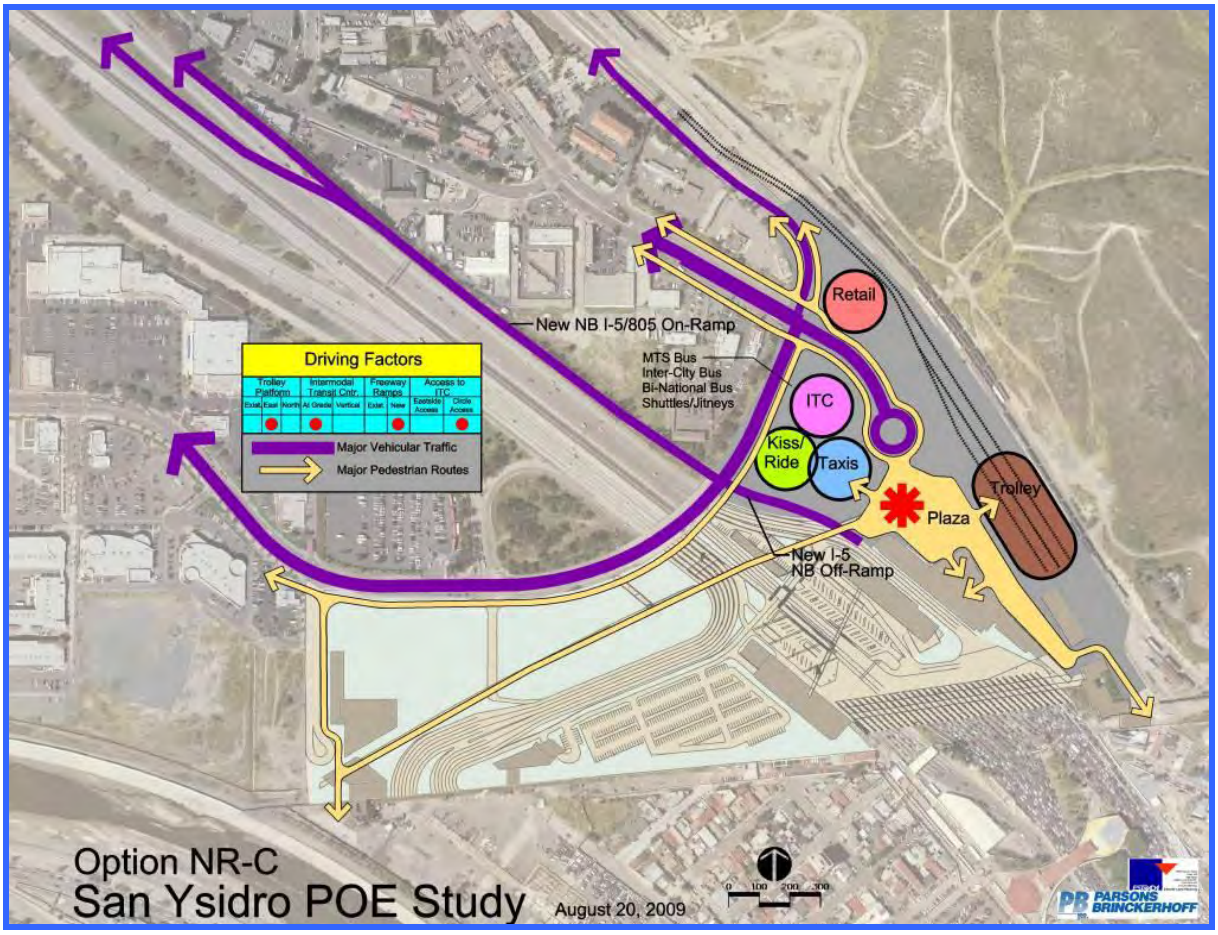
5.1.2.3 New Ramps-C (NR-C) Concept

The NR-C concept (**Figure 18**) addresses the driving factors in the following ways:

- Relocates the Trolley platform to the east
- Provides an at-grade ITC
- Relocates the I-5 northbound ramps to/from the Camino de la Plaza bridge
- Accesses the ITC from East San Ysidro Boulevard and the internal ITC circle road

This concept also shifts the Trolley tracks and platform to the east and relocates the freeway ramps to the Camino de la Plaza bridge, providing for a pedestrian plaza near the GSA pedestrian bridge outlet. The difference from the previous concepts is that all rail, bus, and other transportation facilities are at-grade. The bus platforms would be accessed from the East San Ysidro Boulevard/Camino de la Plaza intersection and internal circle road, sharing the access and space with taxis, jitneys, and shuttles in a manner similar to the existing transit center. Since the relocated freeway ramps allow for a larger contiguous site than the current transit center site, these shared facilities could be larger than the existing facilities but would also be farther from the Trolley platform. Small-scale retail and commercial uses would be provided for on the site.

FIGURE 18: NR-C CONCEPT



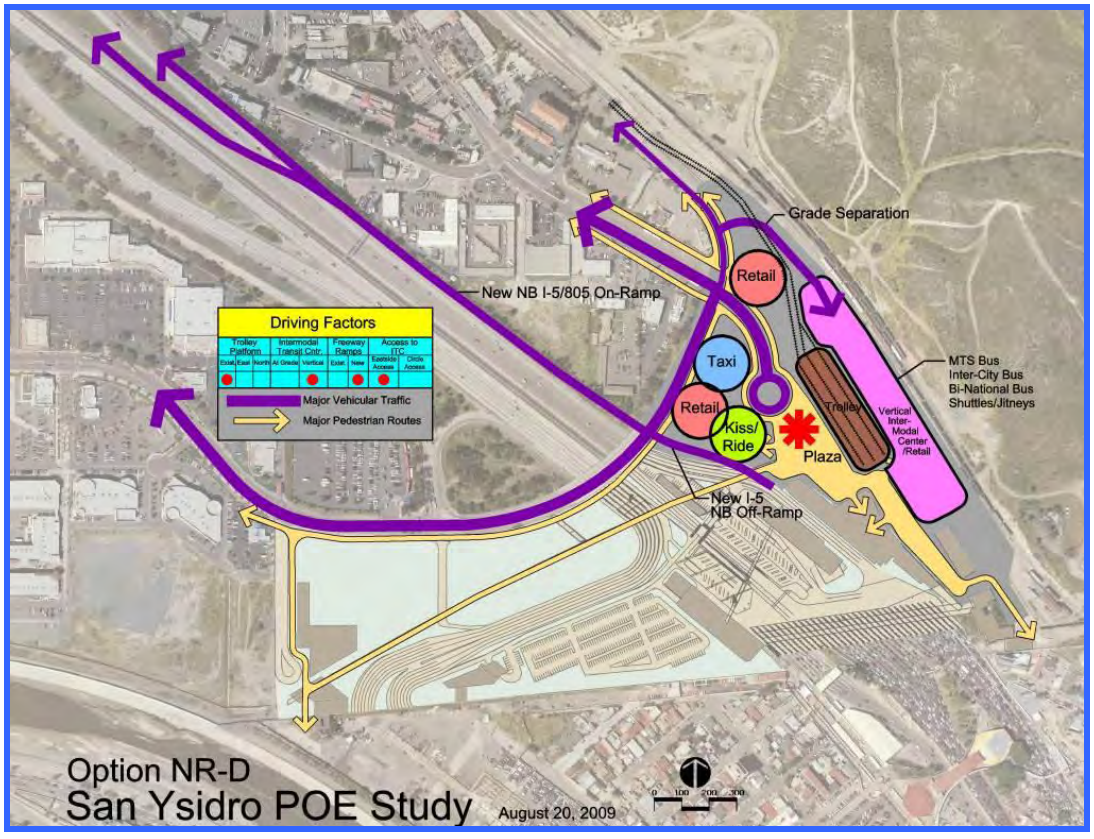
5.1.2.4 New Ramps-D (NR-D) Concept

The NR-D concept (**Figure 19**) addresses the driving factors in the following ways:

- Retains the Trolley platform in its existing location
- Provides a vertical ITC
- Relocates the I-5 northbound ramps to/from the Camino de la Plaza bridge
- Accesses the ITC from East Beyer Boulevard

This concept retains the Trolley platform (and approaching tracks) in its existing location close to the GSA northbound pedestrian crossing bridge outlet. The two-level local and intercity bus facility would be east of and adjacent to the Trolley platforms. The facility would house ticketing and retail facilities on the ground level and additional bus platforms on the second level. Access ramps to the bus facility second level would be from East Beyer Boulevard and would require grade separation from the Trolley tracks. Since the freeway ramps would be relocated, the pedestrian plaza would expand into the available space and be larger than the existing transit center pedestrian area, but not as large as in concepts NR-A, NR-B, and NR-C, in which the Trolley platform also shifts to the east. Taxi, jitney, shuttle, and kiss-and-ride facilities are provided along the internal circle road accessed from the East San Ysidro Boulevard/Camino de la Plaza intersection. Pedestrian pathways would line the circle road to connect the pedestrian plaza to the entrance intersection and community. Small-scale retail and commercial uses would be provided for on the site.

FIGURE 19: NR-D CONCEPT



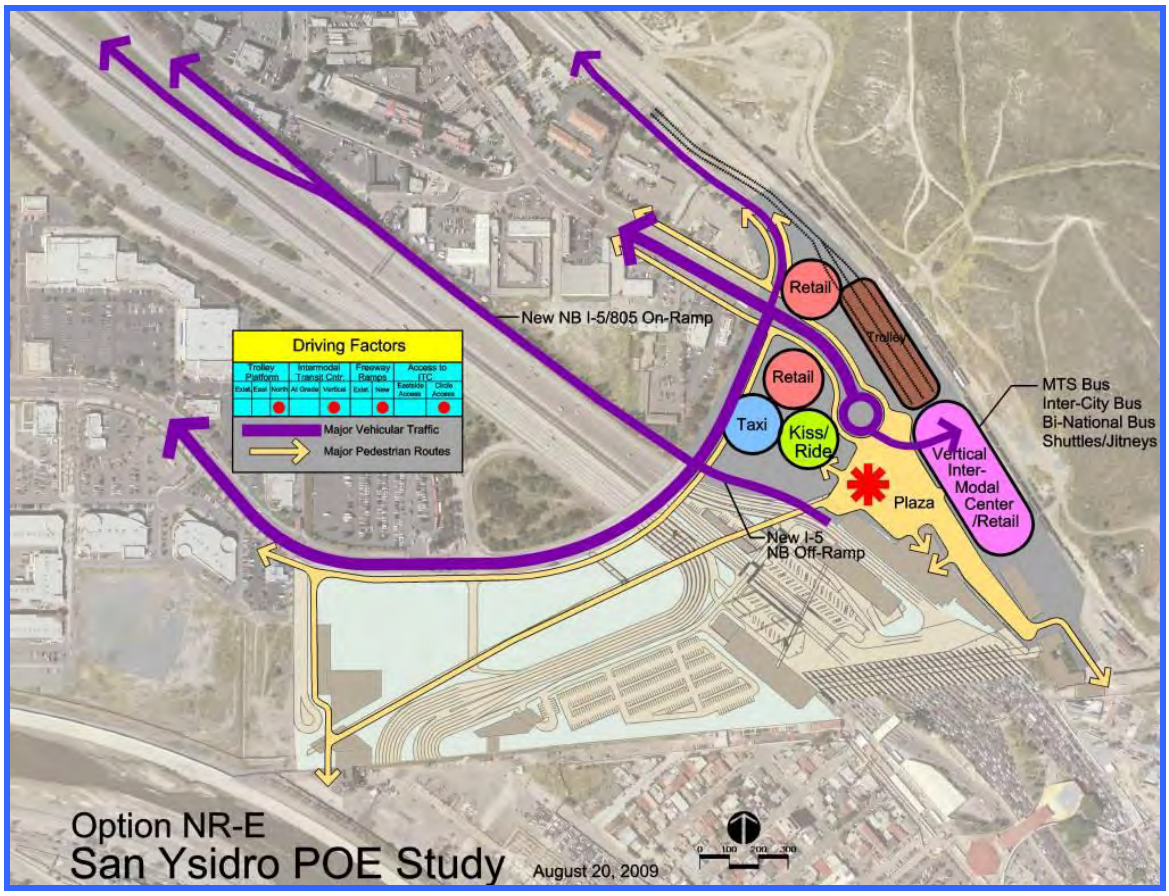
5.1.2.5 New Ramps-E (NR-E) Concept

The NR-E concept (**Figure 20**) addresses the driving factors in the following ways:

- Relocates the Trolley platform to the north
- Provides a vertical ITC
- Relocates the I-5 northbound ramps to/from the Camino de la Plaza bridge
- Accesses the ITC from East San Ysidro Boulevard and the internal ITC circle road

This concept relocates the Trolley platform to the north, closer to the community and further from the north- and southbound pedestrian border crossings. A two-level local and intercity bus facility would be located immediately south of the Trolley platforms. The facility would house ticketing and retail facilities on the ground level and additional bus platforms on the second level. Access ramps to the bus facility second level would be from the internal circle road and would need to begin its ascent at the circle, encroaching on the pedestrian plaza and possibly requiring a larger circle. Since the freeway ramps would be relocated, the pedestrian plaza would expand into the available space and be larger than the existing transit center pedestrian area. Taxi, jitney, shuttle, and kiss-and-ride facilities are provided along the internal circle road accessed from the East San Ysidro Boulevard/Camino de la Plaza intersection. Small-scale retail and commercial uses would be provided for on the site.

FIGURE 20: NR-E CONCEPT



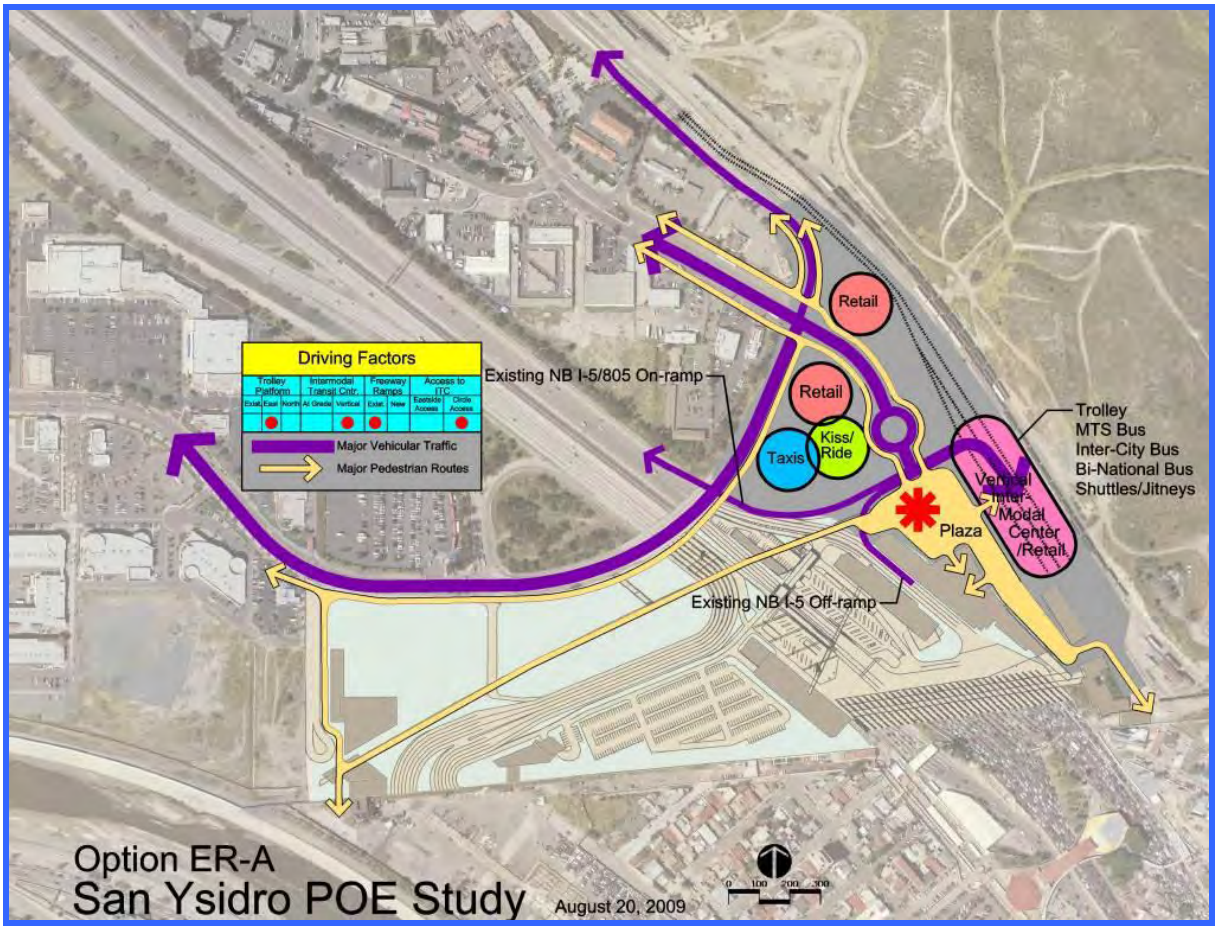
5.1.2.6 Existing Ramps-A (ER-A) Concept

The ER-A concept (**Figure 21**) addresses the driving factors in the following ways:

- Relocates the Trolley platform to the east
- Provides a vertical ITC
- Retains the I-5 northbound ramps in their existing location
- Accesses the ITC from Rail Court via the East San Ysidro Boulevard/I-5 Ramp/Rail Court intersection

This concept assumes that the freeway ramps cannot or will not be relocated and will continue to penetrate the middle of the site. East San Ysidro Boulevard would connect into the ramps to provide access. The Trolley platform (and approaching tracks) would be relocated to the east, and local and intercity bus facilities would be located above the Trolley platform providing for a larger pedestrian plaza area than exists today. Access ramps to the second-level bus facility would be through the intersection of East San Ysidro Boulevard and the freeway ramps. The taxi, jitney, shuttle, and kiss-and-ride facilities would be located in the northwest quadrant of the intersection, separated from the transit facilities by the street and freeway ramps. Small-scale retail and commercial uses would be provided for on the site.

FIGURE 21: ER-A CONCEPT



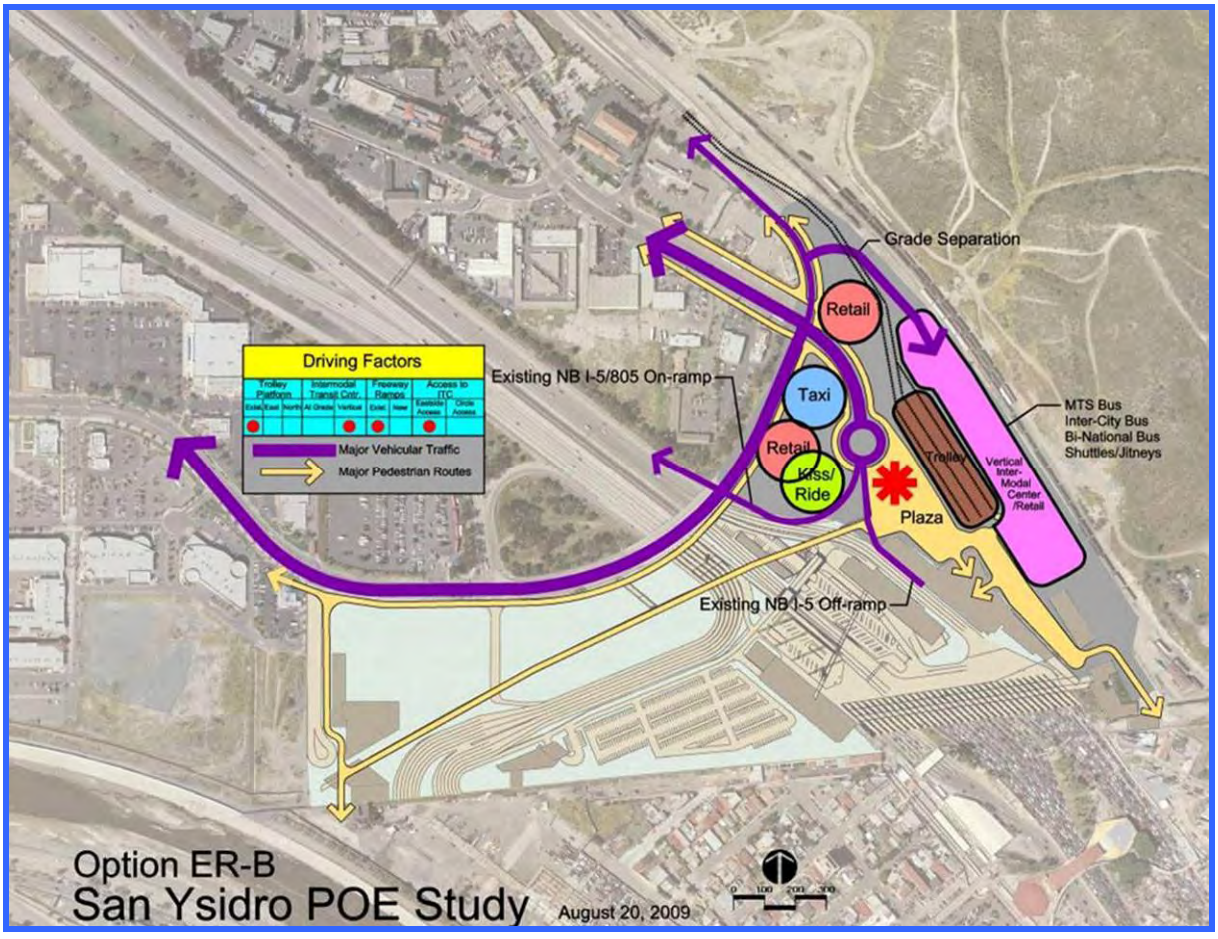
5.1.2.7 Existing Ramps-B (ER-B) Concept

The ER-B concept (**Figure 22**) addresses the driving factors in the following ways:

- Retains the Trolley platform in its existing location
- Provides a vertical ITC
- Retains the I-5 northbound ramps in their existing location
- Accesses the ITC from East Beyer Boulevard

This concept assumes that the freeway ramps cannot or will not be relocated and will continue to penetrate the site, but will be modified slightly. East San Ysidro Boulevard would connect into the ramps to provide access. It also assumes that the Trolley platform (and approaching tracks) will remain in their existing locations. A two-level local and intercity bus facility would be located east of the Trolley platforms. The facility would house ticketing and retail facilities on the ground level and additional bus platforms on the second level. Access ramps to the bus facility second level would be from East Beyer Boulevard, and would require grade separation from the Trolley tracks. The taxi, jitney, shuttle, and kiss-and-ride facilities would be located in the northwest quadrant of the intersection, separated from the transit facilities by the street and freeway ramps. Small-scale retail and commercial uses would be provided for on the site.

FIGURE 22: ER-B CONCEPT



5.2 RECONFIGURATION CONCEPTS COMPARATIVE EVALUATION

A comparative evaluation of the seven reconfiguration concept alternatives discussed in Section 5.1.2 was conducted using the principles (criteria) defined in Section 4.2 and listed in **Table 10**. Each reconfiguration concept was assigned a relative rating (as compared to other alternatives) for each principle using a rating scale from "1" to "5," in which "1" is worst and "5" is best. Scores were subtotaled separately for the essential principles and complementary principles to allow an assessment of how well each concept alternative fared within the essential and complementary categories relative to the other alternatives. Total scores for all essential and complementary principles provide the comprehensive comparative evaluation results. For both subtotals and totals, a higher score indicates that the concept alternative better addresses the project principles. **Table 12** summarizes the comparative evaluation results. Reconfiguration concepts NR-A and NR-D ranked highest by a significant margin.

5.2.1 Comparative Evaluation Summary

The following section discusses the characteristics of each concept alternative that provided the basis for the relative ratings and comparative evaluation results. The discussion highlights benefits and issues for each alternative relative to the existing condition and considers the existing condition conflicts and deficiencies identified in Section 2.1.4.

5.2.1.1 New Ramps-A (NR-A) Concept

Benefits

- Eliminates vehicular conflicts at East San Ysidro Boulevard/I-5 Northbound Ramps/Rail Court by relocating freeway ramps and eliminating the intersection
- Gives transit priority access to/from the ITC
- Shifts local and intercity bus access to and from ITC away from major intersections
- Improves intercity bus circulation
- Eliminates street and driveway at-grade vehicular crossings of Trolley tracks by shifting tracks to the east
- Enhances general traffic circulation
- Retains Trolley platforms in close proximity to pedestrian border crossing ingress/egress
- Consolidates Trolley, local bus, and intercity bus facilities and services
- Vertical ITC provides an opportunity to create an architectural landmark
- Separates taxi, jitney, shuttle, and kiss-and-ride circulation and access from conflicts with bus circulation and access
- Provides a more direct northbound freeway access to and from the community core and planned Pilot Village
- Creates an "entry" intersection to the community at East San Ysidro Boulevard and Camino de la Plaza for travelers from the border and the freeway
- Provides a large pedestrian plaza in the center of the ITC with direct access to the new GSA-planned southbound crossing pedestrian bridge over the freeway
- Eliminates pedestrian crossings of Trolley tracks

Table 12: San Ysidro POE Reconfiguration Mobility Study – Summary of Concept Alternatives Comparative Evaluation

Concept Description		New Ramps					Existing Ramps	
		Trolley East			Existing Trolley	Trolley North	Trolley East	Existing Trolley
		Vertical		At-Grade	Vertical		Vertical	
Principles		Eastside ITC Access	Circle ITC Access		Eastside ITC Access	Circle ITC Access	Circle ITC Access	Eastside ITC Access
Concept		NR-A	NR-B	NR-C	NR-D	NR-E	ER-A	ER-B
Essential Principles								
Pink	Resolve/Eliminate Deficiencies and Conflicts	5	2	2	5	2	1	2
Lime	Increase Public Transit Use / Give Transit Priority	4	4	3	5	1	3	5
Butter	Improve Traffic Circulation	5	3	3	5	3	1	2
Gold	Enhance Pedestrian Walkability, Connectivity, Access	5	2	5	5	1	1	1
Lavendar	Accommodate Demand and Future Expansion	4	3	1	5	3	2	3
Green	Maximize Operating Efficiencies / Minimize Operating Cost	2	2	3	2	2	1	2
Subtotal		25	16	17	27	12	9	15
Complementary Principles								
Sky	Create a Gateway/Landmark	4	2	1	5	2	1	4
Seafoam	Promote Revitalization/Economic Development	3	2	1	3	2	1	2
Salmon	Create Phasable Plan that Minimizes Disruption	3	2	3	4	2	2	3
Rust	Minimize Capital Costs	3	3	5	3	2	2	3
Teal	Provide Opportunities for Public / Private Partnerships	3	3	2	3	3	3	3
Gray	Eliminate Illegal Use of Facility	NA	NA	NA	NA	NA	NA	NA
Turquoise	Specific Independent Goals	NA	NA	NA	NA	NA	NA	NA
Subtotal		16	12	12	18	11	9	15
TOTAL		41	28	29	45	23	18	30

Relative Ranking

5 Best

4

3

2

1 Worst

Color coding relates to the Guiding Principles discussed in Section 4.3 and Table 9.

- Creates a pedestrian promenade and view corridor between the ITC plaza and Camino de la Plaza, improving access for border crossers to/from the community
- Creates opportunities to incorporate small-scale retail and commercial activities into the site
- Provides opportunities for public/private partnerships and/or joint development with retail/commercial developers and/or intercity bus carriers

Issues

- Slightly increases bus travel distance from Camino de la Plaza to the bus facilities, increasing travel time and operating costs
- Requires widening the Camino de la Plaza bridge to incorporate left-turn pockets to accommodate northbound freeway ramp traffic
- Eliminates private commercial parking lots on the site
- Requires acquisition and/or relocation of private property and businesses on the site
- Results potentially in relatively higher capital costs due to incorporation of a vertical facility and relocation of freeway ramps

5.2.1.2 New Ramps-B (NR-B) Concept

Benefits

- Eliminates vehicular conflicts at East San Ysidro Boulevard/I-5 Northbound Ramps/Rail Court by relocating freeway ramps and eliminating the intersection
- Eliminates street and driveway at-grade vehicular crossings of Trolley tracks by shifting tracks to the east
- Enhances general traffic circulation
- Improves intercity bus circulation
- Retains Trolley platforms in close proximity to pedestrian border crossing ingress/egress
- Consolidates Trolley, local bus, and intercity bus facilities and services
- Vertical ITC provides an opportunity to create an architectural landmark
- Provides a more direct northbound freeway access to and from the community core and planned Pilot Village
- Creates an “entry” intersection to the community at East San Ysidro Boulevard and Camino de la Plaza for travelers from the border and the freeway
- Provides a large pedestrian plaza in the center of the ITC with direct access to the new GSA-planned southbound pedestrian bridge over the freeway
- Eliminates pedestrian crossings of Trolley tracks
- Creates opportunities to incorporate small-scale retail and commercial activities into the site
- Provides opportunities for public/private partnerships and/or joint development with retail/ commercial developers and/or intercity bus carriers

Issues

- Slightly increases bus travel distance from Camino de la Plaza to the bus facilities, increasing travel time and operating costs
- Mixes local and intercity bus access to/from ITC with taxis, jitneys, shuttles, and kiss-and-ride access
- Requires local and intercity buses to cross pedestrian walkway between the plaza and East San Ysidro Boulevard/Camino de la Plaza intersection, creating conflicts with pedestrians and inhibiting pedestrian access to the community
- Requires ascending ramp from "circle" access to second level of ITC, creating a physical intrusion and visual barrier between the plaza and community
- Requires widening the Camino de la Plaza bridge to incorporate left-turn pockets to accommodate northbound freeway ramp traffic
- Eliminates private commercial parking lots on the site
- Requires acquisition and/or relocation of private property and businesses on the site
- Results potentially in relatively higher capital costs due to incorporation of a vertical facility and relocation of freeway ramps

5.2.1.3 New Ramps-C (NR-C) Concept

Benefits

- Eliminates vehicular conflicts at East San Ysidro Boulevard/I-5 Northbound Ramps/Rail Court by relocating freeway ramps and eliminating the intersection
- Eliminates street and driveway at-grade vehicular crossings of Trolley tracks by shifting tracks to the east
- Enhances general traffic circulation
- Retains Trolley platforms in close proximity to pedestrian border crossing ingress/egress
- Slightly reduces bus route distance to bus facilities, decreasing travel time and operating cost
- Provides a more direct northbound freeway access to and from the community core and planned Pilot Village
- Creates an "entry" intersection to the community at East San Ysidro Boulevard and Camino de la Plaza for travelers from the border and the freeway
- Provides a large pedestrian plaza in the center of the ITC with direct access to the new GSA-planned southbound pedestrian bridge over the freeway
- Eliminates pedestrian crossings of Trolley tracks
- Provides a potentially relatively lower cost alternative because all facilities are at-grade

Issues

- Separates Trolley, local bus, and intercity bus facilities and services
- Increases distance from pedestrian border crossing ingress/egress to local and intercity bus facilities

- Minimizes opportunities for public/private partnerships and/or joint development with retail/ commercial developers and/or intercity bus carriers without vertical ITC facility and because more land is required for transportation facilities
- Mixes local and intercity bus access with taxis, jitneys, shuttles, and kiss-and-ride access
- Requires local and intercity buses to cross pedestrian walkway to access bus facilities, creating conflicts with pedestrians and inhibiting pedestrian access to the community
- Requires widening the Camino de la Plaza bridge to incorporate left-turn pockets to accommodate northbound freeway ramp traffic
- Eliminates private commercial parking lots on the site
- Requires acquisition and/or relocation of private property and businesses on the site
- Makes it more challenging to create an architectural landmark or gateway without consolidated vertical facilities

5.2.1.4 New Ramps-D (NR-D) Concept

Benefits

- Eliminates vehicular conflicts at East San Ysidro Boulevard/I-5 Northbound Ramps/Rail Court by relocating freeway ramps and eliminating the intersection
- Gives transit priority access to/from the ITC
- Shifts local and intercity bus access to/from ITC away from major intersections
- Improves intercity bus circulation
- Eliminates street and driveway at-grade vehicular crossings of Trolley tracks by realigning tracks and access road
- Enhances general traffic circulation
- Retains Trolley platforms in close proximity to pedestrian border crossing ingress/egress
- Retains Trolley platforms in existing location, which reduces need to completely rebuild station
- Consolidates Trolley, local bus, and intercity bus facilities and services
- Vertical ITC provides an opportunity to create an architectural landmark
- Separates taxi, jitney, shuttle, and kiss-and-ride circulation and access from conflicts with bus circulation and access
- Provides a more direct northbound freeway access to and from the community core and planned Pilot Village
- Creates an “entry” intersection to the community at East San Ysidro Boulevard and Camino de la Plaza for travelers from the border and the freeway
- Provides a pedestrian plaza in the center of the ITC with direct access to the new GSA-planned southbound pedestrian bridge over the freeway
- Eliminates pedestrian crossings of Trolley tracks

- Creates a pedestrian promenade between the ITC plaza and Camino de la Plaza, improving access for border crossers to/from the community
- Creates opportunities to incorporate small-scale retail and commercial activities into the site
- Provides opportunities for public/private partnerships and/or joint development with retail/commercial developers and/or intercity bus carriers

Issues

- Slightly increases bus travel distance from Camino de la Plaza to the bus facilities, increasing travel time and operating costs
- Requires ITC bus access ramp to be grade-separated over Trolley tracks
- Requires widening the Camino de la Plaza bridge to incorporate left-turn pockets to accommodate northbound freeway ramp traffic
- Eliminates private commercial parking lots on the site
- Requires acquisition and/or relocation of private property and businesses on the site
- Results potentially in relatively higher capital costs due to incorporation of a vertical facility and relocation of freeway ramps

5.2.1.5 New Ramps-E (NR-E) Concept

Benefits

- Eliminates vehicular conflicts at East San Ysidro Boulevard/I-5 Northbound Ramps/Rail Court by relocating freeway ramps and eliminating the intersection
- Eliminates street and driveway at-grade vehicular crossings of Trolley tracks by shifting tracks to the east
- Enhances general traffic circulation
- Improves intercity bus circulation
- Vertical ITC provides an opportunity to create an architectural landmark
- Provides a more direct northbound freeway access to and from the community core and planned Pilot Village
- Creates an “entry” intersection to the community at East San Ysidro Boulevard and Camino de la Plaza for travelers from the border and the freeway
- Provides a large pedestrian plaza in the center of the ITC with direct access to the new GSA-planned southbound pedestrian bridge over the freeway
- Eliminates pedestrian crossings of Trolley tracks
- Creates opportunities to incorporate small-scale retail and commercial activities into the site
- Provides opportunities for public/private partnerships and/or joint development with retail/commercial developers and/or intercity bus carriers

Issues

- Shifts Trolley platforms farther from pedestrian border crossing ingress/egress
- Separates Trolley, local bus, and intercity bus facilities and services

- Slightly increases bus travel distance from Camino de la Plaza to the bus facilities, increasing travel time and operating costs
- Mixes local and intercity bus access to/from ITC with taxis, jitneys, shuttles, and kiss-and-ride access
- Requires local and intercity buses to cross pedestrian walkway between the plaza and East San Ysidro Boulevard/Camino de la Plaza intersection, creating conflicts with pedestrians and inhibiting pedestrian access to the community
- Requires ascending ramp from "circle" access to second level of ITC, creating a physical intrusion and visual barrier between the plaza and Trolley station, and between the plaza and community
- Requires widening the Camino de la Plaza bridge to incorporate left-turn pockets to accommodate northbound freeway ramp traffic
- Eliminates private commercial parking lots on the site
- Requires acquisition and/or relocation of private property and businesses on the site
- Results potentially in relatively higher capital costs due to incorporation of a vertical facility and relocation of freeway ramps

5.2.1.6 Existing Ramps-A (ER-A) Concept

Benefits

- Retains Trolley platforms in close proximity to pedestrian border crossing ingress/egress
- Eliminates street and driveway at-grade vehicular crossings of Trolley tracks by realigning tracks and access road
- Consolidates Trolley, local bus, and intercity bus facilities and services
- Vertical ITC provides an opportunity to create an architectural landmark
- Separates taxi, jitney, shuttle, and kiss-and-ride circulation and access from conflicts with bus circulation and access
- Provides a pedestrian plaza in the center of the ITC with direct access to the new GSA-planned southbound pedestrian bridge over the freeway
- Eliminates pedestrian crossings of Trolley tracks
- Creates opportunities to incorporate small-scale retail and commercial activities into the site
- Provides opportunities for public/private partnerships and/or joint development with retail/commercial developers and/or intercity bus carriers

Issues

- Continues conflicts at East San Ysidro Boulevard/I-5 northbound freeway ramp intersection with autos, buses, and pedestrians
- Mixes local and intercity bus access to/from ITC with taxis, jitneys, shuttles, and kiss-and-ride access
- Creates a barrier between taxi, jitney, shuttle, kiss-and-ride facilities and pedestrian border crossers by requiring access across the freeway ramps and/or ITC bus access ramp

- Creates a freeway ramp/bus ramp pedestrian barrier between the plaza and community
- Slightly increases bus travel distance from Camino de la Plaza to the bus facilities, increasing travel time and operating costs
- Requires ascending ramp from East San Ysidro Boulevard "circle" area to second level of ITC, creating a physical intrusion and visual barrier between the plaza and community, and possibly conflicts with freeway ramps
- Requires all freeway ramp traffic to circulate through the site to get to/from the community
- Eliminates private commercial parking lots on the site
- Requires acquisition and/or relocation of private property and businesses on the site
- Results potentially in relatively higher capital costs due to incorporation of a vertical facility and relocation of freeway ramps

5.2.1.7 Existing Ramps-B (ER-B) Concept

Benefits

- Retains Trolley platforms in close proximity to pedestrian border crossing ingress/egress
- Eliminates street and driveway at-grade vehicular crossings of Trolley tracks by realigning tracks and East San Ysidro Boulevard
- Retains Trolley platforms in close proximity to pedestrian border crossing ingress/egress
- Consolidates Trolley, local bus, and intercity bus facilities and services
- Gives transit priority access to/from the ITC
- Shifts local and intercity bus access to/from ITC away from major intersections
- Improves intercity bus circulation
- Retains Trolley platforms in existing location which reduces need to completely rebuild station
- Separates taxi, jitney, shuttle, and kiss-and-ride circulation and access from conflicts with bus circulation and access
- Vertical ITC provides an opportunity to create an architectural landmark
- Provides a pedestrian plaza in the center of the ITC with direct access to the new GSA-planned southbound pedestrian bridge over the freeway
- Eliminates pedestrian crossings of Trolley tracks
- Creates opportunities to incorporate small-scale retail and commercial activities into the site
- Provides opportunities for public/private partnerships and/or joint development with retail/commercial developers and/or intercity bus carriers

Issues

- Continues conflicts at East San Ysidro Boulevard/I-5 northbound freeway ramp intersection with autos, buses, and pedestrians
- Mixes local and intercity bus access to/from ITC with taxis, jitneys, shuttles, and kiss-and-ride access

- Creates a barrier between taxi, jitney, shuttle, kiss-and-ride facilities and pedestrian border crossers by requiring access across the freeway ramps and/or ITC bus access ramp
- Creates a freeway ramp/bus ramp pedestrian barrier between the plaza and community
- Slightly increases bus travel distance from Camino de la Plaza to the bus facilities, increasing travel time and operating costs
- Requires ascending ramp from East San Ysidro Boulevard "circle" area to second level of ITC, creating a physical intrusion and visual barrier between the plaza and community, and possibly conflicts with freeway ramps
- Requires all freeway ramp traffic to circulate through the site to get to/from the community
- Eliminates private commercial parking lots on the site
- Requires acquisition and/or relocation of private property and businesses on the site
- Results potentially in relatively higher capital costs due to incorporation of a vertical facility and relocation of freeway ramps

5.2.2 Input from Community

After review of the comparative evaluation results by the TWG, three selected reconfiguration concept alternatives were presented to the PWG for input and guidance on taking the concept alternatives to the broader community. The PWG recommended that the three selected alternatives be presented to the community at a meeting of the San Ysidro Planning Group to obtain further input. Two of the presented alternatives, NR-A (renamed Option 1) and NR-D (renamed Option 2), were the two top-rated reconfiguration concepts in the comparative evaluation. Both of these concept alternatives include relocation of the I-5 northbound freeway ramps. A third concept, ER-B (renamed Option 3), was presented to retain an alternative that would not relocate the freeway ramps. Options 1, 2 and 3, as presented to the PWG and community are shown in **Figure 23, Figure 24,** and **Figure 25**, respectively.

At the planning group meeting, community members provided input and comments during the presentation and discussion. Community members were asked to formalize their comments by submitting them in writing on comment cards. In addition, meeting attendees were asked to indicate their preferences for one of the options presented by placing a sticker on their preferred option. A summary of the comment cards and outcome of the preference exercise is included below.

5.2.2.1 General Comments from Comment Cards

Thirteen comment cards were received from members of the public at the San Ysidro Planning Group public meeting. In general, most of the comments highlighted the benefits of Option 1 for addressing existing circulation conflicts and deficiencies. Many comments also identified Option 1 as the best option for supporting redevelopment and economic development opportunities on the site and in the larger community. Several comments specifically supported relocating the Trolley tracks to the east and incorporating the Trolley station into a multi-level ITC to allow for retail and commercial activities on the ground floor. Comments on Options 2 and 3 indicated that these options would not effectively address the current conflicts, and do not take all of the community needs into consideration.

FIGURE 23: OPTION 1 RECONFIGURATION CONCEPT (FORMERLY ALTERNATIVE NR-A)

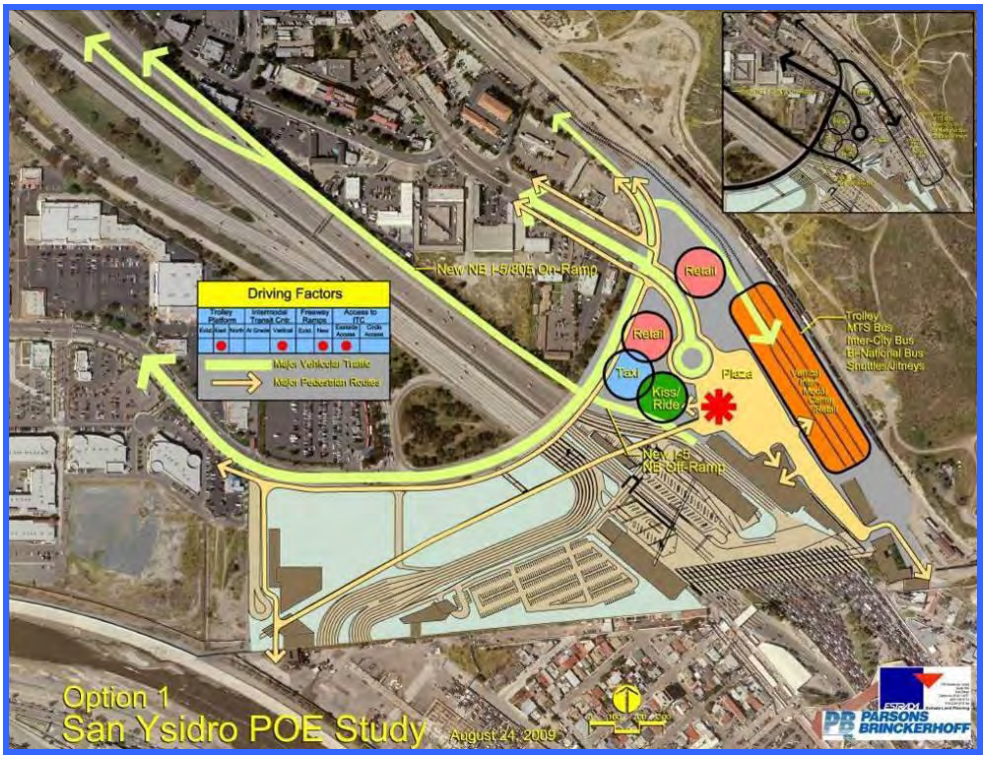


FIGURE 24: OPTION 2 RECONFIGURATION CONCEPT (FORMERLY ALTERNATIVE NR-D)

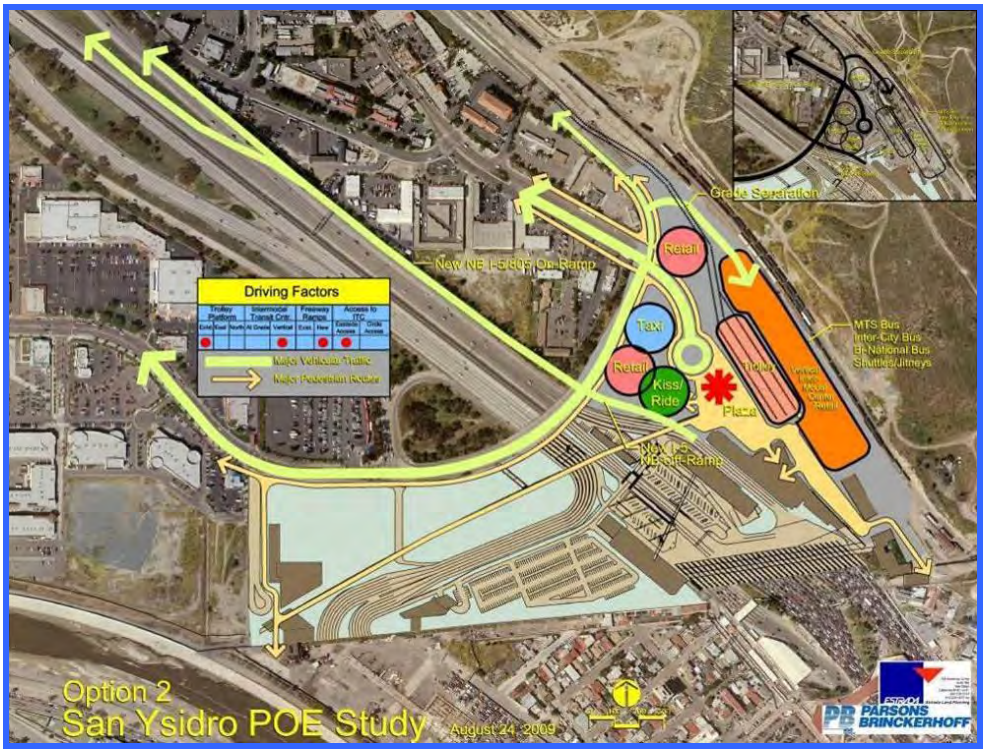


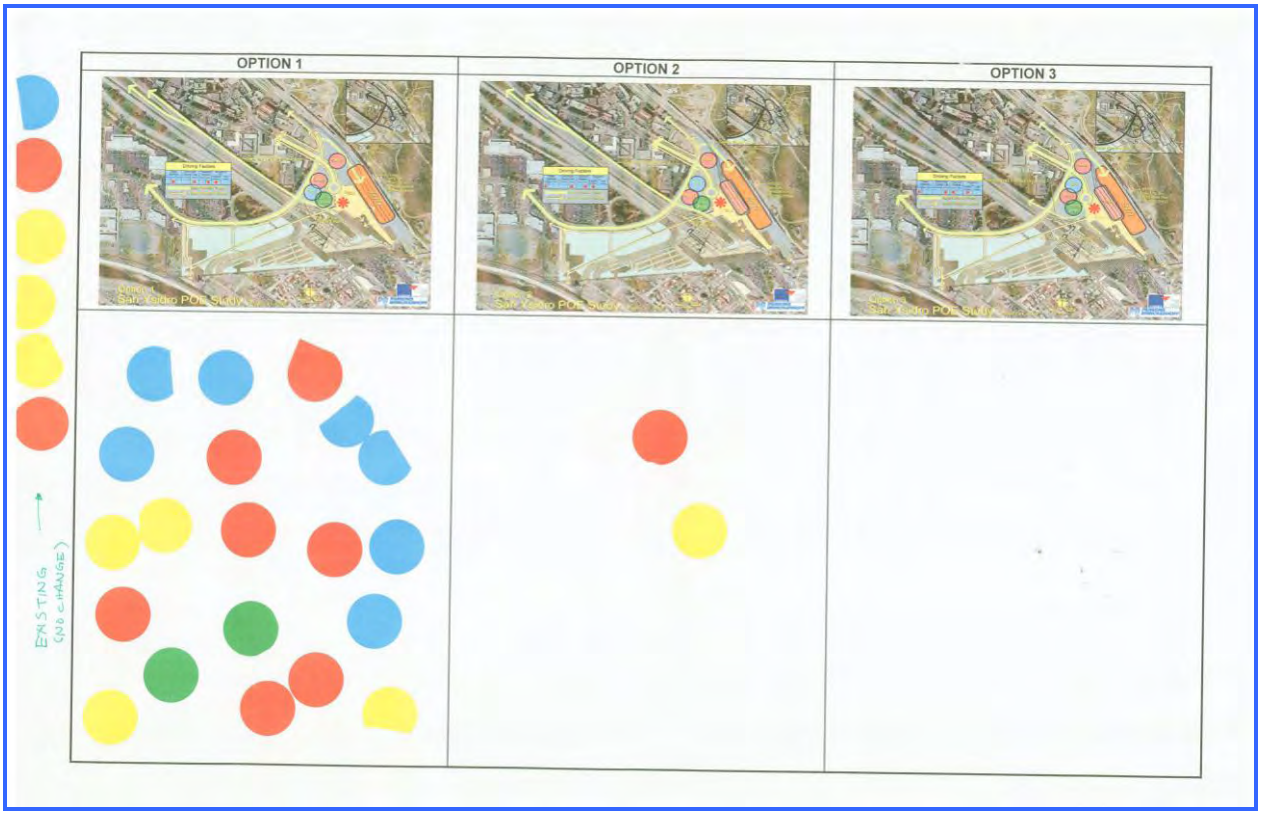
FIGURE 25: OPTION 3 RECONFIGURATION CONCEPT (FORMERLY ALTERNATIVE ER-B)

5.2.2.2 Results of Dot Preference Exercise

In addition to the comment cards, each person attending the San Ysidro Planning Group public meeting was given a sticker dot and asked to place the dot adjacent to one of the three options presented at the meeting to register their preference for an option concept. Meeting attendees were informed that their input and preferences would be considered in selecting a preferred study option for further refinement.

Figure 26 shows the results of the dot exercise. As shown in the figure, Option 1 was the clear favorite at this meeting, receiving approximately 70 percent of the preference dots. Two meeting attendees preferred Option 2 and no one indicated a preference for Option 3. The six dots on the left side of the graphics (just over 20 percent of the total) represent those who prefer none of the options and desire that existing conditions remain unchanged.

FIGURE 26: COMMUNITY DOT PREFERENCE EXERCISE



5.3 PREFERRED CONCEPT

Based on the comparative evaluation, and input from the TWG, PWG, and community, reconfiguration concept Option 1 (formerly NR-A) was deemed the preferred concept for further planning and concept development. In general, Option 1 is preferred because it:

- Eliminates most of the existing and projected 2030 circulation and mobility conflicts and deficiencies in the Focused Study Area;

- Consolidates transit into an Intermodal Transportation Center in close proximity to the border;
- Creates a pedestrian plaza, and pedestrian and view promenade linking the border and community;
- Improves vehicular and pedestrian access to the border and community;
- Incorporates retail and commercial facilities on the site;
- Can create an iconic landmark and gateway to the community and region; and
- Has the potential to be a catalyst for community revitalization and economic development beyond the site.

Option 1 was advanced for more detailed conceptual site design and further analysis on traffic, mobility, cost, and related issues.

6.0 PREFERRED RECONFIGURATION CONCEPTUAL SITE DESIGN

To advance the preferred reconfiguration concept, a conceptual site design was developed to understand how the proposed elements can be arranged on the site to meet the project goals and principles.

6.1 SITE DESIGN TRANSPORTATION FACILITY AND CAPACITY NEEDS

The conceptual site design needs to accommodate the capacity needs and facility requirements for the Intermodal Transportation Center and site. **Table 13** identifies the existing transportation facilities located in the Focused Study Area and displays the goals for transportation facilities and capacity in the conceptual site design.

Table 13: Focused Study Area Transportation Facility and Capacity Needs

Transportation Facility	Existing	Need / Goal
San Diego Trolley		
# of tracks	2	3
Length of platform (ft)	330	330
Number of platforms	2	3
MTS Public Transit Buses		
# of routes	2 (Rts. 929, 932)	3 (Rts. 929, 932, 640 BRT)
# of bus bays	3	4 (including 1 articulated)
# of bus layover spaces	1	1
# of MTS maintenance/supervisor spaces	2-3	3
# of MTS paratransit spaces	1	1
Private Intercity Buses		
# of bus bays	10 (+3 in south end parking area)	15
Cross-Border/Shuttle Buses		
# of shuttle bays	1	2
Taxis		
# of stalls on site	3	3
# off-site staging stalls	25	25
Jitneys		
# of stalls on site	2	3
# of off-site staging stalls	0	10
Private Commercial Parking		
# parking spaces	450	0-25

Some highlights of the goals for the conceptual site design include:

- Adding a third Trolley track and passenger platform which would allow the Trolley to increase service frequency by providing additional terminal station capacity;
- Increasing the number of public transit bus bays from three to four, including one for longer articulated buses, to accommodate potential increases in bus service and the planned Route 640 bus rapid transit service;

- Increasing the number of intercity bus bays to accommodate the various operators and projected demand; and
- Increasing capacity for jitneys and shuttles.

In addition to facilities for public and private transportation, the ITC needs to provide access and space for emergency vehicles, including police, fire, and medical. The site plan goals do not include replacing the existing commercial parking on the site. The three existing commercial parking lots primarily serve people driving to the area and crossing the border on foot (although they also provide some short-term parking for customers of businesses at or near the site). They do not generally serve as parking access to the transportation services at the border. Providing sizable amounts of long-term parking on the site would result in a large number of auto trips to the area with occupants who do not have a final destination there (their destination is across the border). This would lead to unnecessary traffic and mobility conflicts on the site, which is inconsistent with the project principles to enhance pedestrian activity and revitalize the site. Parking for cross-border travelers and community businesses is better provided outside the Focused Study Area as discussed in Section 5.5.

6.2 PREFERRED CONCEPT SITE DESIGN

Guided by the preferred concept (Option 1), the transportation facility and capacity needs, and the project principles, a conceptual site plan was prepared for the Focused Study Area. The site plan, shown in **Figure 27**, portrays the relationships of the required physical facilities, vehicular and pedestrian access and circulation, incorporation of retail/commercial development, and connections to the community. Key features of the site plan include the following:

- **Freeway Ramps Relocation.** The site plan relocates the northbound I-5 freeway on- and off-ramps from the center of the site to connect with Camino de la Plaza. The ramp relocation eliminates through traffic from the center of the site, which eliminates major circulation conflicts and allows for the creation of a transit and pedestrian-friendly environment at the border. Shifting northbound freeway access to Camino de la Plaza provides a more direct route between the freeway and community, improving access to the commercial core and planned Pilot Village. The new circulation pattern provides an opportunity to create a symbolic vehicular entrance to the community at the intersection of Camino de la Plaza/East San Ysidro Boulevard/East Beyer Boulevard. It also greatly improves northbound freeway access to and from the community on the west side of I-5.
- **Trolley Platform.** The Trolley station platforms are placed along the eastern edge of the site, further expanding the space available for a pedestrian plaza and small-scale retail/commercial businesses. The Trolley platform would still be in close proximity to the northbound pedestrian border crossing egress and the southbound pedestrian crossing bridge access. The Trolley station would include three tracks (there are currently just two tracks) and loading platforms to accommodate the projected need for increased service frequencies to accommodate border crossing growth. Approaching tracks would also shift to the east, removing them from interference with other site features, and eliminating all of the at-grade street, driveway, and pedestrian crossing conflicts that exist today.
- **Multi-Modal Bus and Trolley Facility.** Public transit and intercity bus facilities would be provided on a second level deck directly above the Trolley platforms. The multi-level transit facility consolidates local bus, intercity bus, and trolley services and facilities into a single facility located in close proximity to the northbound pedestrian border crossing egress and

the southbound pedestrian crossing bridge access. It also opens up ground level space for other uses including the pedestrian plaza and retail/commercial businesses. The site plan demonstrates how retail and commercial facilities could be incorporated into the multi-level structure. Ticketing and waiting rooms for intercity bus passengers could also be part of the transit facility. Combining public and private uses into this facility provides opportunities for joint development and public-private partnerships in the development of the site. Bus access to the upper level would be from East Beyer Boulevard via an ascending ramp generally parallel to the trolley tracks. This approach removes bus circulation from the center of the site, which eliminates conflicts and enhances the pedestrian access, circulation, and ambience. It also splits the access to the site transportation facility by removing it from the taxi, jitney, shuttle, and kiss-and-ride access point. **Figure 28** provides a cross-section of the conceptual site plan that displays the potential layout of the multi-modal transit facility and its relationship to the pedestrian plaza, retail space, and border crossing facilities.

- **Pick-Up/Drop-Off Area.** The site plan includes creation of an at-grade facility or area for taxi, jitney, shuttle, and kiss-and-ride pick-up and drop-off. This area would provide sufficient space for access to these transportation modes away from street traffic and bus and Trolley conflicts, enhancing operational safety and the passenger environment. The location is in close proximity to the pedestrian plaza, the northbound pedestrian border crossing egress, and southbound pedestrian crossing bridge access. The site plan indicates that this area could incorporate retail/commercial business as part of a public-private partnership or joint development project which would activate the area. Parking serving the commercial and retail businesses could be incorporated into the area to provide for short-term customer parking and commercial loading zones.
- **Pedestrian Plaza and Pathways.** The site plan incorporates a pedestrian plaza at the heart of the site providing a central activity zone that extends to the multi-modal transit facility to the east, the pedestrian border crossings to the south and west, and the taxi/jitney/kiss-and-ride area to the north. Pedestrian pathways radiate out from the plaza linking to the various transportation services and extending to the community at Camino de la Plaza/East San Ysidro Boulevard. A pedestrian promenade extends the entire length of the site creating a view corridor that draws pedestrians to the community from the border area.
- **Retail and Commercial Space.** The site plan provides opportunities to fully integrate retail and commercial space into the site design. To create an active, pedestrian-friendly space, provide goods and services to thousands of border crossers traversing the area, create a link to the community, and support economic development, the site design allows for integration of retail and commercial space with the transit, taxi/jitney/kiss-and-ride area, and pedestrian promenade. Businesses could be incorporated into the transit facility, taxi area, and line the pedestrian promenade. Businesses could cater to the transitory clientele passing through the area similar to the way airport businesses serve traveling passengers. They could act as a catalyst for economic development in the adjacent community. Consistent with the community vision (see **Figure 12**), potential retail/commercial activity along the pedestrian and view corridor on the site could be extended north into the community along East San Ysidro Boulevard, creating a seamless connection between the border area and the community. In addition, a potential retail/commercial building on the north side of the taxi/jitney/kiss-and-ride area could be a two-story structure in which the lower floor opens onto the circle and the upper floor opens onto Camino de la Plaza. The upper floor access on Camino de la Plaza could be the first in a continuation of business storefronts located on a bridge deck over the freeway as proposed by the community.

- **Architectural Landmark/Gateway Potential.** The site plan presents an opportunity to create a gateway to the community and region which would further promote broader community revitalization and economic development. By creating an active, vibrant pedestrian place for people passing through, the site becomes a landmark in the region. This landmark can be reinforced through unique or iconic architectural and urban design incorporated into the multi-modal transit facility and entire site. **Figure 28** shows how an architectural feature such as a photovoltaic roof over the transit structure can generate a landmark and create a sense of place for the site and community. Incorporation of other urban design features throughout the site would integrate all components of the site into a multi-faceted Intermodal Transportation Center.
- **Access Road.** A perimeter access road from East Beyer Boulevard would provide access for emergency and transit maintenance vehicles and to GSA and railroad employee facilities at the south end of the site. The access road requires an at-grade crossing of the trolley tracks but since it is would not be open to the general public, it would have limited use.

6.3 Conceptual Site Design Mobility Assessment and Analysis

6.3.1 Traffic Volumes

Table 14 summarizes the total number of vehicles passing through each intersection during the peak-hours in Year 2030 with the preferred ITC concept compared to the Existing and Year 2030 baseline (without ITC) scenarios. The main difference between the preferred ITC concept and the baseline scenarios is the reconfiguration of the I-5 NB ramps. The preferred ITC concept contains the new on- and off-ramps with Camino de la Plaza, which results in redistributed traffic volumes within the study area. Peak-hour volumes at each intersection would increase under the preferred ITC concept except at East San Ysidro Boulevard/Camino de la Plaza/East Beyer Boulevard (volumes would decrease during both peak periods).

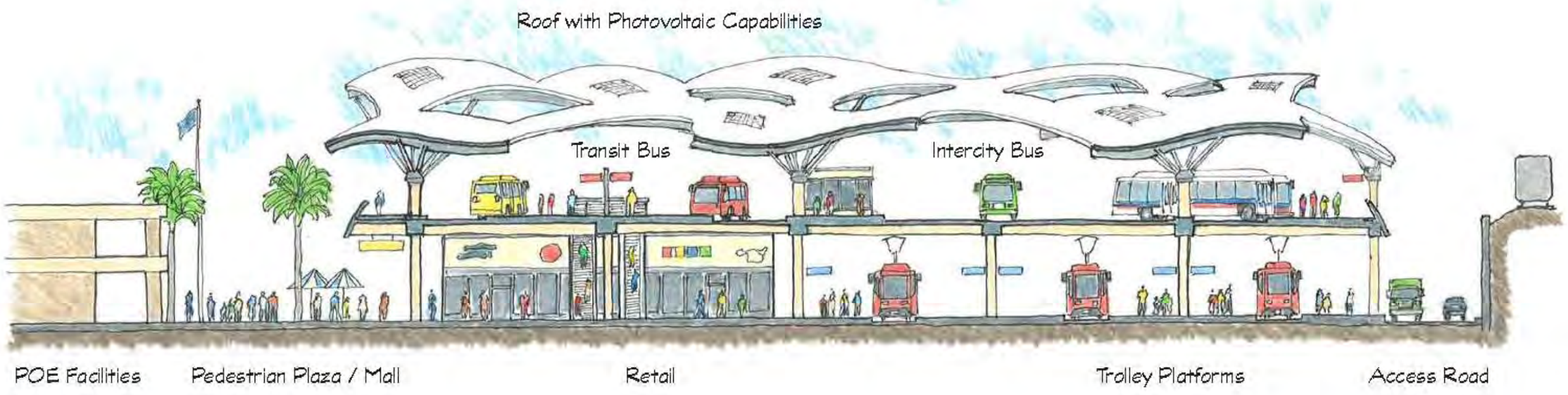
Table 14: Traffic Volume Summary at Study Area Intersections

		Peak-Hour	Existing	Year 2030 w/o ITC	Year 2030 with ITC
1	Camino de la Plaza & Virginia Ave	AM	454	1,079	1,197
		PM	1,457	3,263	3,629
2	Camino de la Plaza & I-5 SB Ramps	AM	979	1,498	1,732
		PM	2,701	4,144	4,804
3	East San Ysidro Blvd & Camino de la Plaza/ East Beyer Blvd	AM	950	1,701	1,363
		PM	1,952	3,656	2,924
4	East San Ysidro Blvd/I-5 NB Ramps/Rail Ct.	AM	817	1,460	N/A
		PM	1,083	2,049	N/A
5	Camino de la Plaza & I-5 NB Ramps[(a)]	AM	N/A	N/A	1,614
		PM	N/A	N/A	3,525

Note: Traffic volumes represent the total number of vehicles passing through an intersection during the peak hour.
(a) This intersection is a new intersection created as part of the Year 2030 with ITC scenario.

FIGURE 27: PREFERRED CONCEPT SITE PLAN

FIGURE 28: PREFERRED CONCEPT SITE DESIGN CROSS SECTION AT TRANSIT FACILITY (LOOKING NORTH)



Cross-Section Looking North

Intermodal Transit Center Concept
San Ysidro Land Port of Entry
Reconfiguration Mobility Study

PB PARSONS BRINCKERHOFF

6.3.2 Traffic Operations

Intersections

Table 15 summarizes the LOS at the study intersections in the Year 2030 scenario with the preferred ITC concept and compares the results to the Existing and Year 2030 baseline scenario (without ITC). As part of the Year 2030 scenario with the preferred ITC concept, the following assumptions were included as part of the analysis:

- All cycle lengths and signal timings along Camino de la Plaza were optimized and assumed to be coordinated.
- All improvements associated with GSA's impacts resulting from the expansion at the border have been assumed to be constructed and in operation. At the Camino de la Plaza/Virginia Avenue intersection, improvements consisted of signalizing the intersection and adding a second westbound through lane. At the Camino de la Plaza/I-5 SB Ramps intersection, improvements consisted of restriping the southbound approach to include a left, through-right, and right-turn only lane and adding a second westbound through lane.
- Camino de la Plaza would be widened to accommodate two through lanes in each direction and the addition of dual eastbound left-turn lanes at the new I-5 NB Ramps/Camino de la Plaza intersection. Also, a third receiving lane along Camino de la Plaza in the westbound direction would be required to accommodate the queues at the downstream intersection (I-5 SB Ramps). See **Figure 29** for a conceptual sketch of the new I-5 NB Ramps/Camino de la Plaza intersection and the widening that would occur along Camino de la Plaza.

Table 15: LOS Summary at Study Area Intersections

		Peak-Hour	Delay (a)/LOS (b)		
			Existing	Year 2030 w/o ITC	Year 2030 with ITC
1	Camino de la Plaza & Virginia Ave	AM	11.7 / B	17.8 / B	18.8 / B
		PM	23.6 / C	26.5 / C	33.1 / C
2	Camino de la Plaza & I-5 SB Ramps	AM	23.6 / C	18.0 / B	15.9 / B
		PM	30.2 / C	**94.5 / F**	**59.9 / E**
3	East San Ysidro Blvd & Camino de la Plaza/ East Beyer Blvd	AM	16.4 / B	38.0 / D	18.3 / C
		PM	8.4 / A	**91.8 / F**	27.3 / C
4	East San Ysidro Blvd & I-5 NB Ramps	AM	21.3 / C	25.3 / C	N/A
		PM	19.5 / B	**65.0 / E**	N/A
5	Camino de la Plaza & I-5 NB Ramps	AM	N/A	N/A	10.4 / B
		PM	N/A	N/A	21.8 / C

Notes:
Bold and Shaded values indicate intersections operating at LOS E or F.
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
(b) LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* and performed using Traffix 7.9/8.0 (Existing Conditions) and using Synchro 7 (Year 2030 w/o ITC and Year 2030 with ITC).

As shown in the table, all intersections would operate at an acceptable LOS D or better in the Year 2030 with ITC scenario except at the following location:

- Camino de la Plaza & I-5 SB Ramps (LOS E – PM Peak)

FIGURE 29: CONCEPTUAL LAYOUT OF PROPOSED CAMINO DE LA PLAZA/I-5 NORTHBOUND RAMPS

PB PARSONS BRINCKERHOFF

Although most of the intersections as a whole operate at an acceptable LOS, the following movements at each respective intersection would operate at LOS E or F with the deficient peak period shown in parenthesis:

- Camino de la Plaza & Virginia Avenue: EB LT (PM Peak) and NB LT (PM Peak)
- Camino de la Plaza & I-5 SB Ramps: EB LT (PM Peak), WB LT (PM Peak), WB TH (PM Peak), NB LT (PM Peak), SB LT (PM Peak), and SB TH (PM Peak)
- East San Ysidro Boulevard & Camino de la Plaza/East Beyer Boulevard: WB LT-TH (PM Peak), NB LT (AM Peak), SB LT (AM and PM Peak)

Appendix B contains the LOS worksheets (including traffic volumes, lane configurations, and other default values used for the analysis) and a conceptual sketch showing the improvements associated with GSA's impacts.

This analysis differs from the April 2009 KOA *San Ysidro Land Port of Entry Expansion Mobility Study*, which found that the Virginia Avenue and I-5 SB Ramps intersections along Camino de la Plaza would operate at an unacceptable LOS. The difference is that this Reconfiguration Mobility Study analysis assumes all proposed GSA roadway improvements are implemented as described in the bulleted list above and also shown in **Appendix B**.

In addition, the I-5 northbound freeway on- and off-ramps are relocated to Camino de la Plaza, resulting in a new intersection, which is assumed to be signalized and contain dual eastbound left-turn lanes to accommodate the projected high demand. With these improvements, the operations at the intersections along Camino de la Plaza and at the East San Ysidro Boulevard/I-5 NB Ramps/Rail Court intersection are improved when compared to the results shown in the KOA *San Ysidro Land Port of Entry Expansion Mobility Study.* Traffic operations are improved with the redistributed traffic volumes as a result of the new I-5 NB Ramps. If none of these assumptions occur, the LOS identified in **Table 15** will revert to those identified in the KOA report.

Queuing

As part of the preferred ITC concept plan, there would be four intersections along Camino de la Plaza between Virginia Avenue and East San Ysidro Boulevard in the study area. The addition of the new northbound I-5 ramp intersection with Camino de la Plaza results in closely spaced intersections and queuing could be an issue.

In order to assess the queuing along Camino de la Plaza, SimTraffic was the software that was selected for the analysis. SimTraffic is a traffic simulation software application that models and displays individual vehicles traversing through a network. In situations where there are closely spaced intersections, SimTraffic does a good job at producing more accurate results when compared to Synchro, since it takes into account the potential queue spillback into adjacent intersections.

Table 16 summarizes the queues at the intersections along Camino de la Plaza. As shown in the table, all intersections would experience several movements that would have queues exceeding the available storage length during the PM peak-hour only except at the Camino de la Plaza/I-5 NB Ramps intersection. These queues could potentially worsen the actual traffic operations along the corridor as queues could spill back into adjacent intersections and block through traffic in adjacent lanes. No queue lengths would exceed the available storage length during the AM peak-hour.

Table 16: Queuing Summary at Study Area Intersections Along Camino de la Plaza

		Movement[a]	Available Storage	95% Queue Length[b]	
				AM Peak	PM Peak
1	Camino de la Plaza & Virginia Ave	EB L	150 ft		0 ft
		EB T	900 ft	100 ft	325 ft
		EB TR	900 ft	100 ft	400 ft
		WB L	125 ft	125 ft	125 ft
		WB T	475 ft	150 ft	500 ft
		WB TR	475 ft	125 ft	475 ft
		NB L	125 ft	50 ft	100 ft
		NB TR	125 ft	50 ft	100 ft
		SB LR	375 ft	25 ft	25 ft
2	Camino de la Plaza & I-5 SB On/Off-Ramps	EB L	150 ft	100 ft	200 ft
		EB T	475 ft	75 ft	525 ft
		EB TR	475 ft	50 ft	475 ft
		WB L	175 ft	25 ft	175 ft
		WB T	800 ft	50 ft	725 ft
		WB T	800 ft	75 ft	700 ft
		WB R	800 ft		475 ft
		NB L	100 ft	25 ft	125 ft
		NB TR	1,050 ft	25 ft	175 ft
		NB R	100 ft	50 ft	100 ft
		SB L	600 ft	425 ft	1,150 ft
		SB TR	600 ft	300 ft	1,150 ft
		SB R	175 ft	75 ft	225 ft
3	East San Ysidro Blvd & Camino de la Plaza/East Beyer Blvd	EB L	675 ft	100 ft	175 ft
		EB LT	675 ft	150 ft	225 ft
		EB R	150 ft	125 ft	75 ft
		WB LT	500 ft	100 ft	250 ft
		NB L	100 ft	50 ft	125 ft
		NB T	500 ft	25 ft	100 ft
		NB TR	50 ft	25 ft	50 ft
		SB L	150 ft	50 ft	75 ft
		SB T	850 ft	25 ft	250 ft
		SB T	850 ft	50 ft	1,150 ft
		SB R	850 ft	75 ft	1,100 ft
		SB R	850 ft	50 ft	1,025 ft
5	Camino de la Plaza & I-5 NB Ramps	EB L	500 ft	100 ft	200 ft
		EB L	500 ft	100 ft	225 ft
		EB T	700 ft	25 ft	75 ft
		EB T	700 ft	75 ft	100 ft
		WB T	500 ft	75 ft	300 ft
		WB T	500 ft	100 ft	400 ft
		WB R	500 ft	50 ft	175 ft
		NB L	300 ft	75 ft	125 ft
		NB R	300 ft	125 ft	125 ft

Notes:
Bold and Shaded values indicate where queues would exceed the available capacity.
(a) EB: Eastbound, WB: Westbound, NB: Northbound, SB: Southbound, L: Left, T: Through, R: Right, LT: Left-Through, TR: Through-Right
(b) The 95th percentile queue lengths are the average of three SimTraffic simulation runs and rounded up to the nearest 25 feet.

Figure 29 depicts the proposed layout of the new Camino de la Plaza & I-5 NB Ramps intersection. As shown in the figure, the proposed new intersection would consist of dual left-turn lanes from Camino de la Plaza to I-5 northbound, and consist of two through lanes in each direction along Camino de la Plaza. Assuming that the sidewalks would be widened to approximately eight feet on both sides of Camino de la Plaza to accommodate the increased pedestrian demands, the bridge would need to be widened to the north by approximately 26 feet.

6.3.3 Non-Auto Mobility and Circulation

The preferred concept site design changes non-auto circulation mobility and circulation from both the existing condition and the 2030 context. In the case of both pedestrians and transit, the preferred concept site design improves circulation and mobility.

6.3.3.1 Pedestrian Circulation

Daily pedestrian border crossings are projected to grow from approximately 54,000 today to 88,000 by 2030. The conceptual site plan was developed to provide sufficient pedestrian space to accommodate the projected increase in pedestrian demand, to address the pedestrian circulation and access needs to transportation and the community, and to eliminate pedestrian and vehicular conflicts throughout the site. The site plan incorporates a pedestrian plaza at the heart of the site providing a central activity zone that extends to the multi-modal transit facility to the east, the pedestrian border crossings to the south and west, and the taxi circle to the north. In particular, the site plan provides an enhanced pedestrian pathway from the plaza to the new southbound border pedestrian crossing that will be located on the east side of I-5 under Phase 1 of the GSA expansion plans. Pedestrian pathways also radiate out from the plaza linking to the various transportation services and extending to the community at Camino de la Plaza/East San Ysidro Boulevard. A pedestrian promenade extends the entire length of the site creating a view corridor that draws pedestrians to the community from the border area.

6.3.3.2 Public and Private Transit Circulation

Under the 2030 conditions (GSA facility expansion and increased border crossings), greater demands will be put on border transportation services and facilities. According to the 2009 KOA Corporation mobility study of the San Ysidro POE expansion, which assumes that the Trolley mode split remains at the existing 40 percent into the future, Trolley passenger demand will exceed seated capacity in the morning northbound peak and evening southbound peak, and will exceed crush (seated and standing) capacity in the morning northbound peak in 2030 with an expansion of service.[24] The conceptual site plan accommodates four-car trains and provides for a third track at the Trolley platform to allow for higher Trolley service frequencies. Implementing either or both of these capacity-enhancing measures will address the future Trolley capacity demand at the border.

SANDAG's Regional Transportation Plan calls for implementation of a new Bus Rapid Transit (BRT) route between the San Ysidro International Border and Kearny Mesa through downtown San Diego. The conceptual site plan includes additional bus bays to accommodate new planned services.

[24] *San Ysidro Land Port of Entry Expansion Mobility Study* (KOA Corporation, April 30, 2009), page 83.

For public and intercity buses, route distances will increase by about a tenth of a mile (each way) to access the new second level bus facilities on the site. At the current 63 one-way trips for Route 929 and 66 one-way trips for Route 932, the total additional one-way mileage is approximately 13 miles a day, or 26 miles in both directions. Using an annualization factor of 320, the route extension would add more than 8,000 miles a year to transit operations. Assuming a $5.00 operating cost per service mile, the additional mileage could add $40,000 a year to public transit operations. Similar impacts could occur for private intercity buses.

Most significantly, however, the conceptual site plan addresses the existing and potential 2030 circulation conflicts and deficiencies that could reduce bus transit travel time through the area, possibly off-setting potential additional per mile cost calculations by reducing vehicle hours of operation. By separating circulation routes and access to transportation facilities on the site from pedestrians, and eliminating inter-modal conflict points, bus transit services should be able to access the multi-modal transit facility proposed in the conceptual site plan without delay (see **Table 14**). The dispersal of access and circulation will contribute to better mobility in and around the site.

6.3.3.3 Addressing the Conflicts and Deficiencies

Section 2.1.4 and Figure 8 identify existing conflicts and deficiencies in the Full and Focused Study Areas that the reconfiguration mobility study aimed to address. Section 2.2.4 discusses how planned and projected growth and changes by the year 2030 will exacerbate the conflicts and deficiencies without a reconfiguration of the study area. **Table 17** summarizes the existing and projected conflicts and deficiencies and assesses whether the preferred concept alternative would address these. Of the 26 identified conflicts and deficiencies, all but three would be addressed under the reconfiguration concept, as follows:

- **Conflict/Deficiency B - Limited access to northbound I-5 Ramp.** Currently only the four easternmost travel northbound vehicular border crossing lanes can access the off-ramp. Reconfiguration of the I-5 northbound freeway off-ramp to Camino de la Plaza would not change this access limitation.
- **Conflict/Deficiency G – Illegal Wildcatters that Contribute to Confusion and Disorder.** unlicensed passenger jitneys and shuttles illegally pick-up pedestrian border crossers at haphazard locations, contributing to the confusion and disorder throughout the area. Reconfiguration design would inhibit the ability of these services to compete in close proximity with legal taxis, jitneys and shuttles, but enforcement would be required to eliminate wildcatting completely.
- **Conflict/Deficiency O – Lack of Staging Areas for Taxis.** Taxis currently park along the Camino de la Plaza bridge to wait for available stalls in the transit center. The line of sight from the bridge to the transit center allows the first taxi driver in the queue to see when a stall opens. The reconfiguration concept would both block the line of sight and possible restrict taxi staging on the bridge, requiring identification of a new staging area and possibly remote dispatching for taxis.

Table 17: Reconfiguration Concept Impact on Existing and Projected Conflicts and Deficiencies

Figure 8 Ref.	Existing Study Area Conflicts and Deficiencies (Section 2.1.4)	Additional Conflicts and Deficiencies Projected in 2030 (Section 2.2.4)									Does Preferred Reconfiguration Concept Resolve Conflicts and Deficiencies?
		Projected growth in vehicular & pedestrian border crossings will contribute to circulation & mobility conflicts & deficiencies	Projected growth in pedestrian border crossings will increase demand for transportation services & facilities	GSA Phase 1 encroaches into the southernmost intercity bus facilities	GSA Phases 1 & 3 truncate & eliminate Camiones Way, increasing distances to border, shifting transit to Virginia Ave, & requiring new facilities	GSA Phase 1 includes a new pedestrian bridge over I-5 lengthening the walking distance to the southbound border crossing	GSA Phase 2 extends border crossing facilities into the existing pedestrian plaza, shrinking space available for pedestrian circulation	GSA Phase 3 realigns SB I-5, altering travel patterns on the west side of the freeway	GSA Phase 3 eliminates large parking on west side of freeway possibly pushing demand for border parking into the community	GSA plans include a new southbound eastside pedestrian crossing creating an access route through isolated & constrained areas	
A	Competing modes at northbound I-5 freeway ramps/East San Ysidro Blvd./Rail Ct. intersections	✓									Yes
B	Limited access to northbound I-5 off-ramp										No
C	Indirect freeway access to community commercial core										Yes
D	Limited capacity along East San Ysidro Blvd south of Camino de la Plaza	✓									Yes
E	Frequent Trolley crossing gate closures that impact access	✓									Yes
F	Lack of kiss-and-ride facilities that contribute to circulation conflicts		✓								Yes
G	Illegal wildcatters that contribute to confusion and disorder	✓									No
H	Camiones Way south of Camino de la Plaza operates at LOS F	✓						✓			Yes
I	Competition with multiple users at entrance to transit center	✓	✓								Yes
J	Inadequate facilities for public buses		✓		✓						Yes
K	At-grade crossings that impede Trolley operations	✓									Yes
L	Inability to increase Trolley frequency		✓								Yes
M	Substandard intercity bus circulation and constrained operating space			✓							Yes

Table 17: Reconfiguration Concept Impact on Existing and Projected Conflicts and Deficiencies (cont'd)

Figure 8 Ref.	Existing Study Area Conflicts and Deficiencies (Section 2.1.4)	Additional Conflicts and Deficiencies Projected in 2030 (Section 2.2.4)									Does Preferred Reconfiguration Concept Resolve Conflicts and Deficiencies?
		Projected growth in vehicular & pedestrian border crossings will contribute to circulation & mobility conflicts & deficiencies	Projected growth in pedestrian border crossings will increase demand for transportation services & facilities	GSA Phase 1 encroaches into the southernmost intercity bus facilities	GSA Phases 1 & 3 truncate & eliminate Camiones Way, increasing distances to border, shifting transit to Virginia Ave, & requiring new facilities	GSA Phase 1 includes a new pedestrian bridge over I-5 lengthening the walking distance to the southbound border crossing	GSA Phase 2 extends border crossing facilities into the existing pedestrian plaza, shrinking space available for pedestrian circulation	GSA Phase 3 realigns SB I-5, altering travel patterns on the west side of the freeway	GSA Phase 3 eliminates large parking on west side of freeway possibly pushing demand for border parking into the community	GSA plans include a new southbound eastside pedestrian crossing creating an access route through isolated & constrained areas	
N	Inadequate intercity bus facilities		✓	✓	✓						Yes
O	Lack of staging areas for taxis		✓					✓			No
P	Limited pedestrian plaza area	✓					✓				Yes
Q	Inadequate pedestrian walkways to intercity bus waiting facilities	✓									Yes
R	Undesirable southbound pedestrian border crossing facilities					✓				✓	No
S	Pedestrian volumes that exceed crosswalk capacity	✓									Yes
T	Pedestrian conflicts at at-grade Trolley crossings	✓									Yes
U	Lack of pedestrian-friendly sidewalks and routes				✓					✓	Yes
V	GSA parking access is through the transit center										Yes
W	Encumbered access to and from private parking lots								✓		Yes
X	Weak connections/linkage between border area businesses and community									✓	Yes
Y	Minimal investment in property and business										Yes
Z	Border lacks image as gateway										Yes

6.4 PARKING IMPACT ANALYSIS

With the GSA Phases 1 and 2 expansion project and the preferred alternative site plan concept, most commercial parking in the Focused Study area site would be reduced relocated outside the study area. Large reservoirs of long-term and destination parking is not proposed for the site so that pedestrian serving transportation and commercial uses can be provided within a vibrant activity center. The introduction of large numbers of autos onto the site carrying people whose destinations are across the border would counteract the ability to create a vibrant gateway and development catalyst. Long-term and commercial parking would need to be located outside the Focused Study Area. With the GSA Phase 3 expansion, relocation of the large commercial parking lot on the west side of the freeway will also be required.

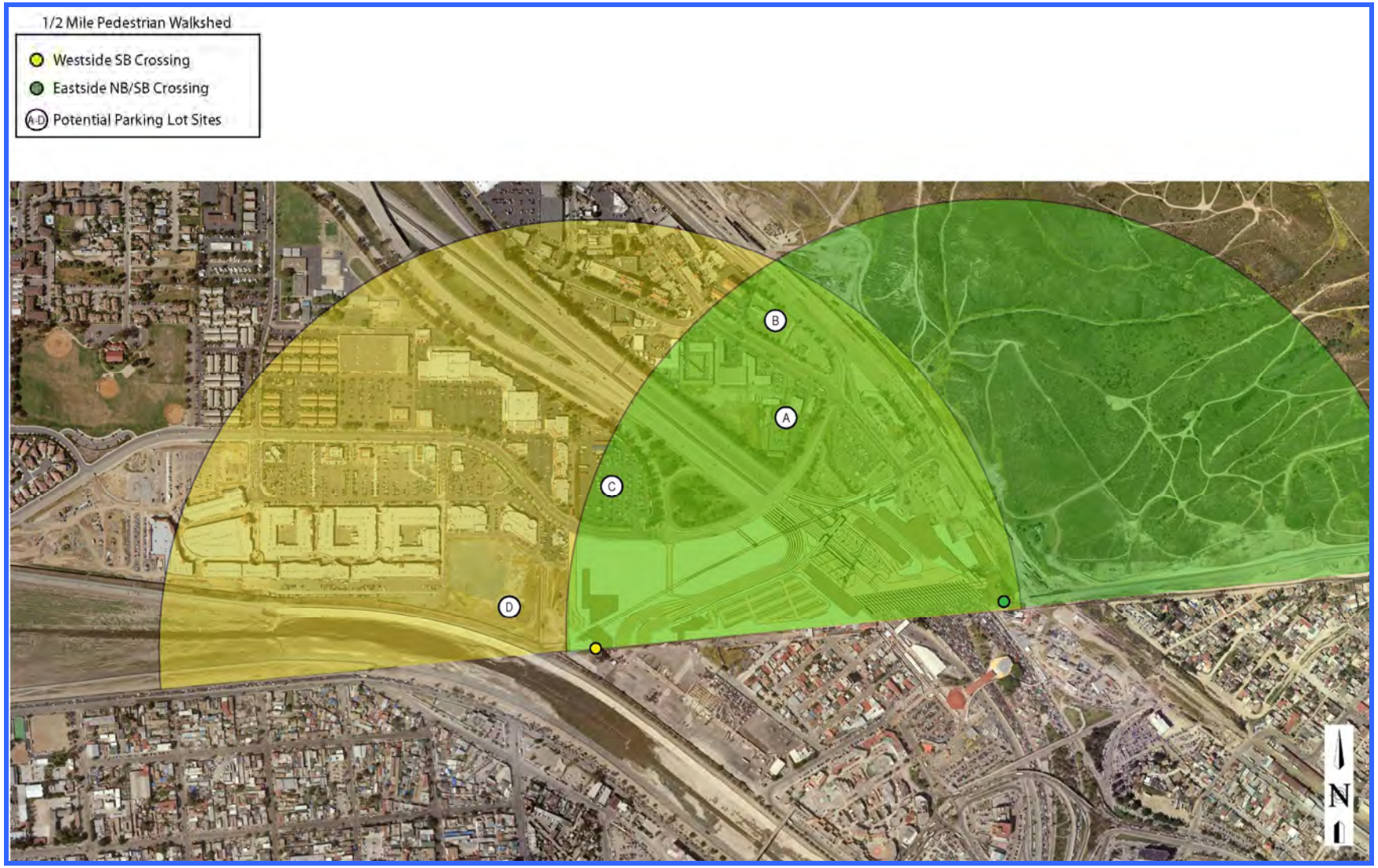
A parking analysis was performed to identify locations where new parking with walkable access to border crossings and the Focused Study Area facilities could be located. For this analysis, a half-mile radius was used to represent a pedestrian walkshed, which represents an 11 minute walk assuming a standard walking rate of four feet per second. **Figure 30** identifies the half-mile walk sheds from the northbound/future southbound (east side) and southbound (west side) pedestrian border crossings.

The pedestrian walkshed for the east side northbound/future southbound pedestrian crossing (shown in green) extends well north of Camino de la Plaza. Providing commercial parking within the half-mile area would provide appropriate access to the border crossing for the long-term parking market. The creation of a pedestrian-friendly environment via implementation of the site plan concept would minimize the perception of walk distance. Providing parking north of Camino de la Plaza would also place parking in proximity to the San Ysidro commercial core as well as any commercial uses in the Focused Study Area. It would also draw people from the parking reservoirs beyond the study area through the Focused Study Area site, past the potential commercial establishments, to the border crossing access/egress points. Providing long-term and commercial parking north of Camino de la Plaza would also provide a “bridge” between the Focused Study Area and the community core area by providing access to both.

Two possible locations for parking just outside the half-mile walkshed include the site at the northwest quadrant of Camino de la Plaza and East San Ysidro Boulevard (**Figure 30**, location A), and the City of San Diego-owned site on East San Ysidro Boulevard (**Figure 30**, location B). Location A, in particular, appears to be a good candidate for mixed-use and joint development and may be able to accommodate a commercial parking structure catering to a cross-border market as well as parking and commercial uses focused on a community market.

The pedestrian walkshed for the southbound (west side) pedestrian crossing (shown in yellow) also extends well north of Camino de la Plaza. The existing surface parking lot located to the northeast of the Camino de la Plaza and Virginia Avenue intersection could be a potential location for additional parking via a parking structure, either independently or integrated into redevelopment on this site (**Figure 30**, location C). Also, the area west of Virginia Avenue identified with the proposed Las Americas – East Parcel Site Plan project (location D) could incorporate additional parking to satisfy the long-term and business parking demands.

FIGURE 30: PEDESTRIAN WALKSHED



6.5 Ancillary Conceptual Site Design Features (Full Study Area)

Based on the mobility assessment and analysis discussed in Section 6.3, there are several ancillary or "off-site" improvements that would support the Focused Study Area conceptual site plan and improve circulation, mobility, and the community vision in the Full Study Area:

- **Camino de la Plaza Bridge Widening and Left Turn Lanes** – Relocation of the northbound freeway on- and off-ramps to intersect with Camino de la Plaza will reroute all northbound access to Camino de la Plaza. As identified in **Table 15**, the 2030 traffic analysis with the preferred concept site design would result in excessive eastbound queuing on Camino de la Plaza to access the northbound freeway on-ramp. The queuing occurs on the freeway bridge section of Camino de la Plaza. As a result, Camino de la Plaza bridge would need to be widened and modified to accommodate the queuing**.** **Figure 29** depicts the proposed layout of the new Camino de la Plaza & I-5 northbound ramps intersection to accommodate the projected queuing. As shown in the figure, the proposed new intersection would consist of dual left-turn lanes from westbound Camino de la Plaza to northbound I-5 on-ramps. Camino de la Plaza would also consist of two through lanes in each direction at the intersection. Assuming the sidewalks would be widened to approximately eight feet on both sides of Camino de la Plaza to accommodate the increased pedestrian demands, the bridge would need to be widened by approximately 26 feet.
- **New Transportation Facilities at Virginia Avenue** – With the proposed elimination of Camiones Way as part of the GSA Phase 3 expansion plans, new public and private transit and taxi facilities will need to be developed at the southern end of Virginia Avenue adjacent to the new southbound border crossing.
- **Virginia Avenue/Camino de la Plaza Intersection Improvements** – As part of the mitigation for the GSA expansion project, the Camino de la Plaza & Virginia Avenue intersection would be signalized and the north side of Camino de la Plaza would be widened to include an extra westbound through lane to accommodate projected growth in traffic volumes (even without the Focused Study Area concept plan). These improvements will allow this intersection to function properly during the peak periods. The improvements are triggered by auto and transit vehicle traffic to the new southbound pedestrian crossing proposed at the south end of Virginia Avenue in the GSA Phase 3 expansion. Also, the proposed Las Americas – East Site Parcel project would add a significant amount of vehicular trips through this intersection.
- **Remote Taxi Dispatching** – Under current conditions, taxis stage on the Camino de la Plaza bridge to wait for an available taxi stall at the San Ysidro transit center. Taxi drivers can see the transit center from the bridge and quickly move into an open space when it becomes available. The retail development identified on the preferred alternative conceptual site plan would block lines of sight from the bridge to the new taxi/jitney/shuttle/kiss-and-ride circle. As a result, an electronic signal or dispatching system would be required to notify taxi drivers when spaces are available at the circle. Additionally, it may no longer be desirable for taxis to stage on the Camino de la Plaza bridge. Removing taxi staging from the bridge may allow for a narrower expansion of the bridge to accommodate the westbound left turn lanes (discussed above) and/or facilitate creation of a more pedestrian friendly environment across the bridge, particularly if the community vision for commercial buildings on a bridge deck comes to fruition. A new off-street location for taxi staging may be necessary and could be incorporated into new parking structures (that would offset loss of commercial parking).

- **New Commercial Parking Facilities** – As discussed in Section 6.4, new long-term border parking (for cross-border travelers) will need to be provided by the private sector, public sector or a public/private partnership. Potential sides include the northwest quadrant of Camino de la Plaza and East San Ysidro Boulevard, the City of San Diego site on East San Ysidro Boulevard, and expansion of the existing surface parking north of Camino de la Plaza at Virginia Avenue. This parking could integrate with commercial and/or mixed-use development to provide parking for cross-border and community uses and promote good pedestrian-friendly urban design and economic development opportunities.

6.6 Conceptual Site Design Potential Environmental Impacts

The preferred alternative conceptual site plan (**Figure 27**) would significantly modify the Focused Study Area from its existing condition. These changes could potentially impact existing characteristics and/or qualities on and near the site. As the conceptual site plan moves into more detailed planning and conceptual engineering, these impacts should be evaluated to determine their significance, and associated mitigation, in accordance with California Environmental Quality Act (CEQA) and possibly National Environmental Policy Act (NEPA) environmental processes and requirements. While the conceptual site plan would not significantly change the general uses that currently exist in the Focused Study Area, the reconfiguration, changes in circulation, and incorporation of privately-owned property would necessitate an environmental analysis of most, if not all, of the following:

- **Transportation, Traffic and Circulation** – Analyses would refine the concept level traffic and transportation impacts and benefit assessment for an updated site plan.
- **Land Use** – Analyses of changes to land uses on the site would help establish the effects these changes have on the site and land use plans, policies, laws and regulations, including how the proposed project addresses the vision and goals in the future update of the San Ysidro Community Plan.
- **Acquisitions and Displacements** – Analyses would identify the property acquisitions and business displacements that would be required to implement the proposed project, as well as the potential for incorporation of existing businesses into the project design.
- **Socioeconomics, Cultural, Historic, Demographics and Neighborhoods** – Analyses of the conceptual site plan would assess its potential impacts and benefits on various population groups, the economic base of the community and region, the labor pool, housing stock, public services and facilities, and cultural and historic resources.
- **Visual and Aesthetics** – Analyses would reveal the extent that reconfiguration and new development on the site would change the visual and aesthetic landscape and environment from surrounding properties, neighborhoods, and viewsheds.
- **Noise** – Technical analyses would determine whether the proposed project would increase ambient noise levels at sensitive receptors.
- **Geologic, Seismic, Hazardous Materials** – Analyses would indicate if there are any geologic or seismic risks on the site, or the potential to encounter hazardous materials that would need to be addressed prior to site development.
- **Water Resources** – Analyses would assess the impacts of the project on surface and ground water hydrology, water use and water quality.

- **Air Quality** – Analyses would indicate the extent to which the proposed project creates specific pollutants, degrades localized and regional air quality or increases greenhouse gas emissions.
- **Safety and Security** – Analyses would assess how the project might affect safety for the people and transportation system using the site, and for areas adjacent to the site, as well as general security at the border.
- **Ecosystems** – Analyses would indicate whether, and to what extent, the propose project would impact the natural environment, including threatened and endangered species and habitats.
- **Environmental Justice** – Analysis would assess whether the proposed project would have a disproportionately high and adverse impact on minority and low-income populations.
- **Construction** – Analysis would identify the temporary impacts from construction of the proposed project on the surrounding population, circulation and mobility, and land uses.
- **Cumulative Effects –** Analysis would encompass all effects from past, present, and reasonably foreseeable future actions at and near the site.

6.7 Conceptual Site Design Preliminary Cost Estimates

Conceptual level capital cost estimates have been developed for the Preferred Reconfiguration Concept Site Plan. The conceptual plan formed the basis for the quantity estimates and was used to identify the various infrastructure elements of the project. Rough order of magnitude (ROM) unit costs and quantities were used as plans at this stage lack sufficient detail to generate more robust quantity estimates. The ROM unit costs provide a uniform means of comparing various components of the plan. As more detailed plans become available during the Preliminary Engineering (PE) stage of the project, quantity estimates will need to be verified and the ROM unit costs will need to be updated. The updated unit costs may include items of work that did not originally appear in the ROM unit costs.

Cost data has been developed using generally available historical cost data where historical data from Caltrans, City of San Diego, or other cost commercially sources area available. The cost estimate is based on 2008 construction costs and adjustments for future years can be made through Construction Cost Index (CCI) value published by the *Engineering News Record* (ENR). Other factors such as the Producer Price Index (PPI), Consumer Price Index (CPI), Inflation Index, and RSMeans Location Factor may be considered in adjusting unit costs to reflect construction economics conditions. All unit costs include the contractor's direct construction costs, plus all taxes, general expenses, overhead, and profit.

The unit costs for items of construction do not include items such as engineering, construction management, and owner's administrative costs. These project development costs have been included as percentage add-ons to the construction cost estimate. The percentage add-on estimate ranges from 25 percent to 45 percent of the construction cost estimate to provide for a range in the estimate reflective of the conceptual nature of the project and its delivery methods. The lower 25 percent project development cost could be achieved if the project does not require preparation of a full environmental document (i.e., obtains environmental clearance through an Environmental Assessment or Negative Declaration). The 45 percent project development cost is consistent with past experience on regional transit and highway infrastructure projects at this phase of cost estimation. Finally, due to the many unknown elements of the project at this stage of

development, an overall project contingency ranging from 25 percent to 40 percent has been used. **Table 18** summarizes the conceptual level ROM cost estimates for the Preferred Conceptual Site Design. As shown in the table, the total ROM construction cost estimate ranges from approximately $254 million to $320 million.

Table 18: Preliminary Cost Estimates for the Preferred Conceptual Site Design

Item	Cost Estimate ($Mil)[a]
Freeway On- and Off-Ramps	$24
Widening of Camino de la Plaza	$6
Tracks and Systems	$16
Transit Center	$66
Demolition, Clearing, Earthwork	$2
Miscellaneous (Utility Relocation, Environmental Mitigation, etc.)	$3
Transit Access Road	$4
Easterly Access Road	$4
Temporary Facilities/Indirect Costs During Construction	$18
Construction Costs	*$143*
Professional Services: 25%–45% of Construction Costs	$36 – $64
Subtotal	*$179 – $207*
Contingency: 25%–40%	$45 – $83
Total Project Construction and Development Costs	*$224 – $290*
Estimated Right-of-Way Costs (Land, Existing Improvements, and Relocation Costs)	$30
TOTAL PROJECT COST	$254 – $320

Notes:
(a) The cost estimate is based on Year 2008 construction costs and adjustments for future years can be made through the Construction Cost Index (CCI) value. Cost estimates for each item have been rounded up to the nearest $1,000,000.

6.8 Conceptual Site Design Preliminary Implementation Phasing Plan

Implementation plans should serve to minimize disruption to existing services and facilities and take into account financing of the project and its impact on cash flow. During the conceptual development of a project, when the financial details are not yet in place, the implementation plans generally focus on impacts to existing facilities without regard to any adverse impact to the cash flow.

The San Ysidro Port of Entry is the busiest international border in the world and as such, impact to any segment of the existing multimodal transportation facilities may cause significant delay to commuters that cross the border every day. The objective of the implementation plan discussed in this report is to show that the conceptual plan can be realized without significant impact and disruption to existing facilities. It is anticipated that the commercial districts will be purchased for redevelopment. The short-term impact of removing the existing commercial district is the temporary loss of revenue as well as inconvenience to the traveling public who use the

commercial district. The following narrative provides a brief discussion of the phasing plan for implementing the Preferred Conceptual Site Plan.

6.8.1 Offsite Improvements

Offsite improvements will cause the least amount of disruption to the existing facilities. These improvements may include parking facilities and identifying permanent and/or temporary relocation sites for vendors that would be displaced from their currently location.

Widening of Camino de la Plaza may fall in this category. Although the existing bridge is next to the development site or focused study area, the widening of the bridge can occur without significant disruption to the existing access roads or other infrastructure facilities.

Other offsite improvements that may occur prior to development of the focused study area are the ramps to/from Camino de la Plaza.

6.8.2 On-Site Improvements

The first item of work is to ensure continuous access to the GSA facilities. Hence, the access road next to the railroad should be constructed first. The construction of LRT and bus platforms would come next, but this would interrupt the intercity bus terminal, located behind the existing retail shops. Hence, it is suggested that all commercial properties be relocated at this time. This will have the benefit of providing a temporary location for the intercity and MTS buses, while the transit center is being constructed. Construction of the transit center should occur in several stages. The first step would be to construct the portions that are located away from the existing LRT station. This would include the access ramp to the second story of the ITC facility. Upon completion of this segment of the two-story ITC, the LRT station can be moved to its new location, while the remainder of the two-story ITC is being completed. Upon completion of the transit center, the taxi/jitney/shuttle/kiss-and-ride lot will no longer be required by intercity and MTS buses and it can be fully developed. Additionally, other plaza areas and commercial facilities can be fully developed.

7.0 RECOMMENDATIONS, REMAINING ISSUES AND NEXT STEPS

7.1 STUDY RECOMMENDATIONS

Projected growth in border crossings at the San Ysidro International Border through 2030 and GSA's expansion plans for the San Ysidro border inspection facilities will impact the transportation facilities, circulation, mobility and existing context at, and in the vicinity of, the San Ysidro border crossing. Reconfiguration of the area at some level will need to occur to accommodate these future changes. The *San Ysidro Port of Entry Reconfiguration Mobility Study* has resulted in a preferred reconfiguration concept for the Focused Study Area and ancillary recommendations for the Full Study Area to address existing and future mobility at the border. The study analyses considered existing and future conflicts and deficiencies (Section 2.0), stakeholder goals and criteria (principles), including the community vision (Section 4.0), the concept alternatives evaluation (Section 5.0), transportation facility and operating needs (Section 6.0), and stakeholder input (Section 3.0) in developing the preferred concept and ancillary recommendations. The City of San Diego should continue to work with project stakeholders to advance the concept into the next steps of more detailed planning and conceptual engineering to address concept features and proposals in more detail and refine cost estimates. Simultaneously, the City and its partners should initiate development of financing strategies through public and private sources, and seek support from local, state and federal policy and elected officials to identify funding to move the concept and recommendations forward.

7.1.1 Focused Study Area

The preferred alternative conceptual site plan for an Intermodal Transportation Center in the Focused Study Area (between border and Camino de la Plaza) incorporates a two-level rail/bus passenger station, an at-grade pick-up/drop-off are for taxis, jitneys, shuttles and kiss-and-ride, potential commercial uses integrated into the site design, and a pedestrian plaza, promenade and pathways that connect to on-site services and the community. The concept would incorporate symbolic architectural design into the ITC facilities. Specifically, the preferred concept, illustrated in **Figures 31** and **32**, includes:

- Accommodation of GSA Phase 1 and 2 expansion plans
- Relocation of northbound freeway on- and off-ramps from the center of the site to Camino de la Plaza
- Relocated Trolley tracks and passenger platform from the center of the site to the east
- Expansion from two to three Trolley terminal (station) tracks and corresponding passenger platforms to accommodate increased frequency of service
- A second-level bus passenger facility for public transit and intercity buses located directly above the Trolley platforms to consolidate bus and rail transportation into one location, minimize at-grade space requirements, and improve bus access
- A taxi, jitney, shuttle, and kiss-and-ride area for coordinated passenger pick-up and drop-off
- A larger pedestrian plaza and focal point with radiating pedestrian pathways for access to transportation and commercial uses on the site

FIGURE 31: PREFERRED CONCEPT SITE PLAN

FIGURE 32: PREFERRED CONCEPT SITE DESIGN CROSS SECTION AT TRANSIT FACILITY (LOOKING NORTH)

- A pedestrian promenade and view corridor through the site from the border crossing to a connection with the community at Camino de la Plaza and East San Ysidro Boulevard
- Incorporation of retail and commercial uses into the rail/bus transportation facility and overall site to provide services for pedestrian border crossers, activate the site, and create a commercial link with the community commercial core north of Camino de la Plaza
- Integration of an architectural landmark on the site to create a gateway to the community and region and catalyst for economic development

7.1.2 Full Study Area

To accommodate GSA Phase 3 expansion plans, and circulation and mobility needs outside the Focused Study Area, ancillary recommendations for the Full Study Area include:

- Widening of the Camino de la Plaza bridge over the freeway by 26 feet to include:
  - Dual eastbound left-turn lanes to the northbound freeway on-ramp to accommodate anticipated traffic queues
  - A 10-foot-wide pedestrian sidewalk on the south side of the bridge
- New transportation facilities at the extension of Virginia Avenue to the GSA Phase 3 southbound pedestrian border crossing to include:
  - Transit bus bays and passenger platforms
  - Private bus bays and passenger platforms
  - Taxi, jitney and shuttle load zones
- Virginia Avenue/Camino de la Plaza and Camiones Way/Camino de la Plaza intersections improvements to include:
  - Signalized intersections
  - Widening to the north along Camino de la Plaza to accommodate an additional westbound through lane
- New off-site taxi staging area and remote taxi dispatching to include:
  - Taxi staging incorporated into a new parking facility or other development near the ITC taxi circle
  - Remote dispatching (a green signal or radio dispatching) to alert taxi drivers when vacant stalls are available in the taxi area
- New commercial parking facilities to replace those impacted by the GSA expansion plans and Focused Study Area ITC to include:
  - Independent parking lots or structures within walking distance of the border
  - Parking structures integrated into mixed use development to serve the border crossing market, the commercial/retail within the Focused Study Area, and/or the general community commercial/retail market outside the Focused and Full Study Areas (including the community commercial core).
  - Parking opportunities including integration with economic development opportunities/transit-oriented development (TOD) and possible taxi dispatching area

7.1.3 Phased Implementation

[This section to be completed]

7.1 Remaining Issues

Site Design – The conceptual site design is a planning-level vision for the site and is not intended to represent a final concept or design. Further analysis of the configuration of the site needs to be undertaken through conceptual and preliminary engineering so that issues, opportunities and options can vetted, designs can be refined, and feasibility, cost, and cost-effectiveness can be evaluated.

GSA Expansion Plans – More specific information regarding the timing of each phase of the GSA border facilities expansion plan needs to be clarified to ascertain when impacts will occur to the existing context in the Focused and Full Study Areas. Understanding the three-phase implementation schedule will help refine an implementation phasing plan for border area reconfiguration projects, including replacement of commercial parking lots.

Parking – Up to five privately-owned commercial parking lots will potentially be affected upon implementation of the GSA expansion plans and reconfiguration proposals. Parking strategies, including locations and development strategies for provision of new commercial parking in the border area need to be identified, including public/private partnerships, integration into multi-use developments, and construction of parking structures on existing surface lots.

Caltrans Design Exceptions – The conceptual site design for reconfiguration of border circulation and transportation facilities includes potential relocation of the northbound I-5 on- and off-ramps from the center of the Focused Study Area to a connection with Camino de la Plaza. At an August 10, 2009 meeting, Caltrans staff reviewed the ramp relocation proposal and indicated that there do not appear to be any fatal flaws with the concept. However, design exceptions to Caltrans highway design standards may be required. The extent of these exceptions will not be known until conceptual and preliminary engineering design is performed and design plans can be analyzed.

Financing Strategy and Funding – As the reconfiguration concept is advanced through planning, design and implementation phases, and capital and operating costs are refined, a financing strategy needs to be developed and funding identified to implement the reconfiguration project in phases or in total. Market feasibility analyses for private components of the reconfiguration project, and evaluation of the potential for public/private partnerships need to be undertaken.

Community Integration – The general proposal to reconfigure border area circulation, transportation facilities, and land use should be addressed the future update of the San Ysidro Community Plan, including recognition of the role of the reconfiguration concept in promoting the community vision.

Ownership/Operations/Maintenance – Given the multiple public and private sector stakeholders with a capital and/or operating interest in the existing and reconfigured site, there are a number of ownership, operational and maintenance issues and agreements that need to be worked out for shared use, ownership and maintenance of the site and facilities.

7.2 NEXT STEPS

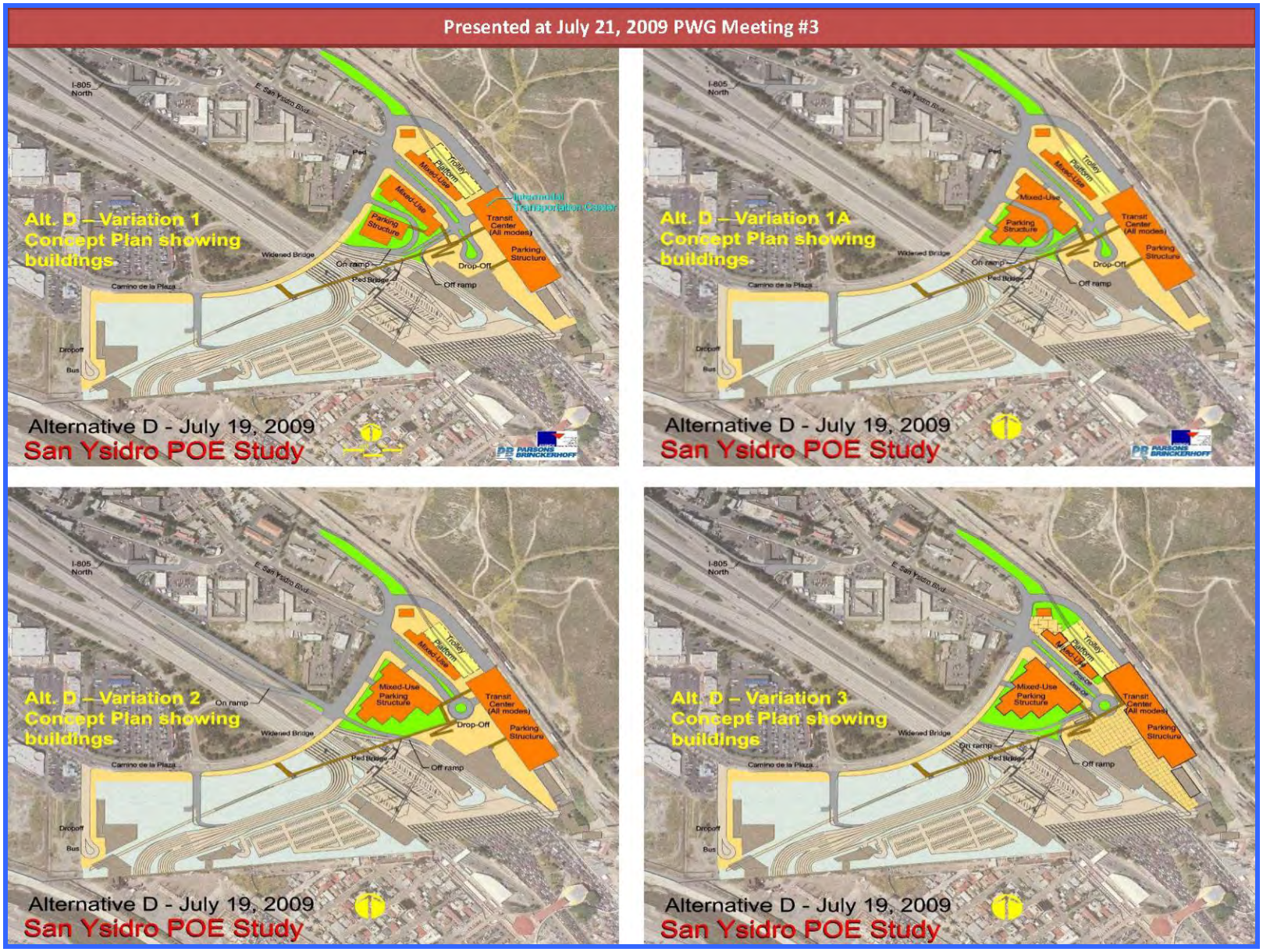
Pursue next steps including:

- Conduct a market feasibility analysis to determine the opportunities and financial feasibility of incorporating retail/commercial uses on the site, including the potential for public private partnerships and joint development
- Develop a financing strategy and funding analysis, including pursuit of public-private partnerships and joint development opportunities
- Develop a private property coordination strategy, including a strategy for incorporating private property and businesses owners into the site development
- Conduct more detailed planning and analysis of the preferred or an alternative concept site plan to identify and address issues and assess functional feasibility of concepts, including
    - Further study of options that retain the northbound freeway on and off-ramps in their existing locations
    - Opportunities for gaining additional retail and commercial space on the site
    - Incorporation of taxi/jitney/shuttle facilities into the vertical building on the ITC site
    - Proposals for addressing replacement parking on the site
    - Increasing the height of the vertical facility on the site to incorporate more uses
- Conduct further traffic analyses to address potential queuing and traffic operations issues on the approaches to the Camino de la Plaza/East San Ysidro Boulevard/East Beyer Boulevard intersection
- Establish a stakeholder and community/public involvement/outreach program for future phases of project planning, design and development
- Conduct conceptual and preliminary design engineering to advance the concept and evaluation
- Undertake and initial study to identify potential environmental issues
- Refine cost estimates at the conceptual and preliminary engineering phases
- Develop a more detailed phasing plan, including identification of discrete projects that could be implemented from the overall reconfiguration plan
- Establish a reconfiguration project development and implementation schedule that includes consideration of GSA border facilities expansion plans
- Incorporate the conceptual site plan and community vision in the future update of San Ysidro Community Plan.

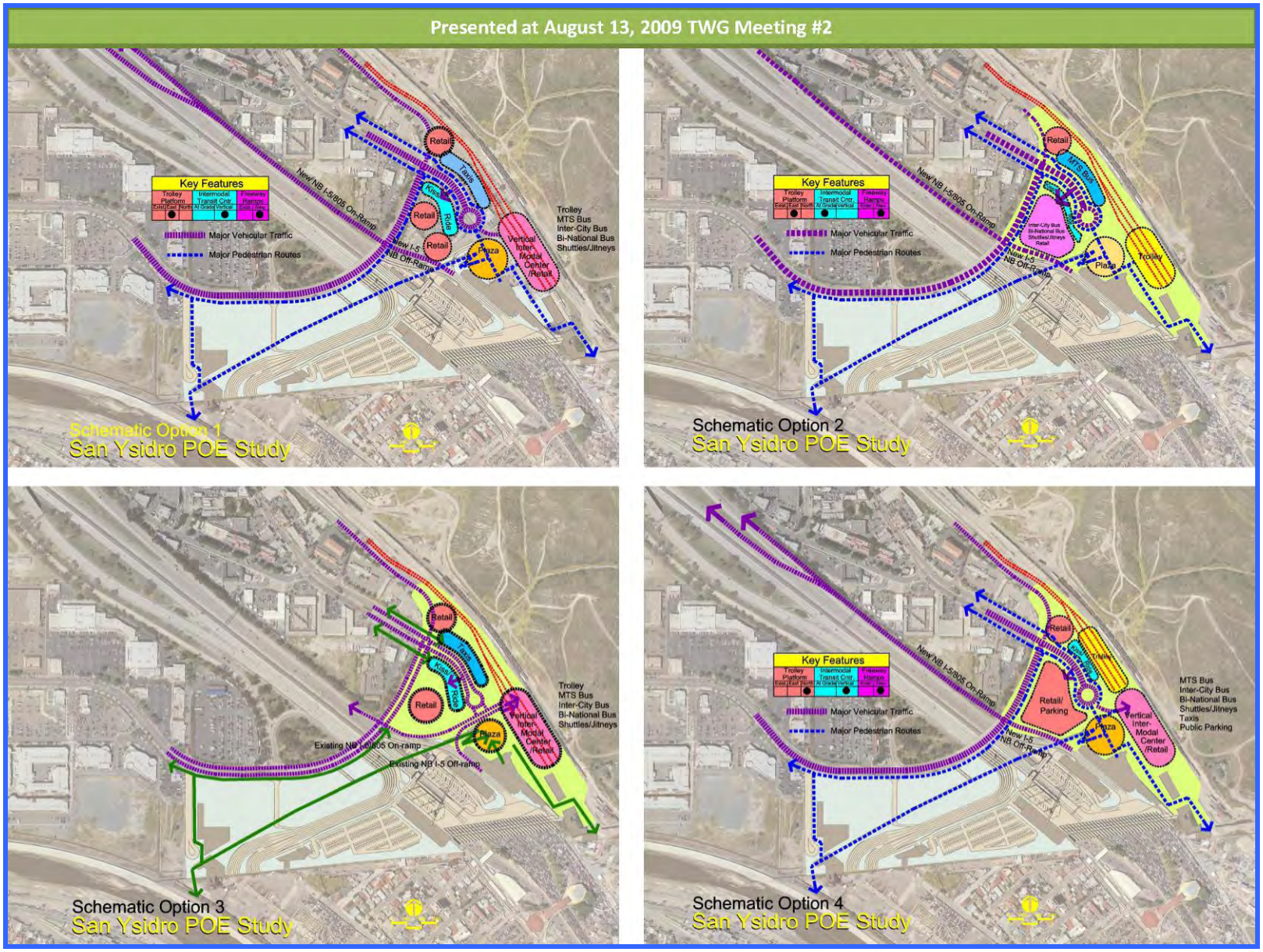
APPENDIX A

Project Concept Alternatives Considered and Not Pursued

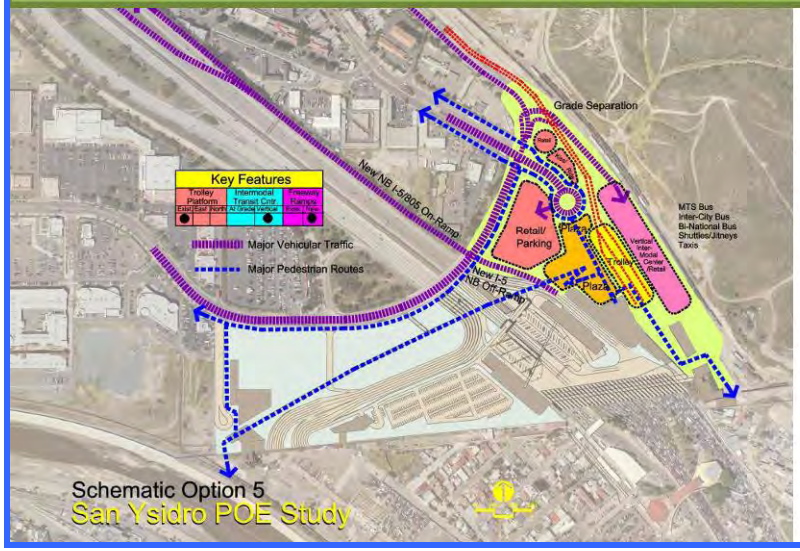

Presented at July 7, 2009 PWG Meeting #2
Alternative A - July 7, 2009
San Ysidro POE Study
Alternative A2 - July 7, 2009
San Ysidro POE Study
Alternative B - July 7, 2009
San Ysidro POE Study
Alternative C - July 7, 2009
San Ysidro POE Study

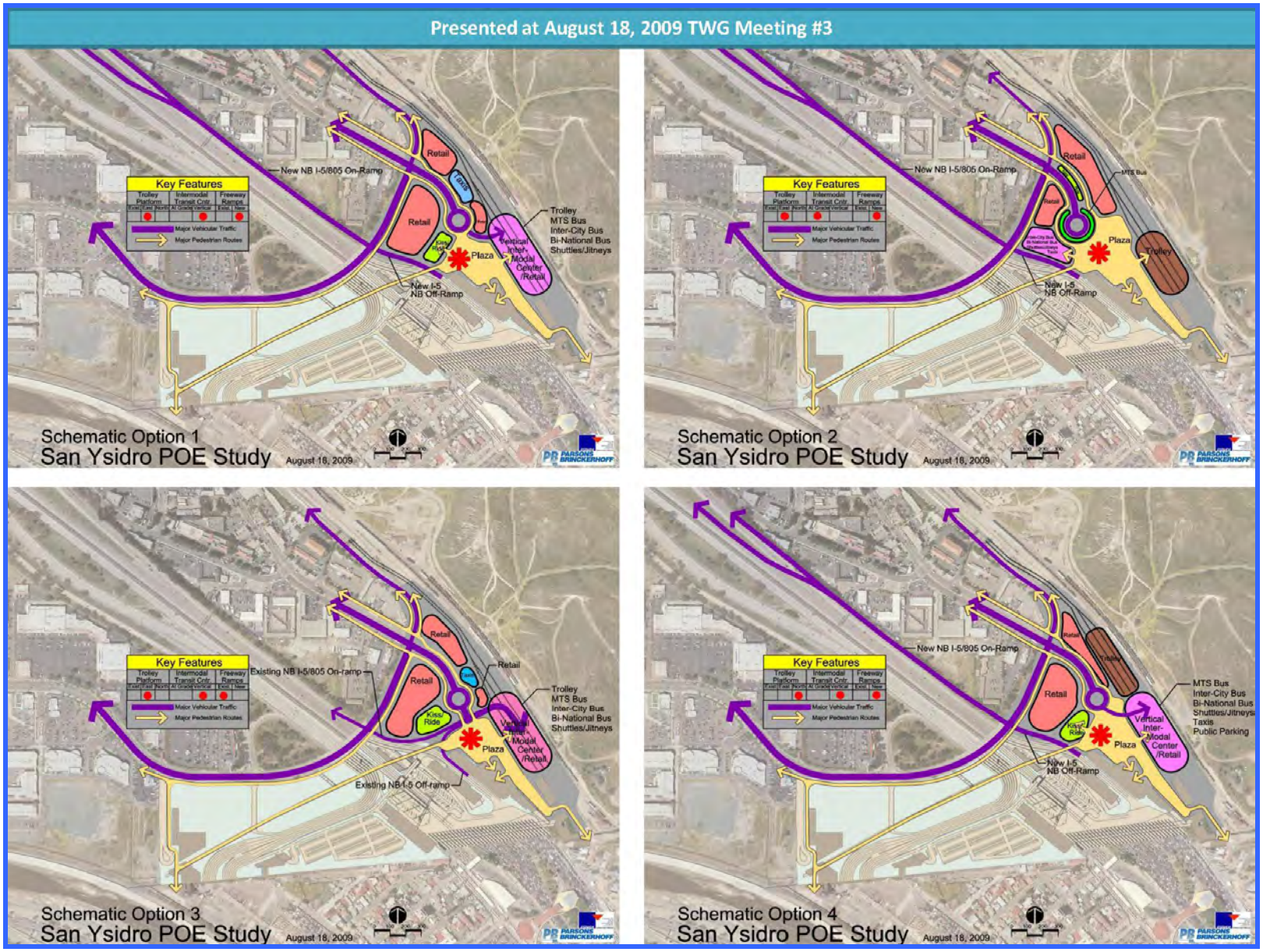

Presented at July 21, 2009 PWG Meeting #3
Alt. D – Variation 1
Concept Plan showing buildings
Alternative D - July 19, 2009
San Ysidro POE Study
Alt. D – Variation 1A
Concept Plan showing buildings
Alternative D - July 19, 2009
San Ysidro POE Study
Alt. D – Variation 2
Concept Plan showing buildings
Alternative D - July 19, 2009
San Ysidro POE Study
Alt. D – Variation 3
Concept Plan showing buildings
Alternative D - July 19, 2009
San Ysidro POE Study

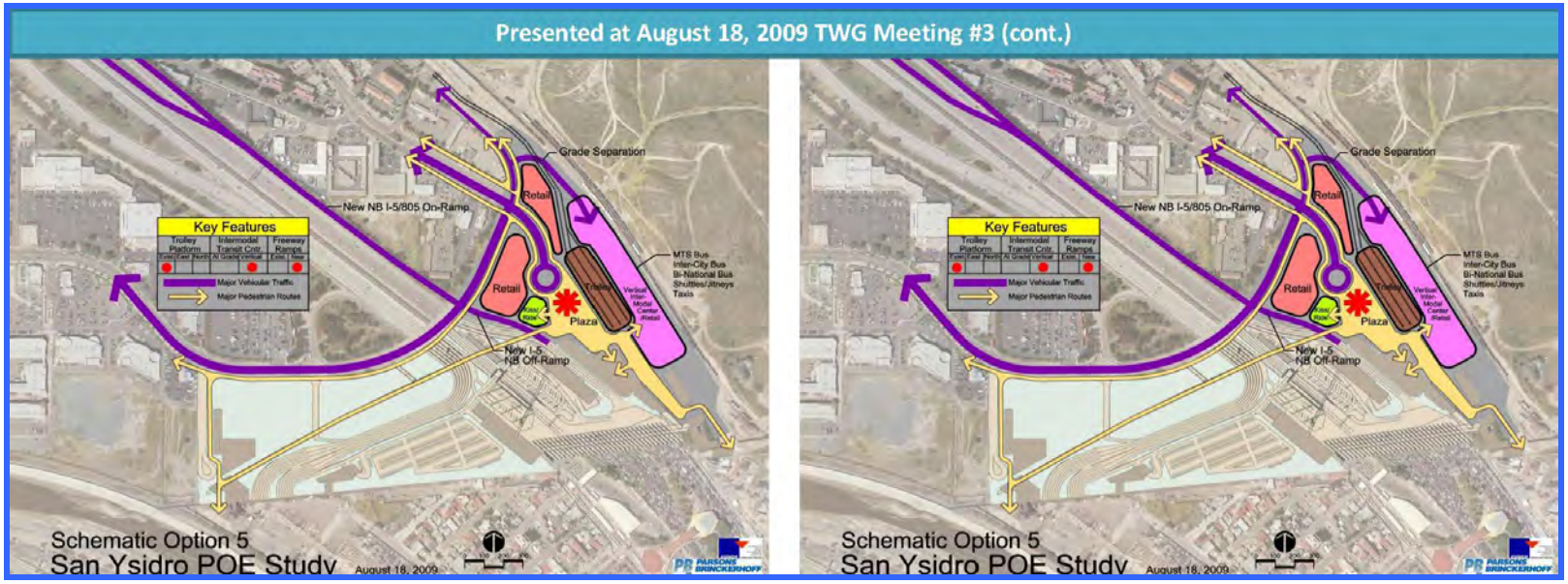
Presented at July 21, 2009 PWG Meeting #3 (cont.)


Presented at August 13, 2009 TWG Meeting #2
Schematic Option 1
San Ysidro POE Study
Schematic Option 2
San Ysidro POE Study
Schematic Option 3
San Ysidro POE Study
Schematic Option 4
San Ysidro POE Study
Key Features
Major Vehicular Traffic
Major Pedestrian Routes
Retail
Taxis
Kiss & Ride
Plaza
Trolley
MTS Bus
Inter-City Bus
Bi-National Bus
Shuttles/Jitneys
Vertical Inter-Modal Center /Retail
Retail/ Parking
Public Parking
New NB I-5/805 On-Ramp
New I-5 NB Off-Ramp
Existing NB I-5/805 On-ramp
Existing NB I-5 Off-ramp

Presented at August 13, 2009 TWG Meeting #2 (cont.)




Presented at August 18, 2009 TWG Meeting #3
Schematic Option 1
San Ysidro POE Study
August 18, 2009
Key Features
New NB I-5/805 On-Ramp
Retail
Kiss Ride
Plaza
Trolley
MTS Bus
Inter-City Bus
Bi-National Bus
Shuttles/Jitneys
Vertical Inter-Modal Center /Retail
New I-5 NB Off-Ramp
Schematic Option 2
San Ysidro POE Study
August 18, 2009
Key Features
New NB I-5/805 On-Ramp
Retail
MTS Bus
Plaza
Trolley
New I-5 NB Off-Ramp
Schematic Option 3
San Ysidro POE Study
August 18, 2009
Key Features
Existing NB I-5/805 On-ramp
Retail
Kiss Ride
Plaza
Trolley
MTS Bus
Inter-City Bus
Bi-National Bus
Shuttles/Jitneys
Existing NB I-5 Off-ramp
Schematic Option 4
San Ysidro POE Study
August 18, 2009
Key Features
New NB I-5/805 On-Ramp
Retail
Trolley
MTS Bus
Inter-City Bus
Bi-National Bus
Shuttles/Jitneys
Taxis
Public Parking
Kiss Ride
Plaza
Vertical Inter-Modal Center /Retail
New I-5 NB Off-Ramp


Presented at August 18, 2009 TWG Meeting #3 (cont.)
Grade Separation
New NB I-5/805 On-Ramp
Retail
Key Features
Trolley Platform
Intermodal Transit Cntr.
Freeway Ramps
Major Vehicular Traffic
Major Pedestrian Routes
Retail
Plaza
MTS Bus
Inter-City Bus
Bi-National Bus
Shuttles/Jitneys
Taxis
New I-5 NB Off-Ramp
Schematic Option 5
San Ysidro POE Study
August 18, 2009
PARSONS BRINCKERHOFF
Grade Separation
New NB I-5/805 On-Ramp
Retail
Key Features
Trolley Platform
Intermodal Transit Cntr.
Freeway Ramps
Major Vehicular Traffic
Major Pedestrian Routes
Retail
Plaza
MTS Bus
Inter-City Bus
Bi-National Bus
Shuttles/Jitneys
Taxis
New I-5 NB Off-Ramp
Schematic Option 5
San Ysidro POE Study
August 18, 2009
PARSONS BRINCKERHOFF

APPENDIX B

Traffic Operations Data

San Ysidro LPOE Reconfiguration Mobility Study
1: Camino de la Plaza & Virginia Ave
2030 With ITC
Timing Plan: AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	328	51	196	437	4	45	0	133	3	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	0.86			1.00	
Flpb, ped/bikes		1.00		1.00	1.00		0.87	1.00			0.89	
Frt		0.98		1.00	1.00		1.00	0.85			1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.95	
Satd. Flow (prot)		3468		1770	3535		1538	1361			1580	
Flt Permitted		1.00		0.95	1.00		0.76	1.00			0.66	
Satd. Flow (perm)		3468		1770	3535		1224	1361			1105	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	357	55	213	475	4	49	0	145	3	0	0
RTOR Reduction (vph)	0	19	0	0	1	0	0	81	0	0	0	0
Lane Group Flow (vph)	0	393	0	213	478	0	49	64	0	0	3	0
Confl. Peds. (#/hr)							100		100	100		100
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		13.4		13.6	31.0		31.0	31.0			31.0	
Effective Green, g (s)		13.4		13.6	31.0		31.0	31.0			31.0	
Actuated g/C Ratio		0.19		0.19	0.44		0.44	0.44			0.44	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		664		344	1566		542	603			489	
v/s Ratio Prot		c0.11		c0.12	0.14			c0.05				
v/s Ratio Perm							0.04				0.00	
v/c Ratio		0.59		0.62	0.31		0.09	0.11			0.01	
Uniform Delay, d1		25.8		25.8	12.6		11.3	11.4			10.9	
Progression Factor		1.00		0.82	0.96		1.00	1.00			1.00	
Incremental Delay, d2		1.4		3.2	0.1		0.3	0.4			0.0	
Delay (s)		27.2		24.3	12.1		11.6	11.8			10.9	
Level of Service		C		C	B		B	B			B	
Approach Delay (s)		27.2			15.9			11.7			10.9	
Approach LOS		C			B			B			B	

Intersection Summary				
HCM Average Control Delay	18.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	45.8%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

San Ysidro LPOE Reconfiguration Mobility Study
2: Camino de la Plaza & SB I-5 On/Off-Ramps
2030 With ITC
Timing Plan: AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	431	4	8	237	95	5	2	35	401	30	414
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.88	0.89
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3528		1770	3539	1583	1613	1863	1396	1770	1353	1339
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3528		1770	3539	1583	1613	1863	1396	1770	1353	1339
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	468	4	9	258	103	5	2	38	436	33	450
RTOR Reduction (vph)	0	1	0	0	0	57	0	0	30	0	111	92
Lane Group Flow (vph)	76	471	0	9	258	46	5	2	8	436	134	146
Confl. Peds. (#/hr)	100		100				100		100	100		100
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	9.3	17.2		2.5	10.4	31.6	0.8	13.1	15.6	21.2	33.5	42.8
Effective Green, g (s)	9.3	17.2		2.5	10.4	31.6	0.8	13.1	15.6	21.2	33.5	42.8
Actuated g/C Ratio	0.13	0.25		0.04	0.15	0.45	0.01	0.19	0.22	0.30	0.48	0.61
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	235	867		63	526	805	18	349	391	536	648	819
v/s Ratio Prot	c0.04	c0.13		0.01	0.07	0.02	c0.00	0.00	0.00	c0.25	c0.10	0.02
v/s Ratio Perm						0.01			0.01			0.09
v/c Ratio	0.32	0.54		0.14	0.49	0.06	0.28	0.01	0.02	0.81	0.21	0.18
Uniform Delay, d1	27.5	23.0		32.7	27.4	10.8	34.3	23.2	21.2	22.6	10.6	5.9
Progression Factor	0.63	0.40		0.72	0.59	0.13	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.7		1.0	0.7	0.0	8.3	0.0	0.0	9.2	0.7	0.1
Delay (s)	18.0	9.8		24.5	16.9	1.4	42.6	23.2	21.3	31.8	11.3	6.0
Level of Service	B	A		C	B	A	D	C	C	C	B	A
Approach Delay (s)		11.0			12.8			23.7			19.6	
Approach LOS		B			B			C			B	

Intersection Summary				
HCM Average Control Delay	15.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	58.8%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

San Ysidro LPOE Reconfiguration Mobility Study
3: Camino de la Plaza & San Ysidro Blvd

2030 With ITC
Timing Plan: AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	354	106	339	8	78	32	29	57	5	32	50	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	0.95	0.88
Frpb, ped/bikes	1.00	1.00	0.86		1.00	0.86	1.00	0.98		1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1722	1361		1854	1361	1770	3438		1770	3539	2567
Flt Permitted	0.95	0.97	1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1722	1361		1854	1361	1770	3438		1770	3539	2567
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	385	115	368	9	85	35	32	62	5	35	54	297
RTOR Reduction (vph)	0	0	265	0	0	31	0	3	0	0	0	107
Lane Group Flow (vph)	246	254	103	0	94	4	32	64	0	35	54	190
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Turn Type	Split		Perm	Split		Perm	Prot			Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases			4			8						6
Actuated Green, G (s)	19.6	19.6	19.6		7.7	7.7	1.6	25.1		1.6	25.1	44.7
Effective Green, g (s)	19.6	19.6	19.6		7.7	7.7	1.6	25.1		1.6	25.1	44.7
Actuated g/C Ratio	0.28	0.28	0.28		0.11	0.11	0.02	0.36		0.02	0.36	0.64
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	471	482	381		204	150	40	1233		40	1269	1639
v/s Ratio Prot	0.15	c0.15			c0.05		0.02	0.02		c0.02	0.02	c0.03
v/s Ratio Perm			0.08			0.00						0.04
v/c Ratio	0.52	0.53	0.27		0.46	0.03	0.80	0.05		0.88	0.04	0.12
Uniform Delay, d1	21.3	21.3	19.6		29.2	27.8	34.0	14.7		34.1	14.6	4.9
Progression Factor	0.62	0.62	0.41		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.0	4.0	1.7		1.6	0.1	69.2	0.1		93.6	0.1	0.1
Delay (s)	17.0	17.1	9.8		30.9	27.9	103.2	14.8		127.7	14.7	5.1
Level of Service	B	B	A		C	C	F	B		F	B	A
Approach Delay (s)		14.0			30.0			43.4			17.5	
Approach LOS		B			C			D			B	

Intersection Summary				
HCM Average Control Delay	18.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	63.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

San Ysidro LPOE Reconfiguration Mobility Study
4: I-5 NB Ramps & E San Ysidro Blvd

2030 With ITC
Timing Plan: AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Vehicle Extension (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	3.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

San Ysidro LPOE Reconfiguration Mobility Study 2030 With ITC
5: Camino de la Plaza & NB I-5/I-805 On-Ramp Timing Plan: AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	347	519	0	0	252	128	88	0	280	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.86			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1770		1361			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1770		1361			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	377	564	0	0	274	139	96	0	304	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	73	0	0	252	0	0	0
Lane Group Flow (vph)	377	564	0	0	274	66	96	0	52	0	0	0
Confl. Peds. (#/hr)							100		100	100		100
Turn Type	Prot					Perm	Prot		custom			
Protected Phases	7	4			8		5					
Permitted Phases						8			2			
Actuated Green, G (s)	15.0	52.1			33.1	33.1	9.9		9.9			
Effective Green, g (s)	15.0	52.1			33.1	33.1	9.9		9.9			
Actuated g/C Ratio	0.21	0.74			0.47	0.47	0.14		0.14			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	736	2634			1673	749	250		192			
v/s Ratio Prot	c0.11	c0.16			0.08		c0.05					
v/s Ratio Perm						0.04			0.04			
v/c Ratio	0.51	0.21			0.16	0.09	0.38		0.27			
Uniform Delay, d1	24.3	2.7			10.5	10.1	27.3		26.8			
Progression Factor	0.37	0.15			0.83	0.65	1.00		1.00			
Incremental Delay, d2	0.4	0.1			0.2	0.2	1.0		0.8			
Delay (s)	9.3	0.5			9.0	6.8	28.3		27.6			
Level of Service	A	A			A	A	C		C			
Approach Delay (s)		4.0			8.3			27.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

PB 11/19/2009
J:\12060-SanYsidroPOEMobilityStudy\Traffic\Synchro\2030 AM With ITC.syn Page 5

San Ysidro LPOE Reconfiguration Mobility Study
1: Camino de la Plaza & Virginia Ave
2030 With ITC
Timing Plan: PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	1219	134	480	1244	7	139	0	392	6	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.79			0.92	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.80	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1770	3487		1770	3536		1410	1244			1583	
Flt Permitted	0.95	1.00		0.95	1.00		0.75	1.00			0.48	
Satd. Flow (perm)	1770	3487		1770	3536		1114	1244			790	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1325	146	522	1352	8	151	0	426	7	0	4
RTOR Reduction (vph)	0	7	0	0	0	0	0	361	0	0	3	0
Lane Group Flow (vph)	4	1464	0	522	1360	0	151	65	0	0	8	0
Confl. Peds. (#/hr)							100		100	100		100
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	1.3	48.2		33.0	79.9		16.8	16.8			16.8	
Effective Green, g (s)	1.3	48.2		33.0	79.9		16.8	16.8			16.8	
Actuated g/C Ratio	0.01	0.44		0.30	0.73		0.15	0.15			0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	21	1528		531	2568		170	190			121	
v/s Ratio Prot	0.00	c0.42		c0.29	0.38			0.05				
v/s Ratio Perm							c0.14				0.01	
v/c Ratio	0.19	0.96		0.98	0.53		0.89	0.34			0.06	
Uniform Delay, d1	53.8	29.9		38.2	6.7		45.7	41.7			39.9	
Progression Factor	1.00	1.00		1.12	0.56		1.00	1.00			1.00	
Incremental Delay, d2	4.4	14.1		8.2	0.0		44.6	4.9			1.0	
Delay (s)	58.2	44.0		51.1	3.7		90.3	46.5			40.9	
Level of Service	E	D		D	A		F	D			D	
Approach Delay (s)		44.1			16.9			58.0			40.9	
Approach LOS		D			B			E			D	

Intersection Summary				
HCM Average Control Delay	33.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	104.8%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

PB 11/19/2009
J:\12060-SanYsidroPOEMobilityStudy\Traffic\Synchro\2030 PM With ITC.syn Page 1

San Ysidro LPOE Reconfiguration Mobility Study
2: Camino de la Plaza & SB I-5 On/Off-Ramps
2030 With ITC
Timing Plan: PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	500	1150	25	55	658	575	59	23	149	404	170	1036
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.82	1.00	0.85	0.87
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3501		1770	3539	1583	1770	1863	1303	1770	1333	1314
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3501		1770	3539	1583	1770	1863	1303	1770	1333	1314
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	543	1250	27	60	715	625	64	25	162	439	185	1126
RTOR Reduction (vph)	0	1	0	0	0	66	0	0	36	0	86	9
Lane Group Flow (vph)	543	1276	0	60	715	559	64	25	126	439	583	633
Confl. Peds. (#/hr)	100		100				100		100	100		100
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	29.0	44.0		4.0	19.0	46.0	4.0	19.0	23.0	27.0	42.0	71.0
Effective Green, g (s)	29.0	44.0		4.0	19.0	46.0	4.0	19.0	23.0	27.0	42.0	71.0
Actuated g/C Ratio	0.26	0.40		0.04	0.17	0.42	0.04	0.17	0.21	0.25	0.38	0.65
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	467	1400		64	611	720	64	322	272	434	509	848
v/s Ratio Prot	c0.31	0.36		0.03	c0.20	0.19	c0.04	0.01	0.02	0.25	c0.44	0.20
v/s Ratio Perm						0.16			0.08			0.29
v/c Ratio	1.16	0.91		0.94	1.17	0.78	1.00	0.08	0.46	1.01	1.15	0.75
Uniform Delay, d1	40.5	31.2		52.9	45.5	27.6	53.0	38.2	38.1	41.5	34.0	13.3
Progression Factor	0.46	0.31		0.75	0.54	0.20	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	82.6	3.9		68.0	87.6	3.3	112.5	0.5	1.3	46.1	86.5	3.6
Delay (s)	101.1	13.7		107.8	112.3	8.8	165.5	38.6	39.4	87.6	120.5	17.0
Level of Service	F	B		F	F	A	F	D	D	F	F	B
Approach Delay (s)		39.8			65.9			71.5			74.3	
Approach LOS		D			E			E			E	

Intersection Summary				
HCM Average Control Delay	59.9	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.15			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	96.7%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

PB 11/19/2009
J:\12060-SanYsidroPOEMobilityStudy\Traffic\Synchro\2030 PM With ITC.syn Page 2

San Ysidro LPOE Reconfiguration Mobility Study
3: Camino de la Plaza & San Ysidro Blvd
2030 With ITC
Timing Plan: PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	665	209	158	26	181	84	131	104	12	45	125	1184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	0.95	0.88
Frpb, ped/bikes	1.00	1.00	0.79		1.00	0.79	1.00	0.96		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00		0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1724	1244		1851	1244	1770	3356		1770	3539	2614
Flt Permitted	0.95	0.97	1.00		0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1724	1244		1851	1244	1770	3356		1770	3539	2614
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	723	227	172	28	197	91	142	113	13	49	136	1287
RTOR Reduction (vph)	0	0	103	0	0	77	0	8	0	0	0	105
Lane Group Flow (vph)	470	480	69	0	225	14	142	118	0	49	136	1182
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Turn Type	Split		Perm	Split		Perm	Prot			Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases			4			8						6
Actuated Green, G (s)	44.2	44.2	44.2		17.0	17.0	14.8	27.1		5.7	18.0	62.2
Effective Green, g (s)	44.2	44.2	44.2		17.0	17.0	14.8	27.1		5.7	18.0	62.2
Actuated g/C Ratio	0.40	0.40	0.40		0.15	0.15	0.13	0.25		0.05	0.16	0.57
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	675	693	500		286	192	238	827		92	579	1478
v/s Ratio Prot	0.28	0.28			c0.12		c0.08	0.04		0.03	0.04	c0.32
v/s Ratio Perm			0.06			0.01						0.13
v/c Ratio	0.70	0.69	0.14		0.79	0.07	0.60	0.14		0.53	0.23	0.80
Uniform Delay, d1	27.3	27.3	20.8		44.8	39.8	44.8	32.4		50.9	40.0	19.0
Progression Factor	0.56	0.56	0.14		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.5	5.3	0.5		13.3	0.2	4.0	0.4		5.8	1.0	4.6
Delay (s)	20.7	20.5	3.5		58.0	39.9	48.8	32.7		56.7	41.0	23.6
Level of Service	C	C	A		E	D	D	C		E	D	C
Approach Delay (s)		18.0			52.8			41.2			26.3	
Approach LOS		B			D			D			C	

Intersection Summary				
HCM Average Control Delay	27.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	77.9%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

San Ysidro LPOE Reconfiguration Mobility Study
4: I-5 NB Ramps & E San Ysidro Blvd
2030 With ITC
Timing Plan: PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	3.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

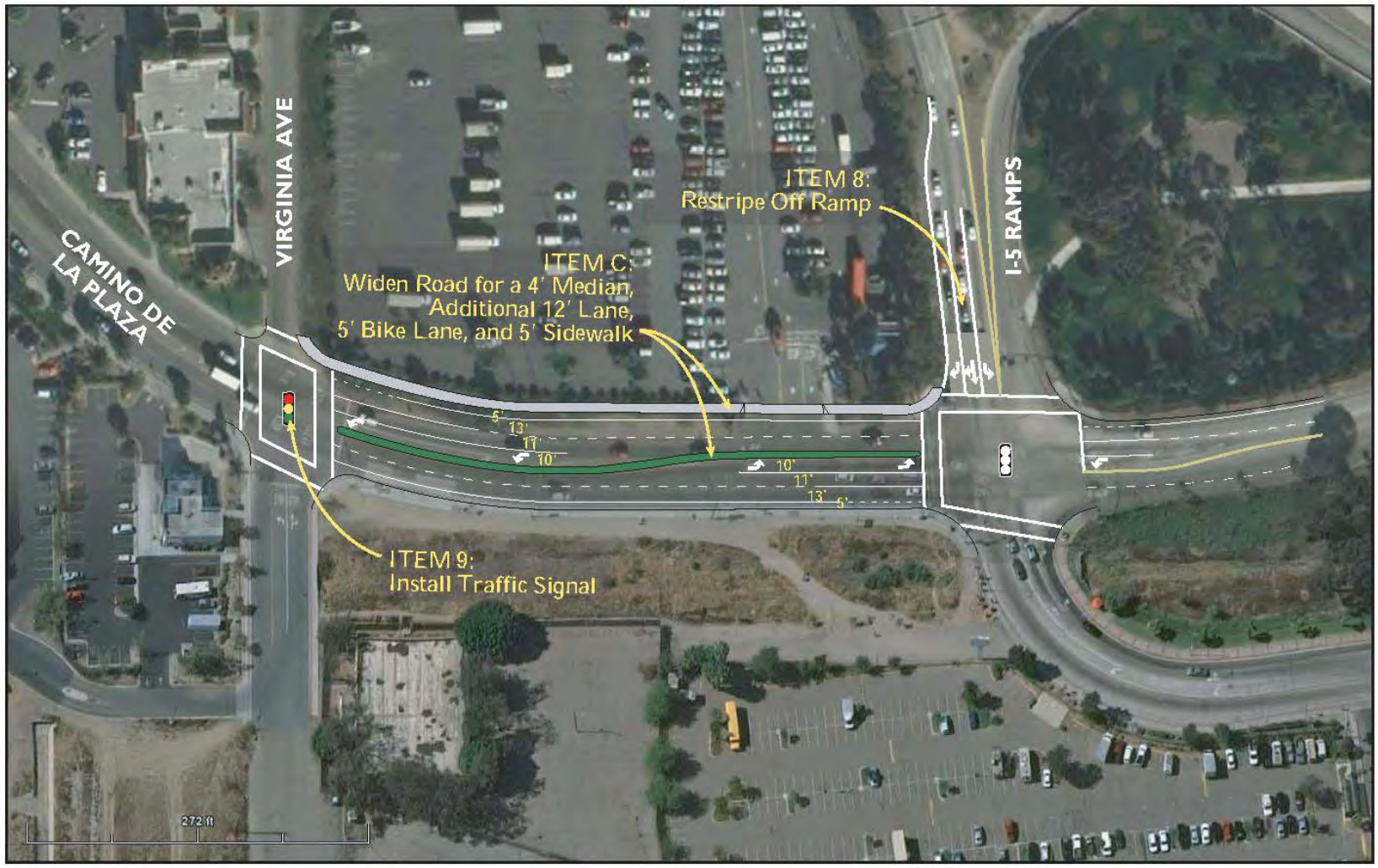
San Ysidro LPOE Reconfiguration Mobility Study 2030 With ITC
5: Camino de la Plaza & NB I-5/I-805 On-Ramp Timing Plan: PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	905	797	0	0	1196	300	92	0	235	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	1.00		1.00			
Frpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.79			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1770		1244			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1770		1244			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	984	866	0	0	1300	326	100	0	255	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	159	0	0	228	0	0	0
Lane Group Flow (vph)	984	866	0	0	1300	167	100	0	27	0	0	0
Confl. Peds. (#/hr)							100		100	100		100
Turn Type	Prot					Perm	Prot		custom			
Protected Phases	7	4			8		5					
Permitted Phases						8			2			
Actuated Green, G (s)	35.7	90.5			50.8	50.8	11.5		11.5			
Effective Green, g (s)	35.7	90.5			50.8	50.8	11.5		11.5			
Actuated g/C Ratio	0.32	0.82			0.46	0.46	0.10		0.10			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0			
Lane Grp Cap (vph)	1114	2912			1634	731	185		130			
v/s Ratio Prot	c0.29	0.24			c0.37		c0.06					
v/s Ratio Perm						0.11			0.02			
v/c Ratio	0.88	0.30			0.80	0.23	0.54		0.21			
Uniform Delay, d1	35.2	2.3			25.2	17.8	46.7		45.1			
Progression Factor	0.68	0.68			0.94	0.68	1.00		1.00			
Incremental Delay, d2	3.8	0.1			2.5	0.4	3.2		0.8			
Delay (s)	27.9	1.7			26.1	12.5	49.9		45.9			
Level of Service	C	A			C	B	D		D			
Approach Delay (s)		15.6			23.4			47.0			0.0	
Approach LOS		B			C			D			A	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

PB 11/19/2009
J:\12060-SanYsidroPOEMobilityStudy\Traffic\Synchro\2030 PM With ITC.syn Page 5



Mitigation Items 8, 9, and C

KOA Corporation February 2009

Queuing and Blocking Report
2030 With ITC 11/19/2009

Intersection: 1: Camino de la Plaza & Virginia Ave

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	T	TR	L	T	TR	L	TR	LR
Maximum Queue (ft)	130	113	124	187	156	72	67	33
Average Queue (ft)	62	43	83	59	65	21	33	3
95th Queue (ft)	109	91	130	141	127	51	59	17
Link Distance (ft)	313	313		470	470	68	68	93
Upstream Blk Time (%)						1	0	
Queuing Penalty (veh)						0	0	
Storage Bay Dist (ft)			100					
Storage Blk Time (%)	0		7	1				
Queuing Penalty (veh)	0		14	2				

Intersection: 2: Camino de la Plaza & SB I-5 On/Off-Ramps

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	R	L	TR	R
Maximum Queue (ft)	132	133	83	40	69	82	37	19	63	586	433	88
Average Queue (ft)	50	33	30	7	29	35	7	2	18	241	87	40
95th Queue (ft)	102	82	62	26	58	66	28	13	46	437	299	68
Link Distance (ft)		470	470		722	722		305		886	886	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			170			100		100			175
Storage Blk Time (%)		0										
Queuing Penalty (veh)		0										

Intersection: 3: Camino de la Plaza & San Ysidro Blvd

Movement	EB	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	LT	R	LT	L	T	TR	L	T	T	R	R
Maximum Queue (ft)	123	174	145	124	47	27	34	61	42	50	86	67
Average Queue (ft)	59	94	72	49	15	5	5	26	8	18	45	27
95th Queue (ft)	106	146	128	97	40	17	19	58	30	44	76	53
Link Distance (ft)	501	501	501	311		525	525		880	880	880	880
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					90			155				
Storage Blk Time (%)												
Queuing Penalty (veh)												

Queuing and Blocking Report
2030 With ITC 11/19/2009

Intersection: 4: I-5 NB Ramps & E San Ysidro Blvd

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 5: Camino de la Plaza & NB I-5/I-805 On-Ramp

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	T	T	R	L	R
Maximum Queue (ft)	127	124	67	106	87	107	65	118	152
Average Queue (ft)	50	68	8	31	38	55	29	44	65
95th Queue (ft)	96	109	37	76	74	93	54	85	115
Link Distance (ft)			722	722	501	501	501	452	452
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	500	500							
Storage Blk Time (%)									
Queuing Penalty (veh)									

Network Summary

Network wide Queuing Penalty: 17

Queuing and Blocking Report
2030 With ITC 11/19/2009

Intersection: 1: Camino de la Plaza & Virginia Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LR
Maximum Queue (ft)	10	334	334	125	473	489	96	118	40
Average Queue (ft)	1	328	265	123	358	300	76	88	6
95th Queue (ft)	5	332	418	129	502	480	99	107	25
Link Distance (ft)		313	313		453	453	68	68	93
Upstream Blk Time (%)		72	9		4	0	58	57	
Queuing Penalty (veh)		0	0		35	4	0	0	
Storage Bay Dist (ft)	150			100					
Storage Blk Time (%)		75		59	3				
Queuing Penalty (veh)		3		369	16				

Intersection: 2: Camino de la Plaza & SB I-5 On/Off-Ramps

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	R	L	TR
Maximum Queue (ft)	175	482	492	194	646	606	528	118	190	122	931	934
Average Queue (ft)	163	462	243	83	442	423	129	70	42	54	754	793
95th Queue (ft)	205	522	486	187	726	690	484	131	171	101	1160	1155
Link Distance (ft)		453	453		706	706	706		305		886	886
Upstream Blk Time (%)		18	1		2	0	2		1		10	27
Queuing Penalty (veh)		142	6		10	0	7		0		0	0
Storage Bay Dist (ft)	150			170				100		100		
Storage Blk Time (%)	24	21		0	54			16	0	1		38
Queuing Penalty (veh)	136	107		0	30			28	0	1		194

Intersection: 2: Camino de la Plaza & SB I-5 On/Off-Ramps

Movement	SB
Directions Served	R
Maximum Queue (ft)	200
Average Queue (ft)	194
95th Queue (ft)	222
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	175
Storage Blk Time (%)	5
Queuing Penalty (veh)	32

Queuing and Blocking Report
2030 With ITC 11/19/2009

Intersection: 3: Camino de la Plaza & San Ysidro Blvd

Movement	EB	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	LT	R	LT	L	T	TR	L	T	T	R	R
Maximum Queue (ft)	212	258	90	275	115	177	87	91	580	902	902	905
Average Queue (ft)	97	129	38	147	77	41	25	35	51	484	685	613
95th Queue (ft)	175	216	71	240	129	145	62	77	248	1143	1092	1030
Link Distance (ft)	504	504	504	311		525	525		880	880	880	880
Upstream Blk Time (%)				0					0	6	22	3
Queuing Penalty (veh)				0					0	0	0	0
Storage Bay Dist (ft)					90			155				
Storage Blk Time (%)					12	0						
Queuing Penalty (veh)					6	0						

Intersection: 4: I-5 NB Ramps & E San Ysidro Blvd

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 5: Camino de la Plaza & NB I-5/I-805 On-Ramp

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	T	T	R	L	R
Maximum Queue (ft)	231	264	78	120	387	488	278	174	151
Average Queue (ft)	139	159	30	56	190	269	75	61	73
95th Queue (ft)	210	232	68	99	309	400	172	128	137
Link Distance (ft)			706	706	504	504	504	452	452
Upstream Blk Time (%)					0	0	0		
Queuing Penalty (veh)					0	1	1		
Storage Bay Dist (ft)	500	500							
Storage Blk Time (%)									
Queuing Penalty (veh)									

Network Summary

Network wide Queuing Penalty: 1129