INTRODUCTION

The Otay Mesa - Mesa de Otay Binational Corridor Strategic Plan approved by the SANDAG Board of Directors and the City of Tijuana’s City Council in fall 2007, identified several strategies in the areas of transportation, economic development, housing, and the environment. This report is an overview of progress made since the Strategic Plan was completed in 2007.

TRANSPORTATION ACTIONS

ISSUE IMPLEMENT THE EAST OTAY MESA-OTAY II PORT OF ENTRY (POE) AND CONNECTING ROADS

EARLY ACTION Establish the East Otay Mesa-Otay II POE Technical Commission to advance planning and implementation of the future East Otay Mesa-Otay II POE and connecting roads as a binational project, in collaboration with Caltrans, SIDUE, and IMPlan, and based upon discussions with the U.S. interagency coordination group.

Since 2007, Caltrans, the U.S. General Services Administration (GSA), U.S. Customs and Border Protection (CBP), the County of San Diego, SANDAG, and the Mexican government continued to make progress to advance the implementation of the proposed Otay Mesa East – Mesa de Otay II Port of Entry (POE) and connecting roads on both sides of the border (Figure 1). Caltrans District 11 has taken the lead on several planning tasks to advance this project. In Mexico, the Secretariat of Communications and Transportation (SCT) also has undertaken required studies for the Mesa de Otay II POE and connecting roads.

The following section is an update on key studies and activities that are supporting the development of the Otay Mesa East-Mesa de Otay II POE project.

PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT FOR STATE ROUTE 11 AND THE OTAY MESA EAST POE

Caltrans District 11, in cooperation with the U.S. Federal Highway Administration (FHWA), completed a Program Environmental Impact Report/Environmental Impact Statement (PEIR/PEIS) in the fall of 2008. This PEIR/PEIS evaluated alternative locations to identify a corridor for the future State Route 11 (SR 11) and a site for future development of the Otay Mesa East POE.

Immediately following completion of the PEIR/PEIS, Caltrans, in cooperation with GSA and FHWA, initiated project-level environmental clearance studies for SR 11 and the Otay Mesa East POE. This Tier II Environmental Impact Report/Environmental Impact Statement (EIR/EIS) is evaluating the design and operational alternatives for SR 11, the POE, and a potential Commercial Vehicle Enforcement Facility (CVEF). The draft EIR/EIS, along with a draft project report, was released in November 2010. The final EIR/EIS and project report are expected to be approved in spring 2012.
In addition, the engineering studies for both SR 11 and the new POE are expected to be completed by spring 2012. The design and right-of-way acquisition are scheduled for 2012 and construction is expected to begin in late 2013, with completion in late 2015.

It also is anticipated that a potential future transit center site adjacent to the proposed Otay Mesa East POE would be cleared in the Tier II EIR/EIS for SR 11 and the Otay Mesa East POE. Since this POE is in the planning stages, it provides a unique opportunity to influence how transit vehicles (and private vehicles picking up pedestrian crossers) will access the POE.

Caltrans, in collaboration with GSA, U.S. CBP, and SANDAG, completed the Program Development Study (PDS) for the POE in July 2011. Furthermore, the team selected a legal counsel for the SR 11/Otay Mesa East POE project.

SANDAG and Caltrans are working jointly to develop a financial strategy to build the SR 11/Otay Mesa East POE project. SANDAG and Caltrans have engaged a Senior Investment Underwriter and Financial Advisor to assist with bond placement and other elements of the project financing. SANDAG and Caltrans are also working with Mexico to conduct a traffic and revenue study for the project.

**INTELLIGENT TRANSPORTATION SYSTEMS STUDY**

FHWA awarded SANDAG a grant to conduct an Intelligent Transportation Systems (ITS) Technology Pre-Deployment Study for the project. The ITS Pre-Deployment Study is assessing innovative operating concepts and technologies that can help to create a secure, state-of-the-art border crossing. A major focus is to create incentives for passenger and commercial customers to use the tolled border crossing with shorter and more predictable wait times. The data collection will work seamlessly with the advanced traveler information to provide accurate and valuable data to the customer.

ITS technology will collect and provide real-time information on border crossing choices, toll rates and wait times on both sides of the border for the entire San Diego - Baja California region. It is currently envisioned that four high-level systems functions will be implemented along the region’s border including:

1. data collection and analysis
2. enhanced traffic flow management approaching the crossing
3. enhanced traveler information for border crossers
4. revenue collection

**PRESIDENTIAL PERMIT**

Caltrans submitted the Presidential permit application to the U.S. Department of State (U.S. DOS) in January 2008. It included a description of the facility and its relationship to existing border crossings, traffic information, and projected demand for the new POE, projected financing and construction plans, status of the counterpart project in Mexico, status on U.S. approvals necessary for construction, historic preservation information, and a description of how the POE would serve the national interest.

On December 8, 2008, U.S. DOS approved the Presidential permit, which authorizes U.S. GSA to build the Otay Mesa East POE as a vehicular and pedestrian border crossing.

**U.S. GSA FEASIBILITY/FUNCTIONALITY STUDY**

U.S. GSA completed a feasibility study in June 2008 that evaluated alternatives to satisfy the projected traffic demand and space requirements at the proposed Otay Mesa East...
POE as well as to reconfigure the existing Otay Mesa POE. The preferred alternative calls for the Otay Mesa East POE to function as a commercial and noncommercial facility, includes modernization of the commercial and noncommercial installations at the existing Otay Mesa POE, and takes into account tolls or user fees for the SR 11-Otay Mesa East POE project.

TOLL LEGISLATION

Senate Bill 1486 (SB 1486), the Otay Mesa East Toll Facility Authority Act, was introduced in February 2008 by Senator Denise Ducheny (D-San Diego). SB 1486 was signed by Governor Schwarzenegger on September 30, 2008. The bill allows the Otay Mesa East Toll Facility Act, which authorized SANDAG to, among other things, solicit and accept grants of funds and to enter into contracts and agreements for the purpose of establishing highway toll projects to facilitate the movement of goods and people along the SR 11 corridor in the County of San Diego or at the Otay Mesa East POE. The bill provides SANDAG with various additional powers and duties, including, among others, authorization for SANDAG to issue bonds for the acquisition, construction, and completion of transportation facilities and to impose tolls and user fees for the use of the corridor. The bill requires that toll revenues from the Otay Mesa toll facility project to be used to pay for specified costs, including, but not limited to, repaying bonds, the cost to SANDAG for operating the project, and the cost for capital improvements, pursuant to an expenditure plan. The bill also authorizes SANDAG to enter into agreements with the County of San Diego or a city within that county to accept development impact fees for the construction and reimbursement of improvements in the county or city.

PROPOSITION 1B: TRADE CORRIDORS IMPROVEMENT FUND PROGRAM

In April 2008, the Otay Mesa East POE and SR 11 project was allocated $75 million from the Trade Corridors Improvement Fund (TCIF). TCIF is one of the programs under Proposition 1B (Prop. 1B), which was approved by the voters at the November 2006 general election and enacts the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. This Act authorizes the issuance of more than $19.9 billion of general obligation bonds for various transportation programs.

FUTURE PROJECT FINANCING

A total of $13 million is programmed by the state for the environmental clearance phase. SAFETEA-LU also includes $800,000 for this project, $4.9 million in Border Infrastructure Program (BIP) funds, and an additional $75 million has been allocated toward construction from the state’s Proposition 1B TCIF. Depending on the alternative and year of construction, the cost for SR 11 ranges from $300 to $360 million. The POE facility is estimated to cost in the range of $300 to $350 million depending on the functionality of POE.

SANDAG submitted a letter of interest for a possible Transportation Infrastructure Finance and Innovation Act (TIFIA) loan. SANDAG anticipates a TIFIA loan could cover up to one third of the eligible costs for the SR 11/Otay Mesa East POE, and the loan would be repaid with future toll revenues. SANDAG is also forging a Master Agreement with project partners such as the U.S. GSA and the U.S. CBP.
As described previously, SANDAG and Caltrans are working jointly to develop a financial strategy to build the SR 11/Otay Mesa East POE project. The project’s Traffic and Revenue Study will be a key input to the project financial strategy as it will gauge the amount of revenue that can be generated by the project and in turn the size of facility that can be financed.

**MEXICO**

**Garita Mesa de Otay II (POE)**

The Otay Mesa East-Otay II POE is a priority project for the Mexican government. In March 2008, Mexico’s SCT released an economic, financial feasibility, and functionality study.

The Mexico POE Project would consist of:

- 27 northbound passenger/commercial vehicle toll lanes.
- 18 SOV toll booths, located on the north end, at the border with the U.S.
- 9 northbound commercial vehicle toll booths, located on the north end, at the border with the U.S.
- 8 southbound lanes.
- 2 southbound commercial vehicle toll lanes, located on the north end, at the border with the U.S.
- 6 southbound SOV lanes, located on the north end, at the border with the U.S.

According to the study and as identified in Figure 2, the preferred alternative calls for a POE that would handle both passenger and commercial vehicles with separate access roads connecting to the Mesa de Otay II-Otay Mesa East POE and SR 11. The 2008 study contemplates user fees of approximately 19.17 pesos (about $1.46 dollars) for passenger vehicles and up to 86 pesos (about $6.56 dollars) for 5-axle commercial vehicles (user fees would be based on the number of axles).¹

The 2008 study estimated the cost of the Otay Mesa East-Otay II POE project at $391 million pesos (about $29.8 million). The study did not include the cost of the 39 hectares (about 96 acres) already reserved for the POE site by the City of Tijuana, nor the access roads. The Mesa de-Otay II POE would be built through a 30-year concession, and is planned to be a toll facility.

All the road access projects connecting to Mesa de Otay II POE are being planned by the SCT with input from Tijuana’s Metropolitan Planning Institute (IMPlan) and the Secretariat of Infrastructure and Urban Development of Baja California (SIDUE). There is no definite construction start date as this is dependent on a bidding process in Mexico.

The configuration of the pedestrian and public transit access to the planned Mesa de Otay II POE also are being developed. A transit facility is planned to be conveniently located to connect the new POE and the future mass transit service in Tijuana.

¹ The exchange rate used to convert pesos to dollars is $13.08 pesos per $1 dollar.
Figure 1
State Route 11 / Otay Mesa Port of Entry

Source: Caltrans, 2011

Figure 2
Otay Mesa East-Mesa de Otay II POE and Connecting Roads

Source: C&M Associates, Inc., 2011
ISSUE IMPLEMENT IMPROVEMENTS TO EXISTING OTAY MESA-MESA DE OTAY POE AND CONNECTING ROADS

EARLY ACTION Coordinate with Customs Border Protection and Mexican Customs on the process to fund and implement identified short-term capital and operational improvements at the Otay Mesa-Mesa de Otay Commercial POE.

In 2008, Caltrans completed a project that added approaches for two regular inspection booths and a second FAST\(^2\) lane north of the existing one (Item 6b, Figure 3). In 2010, the ten-acre parcel (Item 7, Figure 3) adjacent and just east of the Otay Mesa Commercial POE was purchased. In the same year, the Mesa de Otay Commercial POE removed seized vehicles to redirect and isolate traffic (Item 2a, Figure 3). Gamma equipment (Item 2b, Figure 3) and lane dividers for empty trucks (Item 3, Figure 3) were provided. Other proposed Capital and Operational Improvements at the Otay Mesa-Mesa de Otay Commercial POE shown in Figure 3 are on hold until funding becomes available.

State Route 905

State Route 905 (SR 905) is a six-lane freeway being constructed in phases from Interstate 805 (I-805) to the Otay Mesa POE at the U.S.-Mexico Border to serve the POE and businesses and residents in the Otay Mesa area. It connects with other major interstate routes such as I-5 and I-805 and will include grade-separated local access interchanges and a freeway-to-freeway interchange with the South Bay Expressway (SR 125 South).
Free and Secure Trade (FAST) offers expedited clearance to carriers and importers who are enrolled in Customs Trade Partnership Against Terrorism (C-TPAT). It is designed to expedite the clearance of transborder shipments of compliant partners by reducing Customs information requirements, dedicating lanes at major crossings to FAST participants, using transponder technology, and physically examining cargo transported by these low-risk clients with minimal frequency.
Exploring the feasibility of short-term operational and capital improvements at the Otay Mesa-Mesa de Otay Passenger POE (operations and facilities).

In April 2009 the Department of Homeland Security (DHS) was awarded approximately $21.3 million of American Recovery and Reinvestment Act (ARRA) funds for some initial Otay Mesa POE modernization projects. This funding would cover the cost of land acquisition and design for the expansion project. The modernization project would make improvements to both commercial and non-commercial portions of the existing port.

In July 2009, GSA awarded the Architecture and Engineering design contract for the Otay Mesa POE Modernization project. Construction is subject to the availability of construction funding that has not yet been authorized by Congress.

Some highlights of the proposed Otay Mesa POE modernization include:

- Expansion of the passenger vehicle crossing from 12 to 24 primary passenger vehicle inspection booths;
- Acquisition of a 10.5 acre parcel immediately east of the commercial facility that would accommodate four new commercial inspection booths. This parcel was acquired in 2010.
- Relocation of the existing hazardous waste inspection facility located just west of the southbound vehicle crossing in Otay Mesa.

Staff consulted with GSA on the viability of implementing specific reconfigurations that were identified in the Otay Mesa-Mesa de Otay Strategic Plan and shown in Figure 4.

As identified in Figure 4 a few projects were completed. In 2009, Project No. 4 was completed. It modified lane No. 3 by adding a swing gate for a second SENTRI lane. This serves as a dual use lane and does not include a stacked booth. This also is in addition to an existing dedicated SENTRI vehicle lane available seven days a week including holidays. This dual use lane allows flexible use to process either SENTRI or non-SENTRI vehicles, as traffic conditions warrant. Also in 2009, stacked booths (Project No. 5) were installed on the three West passenger vehicle lanes.

There are currently no active plans for the other projects identified in Figure 4, as they have been suspended pending funding of the future modernization project.

In 2009, U.S. CBP completed installation of the Radio Frequency Identification (RFID) technology at the Otay Mesa POE. Although, this project was not identified on the original list of improvements, it has provided significant operational efficiency advancements to the Otay Mesa POE and other POEs. These upgrades, which include new software, hardware, and the deployment of vicinity RFID technology, were implemented as part of the Western Hemisphere Travel Initiative (WHTI). RFID is already utilized for toll collection on the I-15 express lanes and the South Bay Expressway in San Diego County and could be a cost effective means of tracking and cataloging freight movement through the Otay Mesa border crossing system. The data transmitted by RFID can track and identify vehicles and provide specific information on items being transported as well as border crossing history. In addition, devices can be moved from one lane to another at nominal costs. U.S. authorities estimated that RFID technology could shave six to eight seconds off each inspection because information will appear on an officer's computer screen before a motorist even arrives at the booth.
This technology paved the way for an improvement not previously identified. The Ready Lane, which began operation in May 2011 at the Otay Mesa POE, is a dedicated primary vehicle lane for travelers entering the U.S. at land border ports of entry who carry a Western Hemisphere Travel Initiative (WHTI) compliant RFID-enabled travel document. Examples of WHTI compliant documents are: U.S. passport cards, enhanced drivers licenses, trusted traveler cards (NEXUS, SENTRI, or FAST), military identification cards (for members of the U.S. armed forces on official orders), U.S. Merchant Mariner document (for U.S. citizens on official maritime business), and enhanced tribal card (where available).

Five Ready Lanes were installed and replaced the existing westernmost northbound inspection booths. These improvements include the installation of K-rail on the westernmost lane beginning just north of the northbound bridge to provide a dedicated access lane to the five inspection booths.

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**Figure 4**

Otay Mesa Passenger Port of Entry
Suggested Capital Improvements

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**Otay Mesa Passenger POE**
Suggested Capital Improvements

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All improvements recommended are within US GSA Right-of-Way.

1. Construct access to allow employee vehicles to exit the employee parking lot directly onto the northbound SR-905 lanes.

2. Remove k-rail, install steel bollards (or k-rail) and tire shredders (port runner system) along the west and east egress pavement and widen for additional lane(s).

3. Construct retaining wall, sidewalk and pavement along west edge of the import cargo facility to allow busses to board passengers.

4. Modify lane #3 for SENTRI/regular vehicles, dual use (not stacked).

5. Install tandem booths along west portion of primary inspection. (Pending results from San Ysidro Stacked Booth Test).

6. Modify visitor parking lot. East half of lot for visitors, west half for SENTRI vehicle processing.

7. Construct a slip ramp entrance to the northbound lanes. Allow busses to re-board passengers and have direct access to the northbound SR-905 lanes.

8. Install signage - Parking for official use only.

**Bi-national Effort**

9. Implement reversible lanes concept.
   (International effort)
MEXICO

In 2009, the City of Tijuana repaved the south and northbound lanes connecting to the Mesa de Otay POE with ‘white topping.’ The landscaped area between the southbound and northbound crossing was removed to add an additional northbound passenger vehicle lane. The northbound taxi lane that connects to the Mexican Customs facility and runs parallel to the southbound crossing lanes will eventually be eliminated when the POE’s modernization is completed (Figure 5).

The configuration of the pedestrian and public transit access to Mesa de Otay improvements at Avenida Josefina Rendon and the SENTRI lane access remain in the planning stages. Recommendations from the SANDAG-IMPlan study “Evaluation of Tijuana’s Public Transportation Facilities at the Otay Mesa – Mesa de Otay POE; South Bay BRT” completed in 2008 were considered in this planning. These plans are dependent on the commencement of United States construction to modernize the Otay Mesa – Mesa de Otay POE.

IMPlan will continue to work with stakeholder agencies on both sides of the border to ensure efficient pedestrian and transit movement and connectivity. When preliminary POE designs are developed, more detailed discussions would focus on pick-up and drop-off points for public transportation near the Mesa de Otay POEs.

Figure 5
Otay Mesa/Mesa de Otay Port of Entry

1. Pedestrian Bridge and Ramps
2. Flag Pole
3. Drop Off/Pick Up
4. Taxis Parking Area (42 Spaces)
5. Services/Information

[Diagram showing various features at the port of entry, labeled with numbers corresponding to the list above.]

Source: IMPlan, 2009
EARLY ACTION   Collaborate with the City of San Diego on the Otay Mesa Community Plan update in relation to transportation implications of future land uses changes under consideration.

SANDAG continues to collaborate with the City of San Diego in its Otay Mesa Community Plan update. The Draft EIR is anticipated to be released for public review in fall 2012. Most of the technical studies have been produced or updated, and the City is completing the Traffic Impact Study (TIS) to provide input for the Noise and Air Quality studies.

NEW ACTION   Support the implementation of technologies to measure cross-border wait times of northbound commercial vehicles at the Otay Mesa-Mesa de Otay Commercial POE.

In March 2007, Caltrans and SANDAG completed a study funded by the U.S. Federal Highway Administration (FHWA) to determine what Intelligent Transportation Systems (ITS) or other commercial technologies are available to monitor, measure, and report on commercial vehicle wait times at the Otay Mesa POE. The study was divided into two stages. The first stage identified high level requirements for the systems, reviewed ten potential technologies, and described the essential features of the selected solutions.

Of the ten technologies reviewed during Stage 1, the following three technologies met the criteria for further exploration in Stage 2:

- **Automated License Plate Recognition (ALPR):** This license plate recognition technology has the capability of reading the license plates of incoming vehicles at select locations to identify, catalog, and track freight movement through the Otay Mesa border crossing system. The information is stored in a central database and would provide aggregated data on border wait times. ALPR can also track information such as registered driver when additional system-to-system links (i.e. state registered vehicle database) are incorporated. ALPR technology is flexible in the sense that individual cameras and supporting infrastructure can be changed, moved, operated, updated and integrated from one lane to another. However, installation costs will be incurred for any removal and reinstallation of equipment.

- **Radio Frequency Identification (RFID):** RFID is already utilized for toll collection on the I-15 express lanes and the South Bay Expressway in San Diego County. RFID can be an inexpensive means of tracking and cataloging freight movement through the Otay Mesa border crossing system. The data transmitted by RFID can track and identify vehicles and provide specific information on items being transported as well as border crossing history. RFID devices can be moved from one lane to another at nominal costs.

- **Global Positioning Systems (GPS):** When combined with cellular networks, GPS could efficiently track the exact vehicle location and catalog truck movement through the Otay Mesa border crossing system. Essentially, the GPS receiver sends data into the cell phone network, which forwards the information to e-mail, computer browser, or cell phone. GPS technology could potentially minimize the need for additional equipment other than the GPS receiver and Internet browser.

The Stage 2 Report, completed in June 2007, evaluated the viability, cost and high-level requirements of these three technologies for the Otay Mesa Commercial POE. Findings from this report indicated that each of these technologies is customizable and environmentally protected from the
elements. The only universal requirement among the technologies is an active high-speed broadband connection for real time monitoring.

The report concluded with recommendations to field test each of these technologies to further assess the capability of the technology, the quality and consistency of data provided, and the potential impacts on daily operations. However, if field testing were not viable due to budgetary and scheduling restraints, the report recommended deploying the ALPR technology.

In December 2007, FHWA began working on the field test program to measure the time required to cross the international border at the Otay Mesa-Mesa de Otay crossing. Stakeholders from the U.S. and Mexico were invited to participate in the study, including cross-border motor carriers, freight forwarders, logistics companies, Caltrans, SANDAG, State of Baja California, the Instituto Municipal de Investigación y Planeación de Ensenada (IMIP), Mexican Customs, U.S. CBP, and Mexico’s Secretaría de Comunicaciones y Transportes (SCT).

Stakeholders in the San Diego/Otay Mesa attended sessions to discuss user needs for the cross-border travel time deployment as well as any related impediments to successfully collecting cross-border travel time data. Stakeholders were instrumental in defining the total cross border trip area where travel times will be collected, and identifying the intersection of Calle 12 and Bellas Artes in Tijuana as the beginning of the queue for trucks in peak season.

Both GPS and ALPR were considered for deployment at Otay Mesa and were evaluated against the following user requirements:

- Total cross-border travel times (historic data);
- Total cross-border travel time with FAST, empty, and laden movements differentiated;
- Real-time information on delay; and
- Measures of travel times between multiple points within the U.S. and Mexico Customs compounds.

During 2008, the top three technologies, RFID, GPS telemetry, and ALPR were evaluated. GPS telemetry was chosen as the primary means of collecting travel time information at the Otay Mesa Commercial POE because it was anticipated that GPS data would yield the most robust data set, as opposed to RFID and ALPR that would require more installation of hardware, and therefore be more costly, to get the same potential results.

Subsequently, FHWA’s consultant contracted with a third-party provider to pursue negotiations with motor carriers in the study’s target population and gain access to GPS data. They were successful in securing agreements to collect data from five motor carriers. The outcomes of this study have not yet been released.
NEW ACTION Collaborate with the County of San Diego on the East Otay Mesa Specific Plan Amendment in relation to regional transportation implications of local circulation element changes under consideration.

On August 1, 2007, the San Diego County Board of Supervisors approved several amendments to the County’s East Otay Mesa Specific Plan, General Plan Circulation Element, and Bicycle Transportation Plan. Specifically, modifications to existing and planned roads were pursued to accommodate SR 905, SR 125, and proposed SR 11 alignments. Some important changes that would accommodate the latest Caltrans design for SR 11 and the Otay Mesa East POE are outlined below.

- Delete Michael Faraday Drive from Lone Star Road to Airway Road to avoid potential conflict with SR 11/Enrico Fermi Road ramp.
- Change road classification for Enrico Fermi Road, between Otay Mesa Road and SR 11, from four-lane Major to Enhanced four-lane Major. This modification will add turn lanes to accommodate traffic at the Enrico Fermi Road/SR 11 interchange due to the deletion of Faraday Drive.
- Extend Lone Star Road easterly to intersect with Siempre Viva Road east of SR 11.
- Extend Siempre Viva Road easterly to intersect with the new extension of Lone Star Road.
- Extend Airway Road easterly to intersect with the new extension of Siempre Viva Road.

In 2010, the Specific Plan was again amended to recombine Subarea 1 and 2 into a single Specific Plan. No major revisions were made to the land use or circulation plans with the 2010 amendment, except for a boundary change that resulted from a voter initiative. Its primary purpose was to simplify and clarify permitting and development requirements during a period when numerous landowners were processing permits.

ISSUE FACILITATE IMPROVEMENTS TO CROSS-BORDER AND REGIONAL PUBLIC TRANSPORTATION SERVICES

EARLY ACTION Initiate advanced planning work to extend the South Bay BRT service between Eastern Chula Vista and the Otay Mesa POE.

The planned South Bay BRT project is a 21-mile, reliable, high-frequency transit service between the Otay Mesa POE and downtown San Diego via eastern Chula Vista. Figure 6 illustrates the South Bay BRT alignment.

Advanced planning work for the South Bay BRT alignment between the Eastern Urban Center in Chula Vista and the Otay Mesa POE was completed in December 2007. SANDAG currently is preparing an Environmental Impact Report (EIR) for the South Bay Bus Rapid Transit (BRT) project and the Draft EIR is anticipated to be released in summer 2012. Extensive public outreach commenced in fall 2009 and continues as part of the environmental clearance process. The South Bay BRT project is on schedule to be implemented in 2014.
Figure 6
South Bay Bus Rapid Transit (BRT) Service

Source: SANDAG, 2011
EARLY ACTION  Evaluate the City of Tijuana’s draft Public Transportation Plan, focusing on routes that would serve the Otay Mesa-Mesa de Otay POE and the proposed East Otay Mesa-Otay II POE.

SANDAG completed a study that gathered information on ridership and current and planned transit routes serving the Mesa de Otay POE in Tijuana. In addition, current and future gaps in transit services to accommodate cross-border travel via the Otay Mesa-Mesa de Otay POE (Figure 7) were identified.

The study developed several recommendations, which are based on the assumption that pedestrian crossings will increase at the Mesa de Otay POE in response to the forecasted growth in eastern Tijuana and implementation of the South Bay BRT service in the San Diego region. The findings and recommendations focus on improvements to pedestrian and public transportation infrastructure to facilitate access to both sides of the border.

The following are the recommended next steps.

1. Implement a public transportation station in Tijuana, similar to the proposed South Bay BRT at-grade station, at one of two sites on the east side of the Otay Mesa – Mesa de Otay POE (MX) (Alternative 1), or on the west side, with transit only lanes from Avenida de las Bellas Artes (Alternative 2).

2. If public transit facilities in Tijuana are developed on the east side of the access road, build a pedestrian bridge from the west side of the access road, where pedestrians enter Mexico after passing through the POE.

3. Improve pedestrian infrastructure leading to and from the Otay Mesa – Mesa de Otay POE (MX) along Mexico’s auto access route to Avenida de las Bellas Artes. This can be limited to the east side of the access road if a pedestrian bridge is constructed.

4. Provide shuttle services between IMPlan’s proposed transit network trunk routes on Boulevard Industrial (Highway 2D) and the Otay Mesa – Mesa de Otay POE (MX). The shuttle could also take advantage of its proximity to the Tijuana Airport and provide direct service from the Otay Mesa – Mesa de Otay POE to the airport. This route could serve the tourism market from San Diego by providing an option to use the Tijuana Airport.

5. Provide direct service between the Otay Mesa – Mesa de Otay POE and the Central de Autobuses (Central Camionera) in Tijuana—a large bus station which provides interregional bus services to Baja California and the interior of Mexico. This service could serve the tourism markets between Baja California and United States as well as interregional markets. Such a link would also greatly expand mobility options for residents of San Diego/Tijuana by providing a direct connection to the many destinations in the interior of Mexico accessible from the Central de Autobuses. Because the bus terminal is located in the eastern area of Tijuana, a connection via Otay Mesa is potentially more convenient for travelers from the U.S. than using the San Ysidro crossing to the west.
SANDAG staff shared the study’s findings and recommendations with IMPlan for its review and evaluation. Comments received from IMPlan were incorporated in the final Technical Memorandum.

Findings from this evaluation will inform transit planning activities at the Otay Mesa – Mesa de Otay and the future Otay Mesa East – Otay II POEs. In the interim, IMPlan will work towards defining the location of the pick-up and drop-off points for public transportation near the Mesa de Otay POE.

**Transit Routes 1 and 2**

The City of Tijuana has been incorporating the Federal Program of Mass Transit Support to develop studies to be delivered to Mexico’s National Infrastructure Fund (FONADIN), which require the review of SCT, SEDESOL (Secretariat of Social Development), and SHCP (Secretariat of Finance), with the purpose of securing funding for project investment.

The transportation study titled Technical Legal and Financial Study on Route 1 has been finalized. The preliminary project design and the cost-benefit study are currently being revised for the approval by FONADIN for financing. Route 2 study is under development and would be next in line after Route 1 is approved. This Route includes the pick-up and drop-off points for public transportation near the Mesa de Otay and Otay II POEs.

Once both are approved two high volume trunk lines will be constructed. Route 1 would traverse 18.4 Km or 11.4 miles and connect downtown Tijuana with the Puerta México (San Ysidro) POE and the southeastern part of the city. Route 2 (BRT type) would connect the Mesa de Otay area (including the POEs) along a 30 Km or 18.6 mile route to Santa Fe and Ciudad Industrial on the southwest portion of the city (Figure 8).
Figure 7
South Bay Bus Rapid Transit

Source: SANDAG, 2008
EARLY ACTION  Evaluate the potential for extension of the South Bay BRT service to the proposed Otay Mesa East border crossing along the future SR 11.

A technical memorandum to evaluate the potential extension of BRT (or other alternative transit service) to the Otay Mesa East POE was prepared in 2008 to advance this strategy. Two alternatives were evaluated as to how transit from the Otay Mesa East POE would connect to the proposed South Bay BRT serving the Otay Mesa POE and to the San Diego regional transit network. One alternative would connect the Otay Mesa East POE via Siempre Viva Road to the South Bay BRT, and the other would connect to the South Bay BRT via SR 11.

In addition, six types of potential transit service were evaluated to learn which would provide the best service. They were as follows:

1. Extension of South Bay BRT
2. Branch of South Bay BRT
3. Extension of MTS Bus Route 905
4. Shuttle Service from Otay Mesa POE Station
5. Shuttle Service from Otay Mesa Road Park and Ride Station
6. Extension of Airway Road Transit Service

Pedestrian and vehicle access to transit at the proposed Otay Mesa East POE also was evaluated. Since this POE is in the planning stages, it provides a unique opportunity to influence how transit vehicles (and private vehicles picking up pedestrian crossers) will access the POE. Several recommendations
were made on providing better access for transit, private vehicles, and pedestrian crossers. The following are key elements that were recommended for consideration in the POE site plan:

1. The Siempre Viva Road/SR 11 interchange should be at least three-quarters of a mile away from the POE. As such, an access road adjacent to SR 11 from Siempre Viva Road to a designated drop-off area would provide direct, unimpeded access for transit into the interior of the POE. Placing the access road adjacent to SR 11 would allow for minimal impact to potential commercial/industrial development adjacent the POE.

2. Access into the POE should limit the amount of interaction between transit vehicles and commercial traffic. It is assumed that commercial traffic will have an exclusive access road into the Commercial Vehicle Enforcement Facility (CVEF) from the new POE. It will be critically important to ensure that the configuration of the Otay Mesa East POE does not require transit vehicles to wait in or cross queues of vehicles waiting to cross the border. To facilitate this goal, a transit guideway is recommended.

3. The access road with transit-only lanes in the center/median into the POE pedestrian drop-off is recommended; the locations for drop-offs/platforms should be placed in separate areas with the transit station nearest the POE pedestrian processing facilities to ensure transit priority to the POE. Private vehicles (non-transit vehicles) should not be allowed to enter the transit station.

The following recommendations were made in regards to the intermodal station requirements for the Otay Mesa East POE:

1. The station platforms should be located within an eighth of a mile from the pedestrian crossing for the POE, or less if possible. This will reduce the total crossing time by allowing the pedestrians to reach the transit station—and its amenities—in the fastest manner possible.

2. The station should be located centrally along the pedestrian path to the Otay Mesa East POE pedestrian crossing facilities. If possible, the Otay Mesa East POE should be designed to consolidate pedestrian processing facilities on one side of SR 11 (either east or west), which would allow direct access to transit facilities without building pedestrian bridges across the highway. This should also include an area for private vehicles dropping-off pedestrian crossers. Ideally, both northbound and southbound pedestrian crossing facilities should be located on the same side of the highway, so that transit facilities in both the U.S. and Mexico can be consolidated for maximum user convenience. By comparison, the design of the San Ysidro and Otay Mesa POEs has led to pedestrians being processed in the same direction of travel as vehicular traffic (i.e., to the right of the roadway), since the facilities in the U.S. and Mexico are consistently on opposite sides of the road, and transit passengers must cross the highway for at least one direction of travel.

3. The station design should remain flexible and have sufficient area/curb to accommodate boarding areas for a shuttle, a conventional 40’ bus, a 60’ BRT vehicle, or all three.
4. If the Otay Mesa East POE station is a terminal station for South Bay BRT or another route (i.e., MTS Route 905), it will need to accommodate additional layover vehicles to maintain operations reliability.

5. The station should accommodate the purchase of fares with either dollars or pesos.

6. The station should accommodate a bus turnaround.

Building on the findings of this study, SANDAG staff prepared a conceptual transit center proposal to serve this POE.

Staff has estimated that a two-acre site would accommodate two bays for one BRT route, two bays for one local bus route, two taxi stacks, two jitney stacks, passenger drop off/pick up, and potential space for long haul transit operators. Scenarios B and C show potential locations for the transit center pending additional planning and design for POE pedestrian inspections (i.e. if pedestrian inspections were to take place in the eastern side of the POE, then a two-acre parcel as shown in Scenario C would be most appropriate for the transit center).

Caltrans will evaluate the footprint of the conceptual transit center in the Tier II EIR/EIS for SR 11 and the Otay Mesa East POE.

SANDAG staff will continue to collaborate with stakeholders on both sides of the border to ensure transit and pedestrian access is properly considered for the future Otay Mesa East-Otay II POE.

**NEW ACTION** Collaborate with the San Diego County Regional Airport Authority in the upcoming market demand study of a cross-border terminal connection between Otay Mesa and Tijuana International Airport toward its possible implementation.

In January 2007, the San Diego County Regional Airport Authority evaluated feasibility issues related to a cross-border terminal between the United States and Tijuana International Airport. In addition, in May 2008, the Airport Authority completed a market demand study of the cross-border terminal to evaluate existing demand and capacity at Tijuana International Airport (TIJ), review data on existing U.S. passengers that travel from the Tijuana Airport, conduct a survey of San Diego residents that may use the Tijuana Airport if a convenient cross-border connection existed, and develop projections of expected passenger growth at the Tijuana Airport.

The San Diego County Regional Airport Authority Board decided not to dedicate additional funds to further study the crossborder terminal but included it in the Regional Airport Strategic Plan.

In 2008, in an effort to advance the San Diego-Tijuana Airport Crossborder Facility (CBF), a private investment group, the Otay-Tijuana Venture, LLC, purchased 52 acres of undeveloped industrial land in Otay Mesa to develop the U.S. side of the crossborder airport terminal project. Its intent is to build a full-service crossborder passenger facility. The proposed San Diego-Tijuana CBF project includes the construction and operation of the CBF and an above-grade pedestrian bridge linking border facilities in the United States with a commercial passenger airport terminal at TIJ.

The CBF would enable ticketed airline passengers to travel between Mexico’s TIJ and San Diego, California, via an enclosed, elevated pedestrian bridge. The CBF will consist of a main building on the U.S. side of the border housing U.S. CBP inspection facilities along with shops and services to accommodate travelers; an approximately 525-foot pedestrian bridge from the main building on the U.S. side connecting into TIJ’s
passenger terminal on the Mexican side; and parking facilities and areas for car rentals and potentially bus service on the U.S. side. The CBF is expected to serve 2 million passengers annually, a number that is forecasted to increase to 4.9 million by 2030.

The following summarizes important milestones:

• Approval of the Presidential Permit from the U.S. DOS was granted on August 4, 2010.

• The City of San Diego City Council approved this project on January 10, 2012.

• The project developer (Otay-Tijuana Venture, LLC.) anticipates that the CBF Phase 1 program will be under construction in 2012 with an anticipated opening in late 2013.

ACTION Implement the Advanced Passenger Information System (APIS) for crossborder bus operators as a pilot program at the San Diego-Tijuana land POEs and evaluate the system's effectiveness.

In early 2005, U.S. CBP increased the percentage of crossborder travelers that were fully identified when entering the United States through land POEs, which resulted in longer wait times. People traveling on buses must descend from the bus, proceed to the pedestrian inspection facilities, and then re-board the bus. Reportedly, travelers crossing the border by bus have experienced waits of up to six hours.

To address this issue, U.S. CBP and the Secretariat of Tourism of Baja California agreed to work jointly with local bus operators to find a mechanism that could reduce the border waits. Since late 2005, an Advanced Passenger Information System (APIS) has been in place for commercial airline and vessel operators.

APIS provides U.S. CBP with electronic pre-arrival and departure manifest data on all passengers and crew members, which results in enhanced border security. An advanced manifest is an electronic file that registers traveler’s information, such as name, citizenship, date of birth and travel document, which is submitted to U.S. CBP through an on-line transmission system.

Following this model and after cancelling a pilot implementation in December 2006, U.S. CBP has indicated the agency will consider developing a pilot project. No start date has been given yet.

ECONOMIC DEVELOPMENT ACTIONS

ISSUE PROMOTE CREATION OR EXPANSION OF COMMON EMPLOYMENT CLUSTERS ON BOTH SIDES OF THE BORDER AND ADDRESS FUTURE INDUSTRIAL LAND USE SUPPLY AND DEMAND


The 2007 San Diego REPS identifies demographic and economic challenges facing the San Diego region and promotes a region-wide strategy to meet these challenges and improve the competitiveness of our local economy. The strategic goals identified in the 2007 REPS include: housing affordability; labor force preparation; investment in goods movement, energy, and water infrastructure; economic monitoring; and financial
competitiveness. In addition to the reservation of prime employment land for industrial purposes, these regional issues mirror the issues identified in the Otay Mesa-Mesa de Otay Binational Corridor Strategic Plan, including housing supply and affordability; transportation infrastructure, such as State Route 905 and the proposed Otay Mesa East POE and connecting roads; availability of land for non-retail employment; and protection of existing industrial sites. On March 28, 2008, the SANDAG Board of Directors accepted the REPS as an element of the Regional Comprehensive Plan.

The REPS’ Strategic Goal 4 called for reserving prime employment land (existing and vacant) for light industrial and research and development uses and to establish a redevelopment process that would renew and retain existing industrial lands for similar uses in the future.

One of the key recommended actions was to update the Employment Lands Inventory and request that all jurisdictions keep the on-line inventory up-to-date to maintain timely and accurate data on land availability. The previous update was in the year 2000.

The 2008-09 Employment and Residential Land Inventory Task Force completed the inventory of available land, including a qualitative assessment of its availability and a market analysis to assess the adequacy of the supply.

In September 2009, SANDAG and the San Diego Regional Economic Development Corporation completed the San Diego Region 2009 Employment and Residential Lands Inventory & Market Analysis report. In November 2009, SANDAG updated the Regional Economic Development Information (REDI) system, an internet-based mapping, analysis, and reporting tool to keep the inventory up to date and provide broad public access to it.

The purpose of compiling the land-based inventory databases is to help address concerns expressed by land brokers and developers, as well as businesses in our high-technology industry clusters, about the increasing costs, rapid absorption, and pressure to convert existing “industrial” land over to a residential or commercial use. The region has a limited supply of these “prime” industrial sites. In addition, these industrial sites are where a significant portion of our emerging growth high-technology companies are clustered, and these companies and sites provide the best opportunity for future economic growth and expansion.

The report highlighted the following significant characteristics for the Otay Mesa study area. Nearly 60 percent of the region’s Gross Developable Employment Land is located in five planning Areas. Three of those are located in the Otay Mesa study area, which include Otay (2,201 Acres or 22%), Otay Mesa (1,343 Acres or 13%), and Chula Vista (811 Acres or 8.1%).

In addition, of the 10,000 gross developable acres, 20 percent (2,040 acres) are immediately available for development (can be developed within one year). More than 36 percent of these immediately available acres are located in the planning areas of: Otay (391 acres or 19.2%) and Otay Mesa (343 acres or 16.8%).

The City of San Diego has 690 acres of immediately available employment land. Fifty percent of these acres are in Otay Mesa (343 acres) while more than 99 percent of the immediately available employment land (391 acres) in the unincorporated County is in the Otay Planning Area.
EARLY ACTION  Within the framework of San Diego Dialogue’s Crossborder Innovation and Competitiveness Initiative, begin the implementation of selected recommendations from the Borderless Innovation study outlined below:

Initiate a crossborder program to foster scientific and technology relationships, awareness of research, and commercialization of discoveries in the life sciences between the San Diego-Baja California region and other regions in Mexico.

In December 2006, San Diego Dialogue launched a binational project, the Life Sciences Gateway Initiative, which sought to forge binational relationships among researchers, scientists and investors for establishing crossborder programs in the life sciences. Partners include Mexican academic institutes with advanced life science facilities from the regions of Guanajuato, Jalisco, Morelos, Nuevo León, and Baja California. The initiative involved a series of roundtables and seminars among leaders from Mexico and California focused on establishing strategic partnerships in clinical research, manufacturing and venture investing in biomedicine and biotechnology.

San Diego Dialogue and Global CONNECT assessed the development of a Cleantech Industry Cluster in the San Diego Region. Cleantech industries produce a wide range of products and services that optimize the use of natural resources, offering a cleaner or less wasteful alternative to traditional products and services.

In June 2007, Global CONNECT completed a study titled Cleantech Industry in San Diego – An Assessment of Assets and Capabilities for the City of San Diego and the San Diego Regional Economic Development Corporation. With several leading Cleantech companies having a presence on both sides of the border, the study acknowledged that the San Diego – Baja California border region offers an ideal location that no other emerging Cleantech hub can offer: close proximity of high technology R&D and competitively priced advanced manufacturing capabilities. Baja California also offers an option for firms that may find the amount of land available for large scale manufacturing limited in San Diego or prohibitively priced.

In 2007, the San Diego Dialogue produced the first briefing paper titled Borderless Biotech & Mexico’s Emerging Life Sciences Industry, which outlines progress on this collaborative effort. The report describes the San Diego border region as a portal for borderless biotech due to its strategic location along the U.S.-Mexico border and the unique opportunity to work with Mexico’s emerging life science industry. Merck & Co., and its subsidiary Merck, Sharp, & Dohme - México, sponsored a multiyear initiative to link regions in Mexico with strengths in the life sciences with San Diego. This initiative began in 2007 and was completed in 2010.

In 2008, stakeholders from the Mexican regions of Cuernavaca, Guadalajara, Guanajuato, and Monterrey began the process of formally establishing the Mexican Life Sciences Alliance to collaboratively promote their capabilities internationally, including a showing at the San Diego BIO tradeshow in June 2008. They also agreed to co-develop a proposal to the Inter-American Development Bank (IDB). Under a three-year grant, IDB funding would be used to support Alliance activities to build commercialization infrastructure (e.g., training and policies) within participating research institutions, business support services for new life science startup companies, and international outreach for research and business development opportunities which include linkages with San Diego’s life sciences community. Under the proposal UCSD
The Mexican Life Sciences Alliance became formalized as a Mexican civil association (asociación civil) in 2009, and submitted its proposal to the IDB shortly thereafter. Due to difficulties securing matching funds required by the IDB during the economic downturn, the Alliance’s proposal was put on hold. Member regions are continuing to pursue development strategies with state and local sources of support.

Beginning in fall 2009, San Diego Dialogue and Global CONNECT launched a process of providing advice and input to new Mexican life science start-up firms. Among the five companies accepted into the program, two have offices in Otay Mesa. These were referred to CONNECT for participation in its Springboard coaching and mentoring program, and by June 2011, three of the five companies successfully completed the program. San Diego Dialogue and Global CONNECT also held additional workshops in Mexico and San Diego. An April 2010 workshop focused on the different kinds of capital available to life science companies. The final workshop, held in September 2010 in Mexico City in partnership with Angel Ventures Mexico, provided an overview of angel investing and how to organize angel investor networks in Mexico. The latter workshop included participation by the San Diego Chapter of the Tech Coast Angels.

San Diego Dialogue and Global CONNECT continue to have ongoing relationships with regions in Mexico. Beginning in September 2010 and running through February 2011, both organizations partnered with Mexico’s Technology Business Accelerator (TechBA) office in Phoenix, Arizona, to provide coaching and mentoring services to high technology companies that wish to further develop their business networks in the San Diego region. Of the ten companies in the candidate pool, four presented to intake panels in San Diego. Following the intake panels, two companies were selected for additional mentoring to refine their market entry strategy. Having completed the program, both companies are currently focused on lining up the resources needed for execution. Global CONNECT and the mentors remain in contact with the companies to provide referrals and introductions on an ongoing basis.

**ACTION Collaborate with the City of San Diego in the Otay Mesa Community Plan update to evaluate future land demand for high value industrial clusters, considering the unique characteristics of the evolving crossborder economy and competing demand for vacant land in the San Diego region**

The City of San Diego held workshops with the Planning Commission to discuss issues related to the Otay Mesa Community Plan update. In January 2007, the focus of the workshop was on industrial lands supply, demand, and absorption for the Otay Mesa community planning area, as well as the implications of the Economic Prosperity Element policies of the Draft General Plan.

SANDAG continues to collaborate with the City of San Diego in its Otay Mesa Community Plan update. The Draft EIR is anticipated to be released for public review in fall 2012. Most of the technical studies have been produced or updated, and the City is completing the Traffic Impact Study (TIS) to provide input for the Noise and Air Quality studies.
EARLY ACTION  Establish the Crossborder Innovation and Competitiveness Center.

The Crossborder Innovation and Competitiveness Center concept remains on hold. However, there are other ongoing activities between the University of California at San Diego (UCSD) and the Scientific Research and Post Graduate Education Center in Ensenada (CICESE) that hold promise for enhancing the competitiveness of the crossborder region. These activities include UCSD’s California Institute for Telecommunications and Information Technology’s (Calit2) collaboration with CICESE in areas such as high bandwidth communications under the LambdaGrid project and on metagenomic studies of marine life via the CAMERA project. These projects show the development of future enabling technologies in IT and the life sciences, which are important industries for both San Diego and Baja California.

NEW ACTION  Explore the consolidation of employment clusters through the establishment of business service centers such as science and technology parks.

The City of Tijuana, Tecate, and Playas de Rosarito Draft Metropolitan Strategic Plan proposes to identify and establish industrial clusters zones.

IMPlan will develop a clusters study with the available diagnostic information and the necessary studies. These zones would be mapped with their appropriate land use designations.

HOUSING ACTIONS

ISSUE  ADDRESS FUTURE HOUSING SUPPLY AND DEMAND, HOUSING AFFORDABILITY ISSUES AND OPPORTUNITIES, AND INFRASTRUCTURE NEEDS OF EXISTING AND FUTURE RESIDENTIAL LAND USE

NEW ACTION  Promote comprehensive housing developments within Tijuana portion of the study area, which would include providing space for recreational activities, sports, green areas, and public facilities and services to improve the quality of life.

IMPlan, the State of Baja California, and local developers continue to collaborate on developing the area of Valle de las Palmas in southeast Tijuana. This development was designed to meet growing housing demand in Tijuana in a sustainable manner. Smart Growth concepts are being incorporated into this development.

The focus of the sustainability of this development revolves around three points: social equity, ecological balance, and economic development. The social development of the community will involve strong community leadership, community involvement of local residents, and good relations between neighbors. The ecological balance of Valle de las Palmas involves concentrating the housing and commercial activities in one area of the development, while maintaining another part for the natural environment, and promoting renewable energy. The economic development of Valle de las Palmas is designed to promote a high-technology industrial park that caters to such industries as aerospace, automotive, solar energy, information technology, and biotechnology.
More recently, the Smart Growth concept is being addressed in the City of Tijuana, Tecate and Playas de Rosarito Draft Metropolitan Strategic Plan. IMPlan currently has two main leading projects: Valle San Pedro and Ciudad Natura. Both projects are being designed according to Integral Sustainable Urban Developments model (or DUIS). DUIS refers to developments that comply with the territorial ordinance of the State and Municipalities; the efficient supply of public services; economic growth of the region; integration with the current urban center; and mitigation of damages to the environment.

Valle San Pedro is a project proposed by the Mexican Federal Government, the State of Baja California, and Urbi Casas (land developer and homebuilder); IMPlan is working on the planning methodology to enable the system to adopt DUIS. Valle San Pedro has been certified as the first DUIS in Mexico and was presented at the 2010 Shanghai World Expo. It is projected that the community will grow to over a million residents over the next 20 years.

NEW ACTION Collaborate with IMPlan and the Urban Land Institute (ULI) on sharing resources, planning techniques, and strategies as they relate to Smart Growth planning.

The 2009 PDUCPT promotes smart growth practices such as land use densification and infill development of urban zones as a strategy to avoid sprawl and to concentrate access to urban services.

The planned land use includes a system of territorial units that would include one central urban area and the identification of 24 sub-urban centers. A hierarchical transportation network of commercial corridors and services also will be developed. The formation of districts and neighborhoods will be developed at a different scale through future specific plans.

The program identifies where planned land use areas would increase density, mixed used, and public infrastructure. In addition, the program incorporates recent Secretariat of Social Development (SEDESOL) regulations that require that communities become more self-sufficient in order to reduce the use of automobiles.

To advance these goals, the City of Tijuana has established a series of plans that include improving the transportation network and implementation of a mass transit system.

Additional progress towards the implementation of this strategy was the 2008 SANDAG binational event, titled “Smart Growth and Sustainability on the Border: Opportunities for Collaboration with Strategic Partners,” conducted with support from the Consulate General of Mexico in San Diego, the City of Tijuana, IMPlan, and the Urban Land Institute (ULI).

This event focused on regional sustainable planning in Tijuana, the Smart Growth experience in the San Diego region, as well as emerging issues and next steps in the San Diego region.
EARLY ACTION  Collaborate with the City of San Diego in the Otay Mesa Community Plan update to evaluate the potential to convert industrial land use to residential and its regional implications.

SANDAG continues to collaborate with the City of San Diego in its Otay Mesa Community Plan update. The Draft EIR is anticipated to be released for public review in fall 2012. Most of the technical studies have been produced or updated, and the City is completing the Traffic Impact Study (TIS) to provide input for the Noise and Air Quality studies.

ENVIRONMENTAL ACTIONS

ISSUE ADDRESS CONSERVATION OF SENSITIVE HABITAT AND URBAN RIVER CORRIDORS (E.G., ALAMAR RIVER AND OTAY RIVER WATERSHED) AND WATER QUALITY

EARLY ACTION  Support plans for habitat restoration and rehabilitation along the Alamar River riparian corridor.

In March 2008, the City of Tijuana allocated funds to IMPlan for the Phase I planning and construction of the Alamar River Expressway. A portion of these funds will be used to canalize a section of the Alamar River with cement. Previous plans called for canalizing the Alamar River with impervious materials that would allow filtration and recharging of the aquifer, as well as increasing the supply of potable water. However, this modification is proposed to safely channel water to the Tijuana River, which also would protect homes, infrastructure, and property.

The canalizing of the Alamar River would be approximately three kilometers which is the same length as the first phase of construction of the Alamar River Expressway. The new canal would begin at the area known as the “Bocina,” where the existing cement channel linking the Alamar River to the Tijuana River channel ends, and extend toward the intersection of Manuel Clouthier Boulevard. The Alamar River Expressway will eventually extend east, linking to roads connecting to the future Mesa de Otay II POE. Future channeling work extending east along the Alamar River would be more consistent with the original plans to use impervious materials.

In 2010, SDUE allocated funds for the channelization of the Alamar River. This would protect nearby infrastructure, homes, and businesses from possible flooding and support development of future infrastructure around the River such as the planned Alamar Expressway (Vía Rápida) that would connect Tijuana’s Rio Zone with the future Otay Mesa East POE. This project is currently under construction.

Alamar River Upstream

The Tecate River in Tecate, Mexico, begins as Cottonwood Creek in the U.S. and then is called the Alamar River when it enters eastern Tijuana. It has been severely impacted both on the floodplain and within the riverbed. The Tecate River was once a reliable source of clean water that over the years has been contaminated by rapid unplanned residential and industrial development. This rapid growth has resulted in significant negative ecological and social impacts, including: destruction of sensitive habitat areas; pollution of soil, air, and waterways; overdraft of the aquifer; and extensive erosion. The effects of this pollution are present in the Alamar River downstream and the Tijuana River Estuary where water from this river enters and eventually flows in the Pacific Ocean.

Fundación La Puerta (Fundación), in partnership with Rancho La Puerta resort, has actively supported environmental, social and educational projects, including the
preservation of endangered native plant and wildlife habitat within Tecate and the surrounding border region.

In spring 2008, the State Commission for Public Services in Tecate (CESPTE), La Puerta Foundation (FLP), and the Border Environmental Cooperation Commission (BECC) signed a collaborative agreement to construct “Wetlands for the Restoration of Tecate River” with a total investment of nearly $147,000 (equivalent to $1.5 million pesos).

These wetlands were restored in early 2009 and will more effectively cleanse the river’s water, create areas for groundwater recharge, help reduce floods, and provide refuge and food for resident and migratory birds. The project covers 5.2 acres (2.1 hectares) of land adjacent to the river with plant species that help improve the quality of the water, most of which comes from the Tecate wastewater treatment plant and the Tecate brewery. This project has the potential to improve water quality in the portion of the Alamar River located in the Strategic Plan’s study area. It also could serve as a prototype for habitat restoration planned for that area.

In addition, the Fundación spearheaded the Tecate River Park Project, which includes the creation of community parks, recreational areas, and preservation of wetlands and habitat for a cleaner river.

This project represents only about one-tenth of all the restored wetlands that Fundación and CESPTE envision for the Tecate River. Future funding is being explored by these organizations.

**ISSUE COLLABORATE WITH THE U.S. EPA IN THE BORDER 2012 PROGRAM, THE BINATIONAL AIR QUALITY TASK FORCE, AND THE SAN DIEGO COUNTY APCD IN BINATIONAL CLEAN AIR EFFORTS**

**EARLY ACTION** Support the San Diego APCD cross-border clean air demonstration projects.

In 2005, the Air Pollution Control District (APCD) received a grant from the U.S. Environmental Protection Agency (EPA) to fund the San Diego/Tijuana Clean Diesel Demonstration Project, with the objective of mitigating the air quality impact of increased cross-border, heavy-duty diesel truck traffic. This project was completed in early 2008 and retrofitted 50 cross-border trucks with Diesel Oxidation Catalysts (DOCs) plus a Spiracle crankcase filtration system.

In 2008, the APCD received another grant from the U.S. EPA to fund the second phase of the San Diego/ Tijuana Clean Diesel Demonstration Project.

In 2009, the second phase of the project was completed. Ten border drayage trucks were retrofitted with Diesel Particulate Filters (DPF). DPFs reduce particulate matter emissions by 85 percent.

In 2009, the APCD also applied for a grant from the EPA’s National Clean Diesel Funding Assistance Program to retrofit crossborder drayage trucks. However, funding was not awarded for this project.
Comprehensive Road Rehabilitation Project in the City of Tijuana (Programa Integral de Repavimentación)

According to the Border Environment Cooperation Commission (BECC), Tijuana’s air pollution problems are primarily caused by vehicular emissions and suspended dust particles. As part of the Border 2012 Program, EPA and SEMARNAT performed an emissions study of the border region, which ranked the Tijuana-San Diego metropolitan area air basin as first in the U.S.-Mexico border region in terms of pollutant emissions derived from mobile and area sources, including: nitrogen oxides (NOx), sulphur dioxide (SO), carbon monoxide (CO), and fugitive dust (PM10 and PM2.5).

Based on this information the City of Tijuana recognized the need to tackle these air pollution problems through improving its infrastructure. Its primary roadway system showed deterioration from potholes, erosion, shifting asphalt, and leveling and runoff problems caused by the uneven terrain of the city. Most roadways were over 30 years of age and had exceeded the average 8-14 year life cycle for asphalt pavements. Historically, the City had allocated a significant portion of its public works budget (US $750,000 on average) for the rehabilitation and maintenance of its principal roadways, particularly for the repair of potholes. However, despite this maintenance, the roadways continued to show substandard travel conditions, due to aging, weather, and high traffic volumes.

After analyzing various options for implementing a comprehensive solution to this problem, the City determined that the most viable long-term solution was the rehabilitation of the primary roadway system with a concrete overlay known as “white topping.” Cement concrete has a longer useful life and lower maintenance requirements compared to asphalt. Consequently, asphalt could be several times more expensive than white topping over the project’s life cycle.

In 2009, the City of Tijuana applied for a North American Development Bank (NADB) loan of US $109.8 million certified by BECC to complete construction of the Comprehensive Road Rehabilitation Project in Tijuana, Baja California. This represented 85 percent of the financing and of the total project cost of US$125.46 million.

The loan financing was provided under an innovative public-private financing structure designed to finance the project with debt for a term of 20 years. Under this arrangement, the private contractor, Cementos Mexicanos (Cemex), entered a construction and financing agreement with the City of Tijuana, which was converted into a long-term debt obligation between the City and NADB.

The project consisted of the rehabilitation of 160 km (100 mi) of primary roadways and an area of 4.3 million square meters (46.3 million square feet), and also included the rehabilitation of storm drains, construction or reconstruction of curbs and sidewalks, and the restoration of landscaping adjacent to the roadways.

The rehabilitation is anticipated to improve air quality in the region by facilitating traffic flows through improved road conditions and fewer street closures for repairs, eliminating the asphalt debris, and reducing the need for constant pothole repair using hot asphalt mix. The use of white topping instead of asphalt will also mitigate the heat island effect, as well as increase the efficiency of street lighting.
Greenhouse Gas (GHG) Emissions

The study titled GHG Emissions due to Vehicle Delays at the San Diego – Baja California Border Crossings addresses the public health concerns related to GHGs in the context of global climate change. It includes a study of estimated GHG emissions due to northbound vehicle delays at the three San Diego County-Baja California border crossings (located in San Ysidro, Otay Mesa, and Tecate) in FY 2009.

Estimations were based on emission rates derived from EPA’s latest mobile vehicle emission simulator model, MOVES2010. FY 2009 emissions were approximately 80,000 metric tons (MT) of CO2Eq for the three border crossings combined, comprising 0.5 percent of total on-road transportation emissions in San Diego County based on the latest 2006 inventory. The study showed that Otay Mesa contributed 30 percent of total emissions and heavy-duty diesel trucks at the Otay Mesa commercial crossing contributed the most on a per vehicle basis (15.3 kg CO2Eq/crossing).

The paper includes recommendations to reduce GHG emissions for the border region including increasing SENTRI participation, decreasing border delay times, and creating a border crossing process that allows drivers to turn off their engines while waiting in line.

**EARLY ACTION**

Link the creation of conservation areas to the objectives and goals established in “A Binational Vision for the Tijuana River Watershed” and the Border 2012 programs.

The California Biodiversity Council (CBC) is a statewide council established to design a strategy to preserve biological diversity and coordinate implementation of this strategy through regional and local institutions. The Council holds tri-annual meetings around the state to improve coordination among state and federal land management agencies and local interests.

In 2006, the CBC’s “Biodiversity along the Border” Committee created two working groups: the Tijuana Estuary Issues Working Group and the Las Californias Working Group. The Tijuana Estuary Issues Working Group focused on conservation easements and issues related to the Tijuana River Valley management, while the Las Californias Working Group focus was on exploring the implementation of actions outlined in the Las Californias Binational Conservation Initiative report.

At the CBC’s October 2007 meeting, the Las Californias Working Group presented the following recommendations: (1) create a Las Californias Binational Working Group to continue to collaborate on binational conservation between Mexico and the U.S. through the leadership of Mexico’s Secretariat for the Environment and Natural Resources (SEMARNAT) and the California Resources Agency; (2) seek funding sources for a community sewer system, sedimentation basins, and trash management to enhance the water quality of the Tijuana Estuary and its watershed; and (3) explore developing a tire recycling plant in the San Diego region. The CBC accepted the report, and directed the Group to follow up on these recommendations and continue meeting through the Las Californias Binational Working Group, as the Tijuana River Estuary Issues Working Group’s activities were scheduled to sunset after the October 2007 CBC meeting.

The Las Californias Binational Working Group last met in 2008. Due to a lack of funding this group has not convened a meeting since then. However, parallel discussions and efforts continue on both sides of the border.
The Nature Conservancy

In 2009, Terra Peninsular and the owners of the 4450-acre Rancho Rodeo del Rey completed the conservation management plan for the ranch, which established four management areas: limited development, transition, cushioning and nucleus. The majority of the property is devoted to conservation, with compatible cattle ranching maintained consistent with the ranch’s history. The ranch is a significant addition to the adjacent 12,500-acre Sierra Juarez forest decree reserve. Also, that same year, TNC acquired the 1,080-acre Jacumba-Eade property in eastern San Diego County, which is part of the proposed Park-to-Parque habitat linkage that will connect San Diego County parklands to open space/parklands in Baja California. The property is anticipated to be transitioned to the California State Park System as part of the Anza-Borrego State Park.

TNC and a consultant (Conservation Biology Institute, CBI) prepared a draft Conceptual Area Acquisition Plan (CAAP) for the Las Californias (Figure 9) area to identify key potential acquisitions, focusing in San Diego County, but including areas within Baja California. In 2011, TNC, Terra Peninsular and CBI also prepared a Conservation Plan for the Sierra Juarez as part of a submittal to CONANP (Comisión Nacional de Areas Naturales Protegidas) that would expand the protected forest decree area of the Sierra Juarez. A similar document was prepared for the Sierra San Pedro Mártir and a new proposal was prepared to establish Protected Natural Area status for Bahía San Quintín.

In February of 2012, TNC and its partners announced the purchase of a 563-acre parcel in East County that helps solidify conservation landholdings near SR 94. This property is located southeast of the community of Jamul and is known as Lyons Vista. It had been subdivided for rural residential development. The deal transferred ownership to the state Department of Fish and Game to expand its adjacent Hollenbeck Canyon Wildlife Area. This acquisition supports TNC’s Las Californias Binational Conservation Initiative, by improving habitat connections between San Diego County and Baja California.

Parallel to theses conservation efforts, in 2009-2010 TNC’s consultants prepared an assessment, “Maintaining a Landscape Linkage for Peninsular Bighorn Sheep,” that identified key research and potential conservation recommendations for this species along the San Diego County-Baja California transborder area. Following-up on those recommendations, in 2012, TNC contracted with the University of California, Davis’s Wildlife Health Center (WHC) to capture and track mountain lions in eastern San Diego County along the transborder area. Also in 2012, TNC expects to contract with the San Diego Zoo’s Institute for Conservation Research (ICR) to survey and photo-monitor bighorn sheep and mountain lions from the border to the Sierra Juarez and to collect non-invasive samples of genetic material to assess the level of breeding among California and Baja California populations of bighorn sheep (and potentially also of mountain lions). Future studies and conservation planning are expected to be initiated in fiscal year 2014.
In early 2009, the State of Baja California allocated funds to its State Commission for Public Works in Tijuana (CESPT) for a zero sewer discharge program that seeks to ultimately eliminate the City’s sewer discharge into the Tijuana River Watershed and the Pacific Ocean. Funds will be used to provide sewer connections to many neighborhoods in Tijuana, and include monitoring and inspections. The secondary treated sewage would be recycled and sent through purple pipes to irrigate city parks and green spaces. This program marks a significant milestone in reducing the flow of sewage across the border. One of the first neighborhoods to receive sewer connections was the neighborhood of San Bernardo located in and around Las Laureles Canyon. Currently, sewage from San Bernardo discharges to the Los Laureles canyon on the Mexican side, which then flows across to Goat Canyon on the U.S. side to the Tijuana River Estuary, eventually draining into the Pacific Ocean. This new infrastructure would essentially stop the flow of sewage result in improved water quality in the Tijuana River Estuary.

U.S. Department of Homeland Security

The Secure Fence Act of 2006 passed by Congress, authorized U.S. CBP to build fences and access roads along 670 miles of the U.S.-Mexico border. On April 1, 2008, then DHS Secretary Michael Chertoff waived certain environmental statutes, as authorized by the Illegal Immigration Reform and Immigrant Responsibility Act, to gain expedited access to the U.S. Department of Interior (DOI)-managed lands and other lands for these border security projects. At that time, Secretary Chertoff reiterated his department’s firm commitment to environmental stewardship through the use of best management practices and by providing funding for mitigation measures.

On January 14, 2009, DHS signed a Memorandum of Agreement with the DOI regarding environmental stewardship measures related to the construction of border security infrastructure. As part of this agreement, $50 million has been set aside for environmental and regulatory mitigation in the FY 2009 Border Security, Fencing, Infrastructure and Technology appropriation. DOI manages public lands along over 900 miles of the southwestern border. Its biologists and land managers have examined the expected impacts from these projects and proposed a range of mitigation measures.

For the California border area, two DOI agencies, Bureau of Land Management (BLM) and Fish and Wildlife Service (FWS), collaborated with DHS to identify project impacts and develop and implement mitigation measures. The measures include studies to understand border impacts on wildlife and land acquisition to offset permanent and temporary losses of sensitive species and their habitats from construction of border infrastructure. In addition, The Nature Conservancy (TNC) has been actively involved in discussions with the BLM on identifying priority conservation areas that would foster Las Californias crossborder habitat linkages.
The collaboration has funded a study of Peninsular bighorn sheep (Ovis canadensis) movements near the San Diego/Imperial county line adjacent to the international border. BLM and FWS also have identified appropriate lands for acquisition with habitats for affected federally listed threatened and endangered species including coastal California gnatcatcher, quino checkerspot butterfly, and arroyo toad.

DHS has provided $8 million toward acquisition. Currently a conservation “gap”, the targeted acquisition is approximately 1,900 acres on which The Nature Conservancy has a purchase option. Upon purchase, the land would be added to the Refuge to be managed in perpetuity for its high biological resource values, and will complete a large core habitat area and provide vital linkages between current Refuge lands and adjacent conserved lands managed by other Federal, State, and local agencies, and private organizations in the vicinity of the international border. The acquisition will further strengthen the northwestern border of the Las Californias Binational Conservation Initiative at the interface of urbanized metropolitan San Diego County with natural landscapes.
During coastal storm events, the effect of raw sewage, sediment, and trash generated upstream, such as in the Tijuana community of Los Laureles Canyon, impacts Tijuana and San Diego beach water quality, coastal and ocean resources.

Agencies and Non-Governmental Organizations (NGOs) both from the U.S. and Mexico continue to seek solutions to the problems that plague the Los Laureles Canyon and the Tijuana River Estuary.

In 2009, the TRNERR secured a grant from the United States Environmental Protection Agency (U.S. EPA) to, among other tasks, hire a full-time Watershed Coordinator. The Watershed Coordinator’s role is to seek to establish and maintain regular communication and cooperation between the Reserve and other programs, organizations, and government entities whose actions influence the long-term health of the Reserve.

The goal of this three-year TRNERR/U.S.E.P.A. project is to further develop programs aimed at restoring and protecting the water quality, habitat, and environment of the Tijuana River Watershed. The Watershed Coordinator is conducting on-the-ground watershed improvement projects in Mexico and the U.S. and spearheading larger, longer-term efforts to expand the ability of regional agencies to manage sediment in coastal ecosystems.
The Watershed Coordinator is promoting the following projects:

- Control erosion in Los Laureles Canyon and promote work in that area as model for other locations
- Prevent sediment from entering the Reserve
- Secure conservation easements in urban canyons in Mexico
- Tire reutilization designs and construction
- Trash consolidation and tire recycling

In Tijuana, the TRNERR along with support from Mexico’s SEMARNAT have identified the Los Laureles sub-watershed to receive restoration to its riverbed, re-vegetation, and conservation of land. IMPlan is facilitating direct communication with property owners of designated conservation lands in Los Laureles to set aside land.

Since December of 2009, large quantities of sediment have been controlled as part of the “Border 2012 Park” in Tijuana. This first of its kind project features engineered and patented retaining walls made from recycled tires. Fifteen thousand used tires has been used as part of the effort to reduce the flow of waste tires into the Tijuana River Estuary, to help harvesting water for restored slopes, and as one of the steps to promote new public policies in Mexico.

In addition, an engineered solution to produce high quality pervious pavers has been put to the test last spring. A collaborative effort between the Watershed Coordination, the UCSD Jacobs School of Engineering and a group of residents from Los Laureles canyon; the project will ensure a daily production of standardized commercial quality pavers.

After years of negotiation with the City of Tijuana, the construction of sediment basins in Los Laureles canyon has been initiated. The first project started last fall but additional funding is needed to complete other important components. Their piece of infrastructure is a key component on the plan to reduce sediment flows at the source.

The Watershed Coordinator obtained permits from Mexico’s SEMARNAT to import approximately 20,000 native plants to Tijuana. Some of these plants will be used to restore reconstructed slopes in Los Laureles, and the rest would become part of the first ever “Native Plant Nursery” in Tijuana. This one-acre parcel located at the municipal nursery has been granted to the watershed coordination group.

In 2009, the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center initiated the San Diego Coastal Storms Real Time, Remote Erosion Monitoring and Outreach Pilot for the Los Laureles area. This project proposes to combine real-time sedimentation monitoring technology and educational outreach efforts in Los Laureles Canyon to address this binational pollution problem in the Tijuana River Watershed.

This project’s goal is to quantify data on upstream sedimentation/trash generation and provide outreach efforts that integrate members of the Los Laureles community directly in the monitoring, training, and instituting a local alert system. In this manner, technology efforts will provide researchers and community stakeholders on either side of the U.S.-Mexico border a mechanism to evaluate and implement best management practices to reduce risk to human health and the environment.

In support of these projects, SEMARNAT has provided the funding to hire approximately 450 temporary workers in three different seasons, each one lasting three months. This approach helps to generate local employment, involves local residents in the implementation of the Watershed
Coordination projects, and carries an environmental education component.

Project benefits include:

- Implementation of an advanced warning system and emergency evacuation plan that involves local community members will also assist in ultimately saving lives during coastal storm events.
- More accurate alert systems to warn the public of imminent health hazards.
- May be applied to Northwestern Mexico and Southern California where similar steep canyons and low-income communities exist.

Real time data and other valuable information can be found at the project Web site at www.sdcoastalstorms.org.

Trash Tracking

This research project is an important and necessary first step in the process of implementing new waste disposal policies in both Tijuana, Mexico and the United States. In order to strengthen anti-dumping laws and enforcement in Mexico and prevent waste-export from the U.S., a scientific record of the refuse problem must first be produced. This research project aims to track and record the flow point-source waste debris in the Tijuana River Valley from the Los Laureles Canyon to the TRNERR. Dump-site debris will be categorized, the sites will be classified, and all data collected will be recorded into a database. Research results will be mapped using geographic information systems and will become foundational evidence for legislative and regulatory change. By project’s end, stakeholders will gain insight into storm-induced pollution flows, international resource management, and cross-border waste management.

Additional funding will be sought to carry out specific activities and to assist with key planning efforts in the watershed.

Legislation

In 2009, SB 167 (Ducheny) was signed by Governor Schwarzenegger. It focuses on reducing the impacts associated with waste tires along the California-Mexico border. It allows state fees collected for tire recycling to be used on collaborative projects in Mexico to keep tires from reentering California’s waste stream.

U.S. EPA

The draft United States - Mexico Environmental Program (Border 2020 Program) Sub-objective 3d proposes to identify and implement every two years at least one project to reduce the level of bacteria, sediment, and/or trash that enters the Tijuana River. Examples of potential projects include demarcation of federal land in floodplains to prevent irregular settlements, establishment of conservation easements, use of sediment control best management practices, and trash cleanup programs.

In addition, Sub-objective 4b proposes to develop a binational website that displays timely information on beach advisories on both sides of the border in the San Diego/Tijuana area, and ensure operation of website through 2020.

NEW ACTION Support APCD efforts to implement the SmartWay Transport project in the San Diego region.

To advance SmartWay Transport goals, EPA conducted a Truck Stop Electrification (TSE) study. The study evaluated TSE services to the international POEs. TSE focuses on services to reduce idling by freight trucks waiting to cross the border. It will be shared with
stakeholders, including SANDAG, to refine the concept and understand opportunities and barriers to implementation.

The study applied its findings to examine how AI/TSE could be implemented at the Otay Mesa-Mesa de Otay POE. According to SANDAG (2006) the average wait time for a truck at the Otay Mesa-Mesa de Otay POE is estimated at two hours. It is calculated that a cargo truck idling for one hour uses one gallon of gas and emits 24.69 lbs. of GHG gases.

After research and discussion with various stakeholders, three viable adaptations of the AI/TSE concept were developed to avoid trucks slowly idling in a queue while they wait to access border crossing facilities:

- **Traffic Controls on Existing Roadways**: This approach uses traffic controls on existing roadways to process truck crossings in “batches.” Traffic signals are used to stop vehicles, which are encouraged or required to turn their engines off, and drivers wait for a period of time while batches of vehicles in front of them cross the border and clear the roadway. This strategy would not include TSE technology.

- **Mandatory AI/TSE Facility**: This approach requires all vehicles accessing a POE to enter a parking area, turn off their engines, and wait for a signal to cross the border via an appointment.

- **Voluntary AI/TSE Facility**: Trucks accessing a POE have the option to enter a parking area with an appointment system, TSE equipment, and amenities, or they can choose to use the traditional (congested) approach to the customs facility. Drivers would pay to use the facility in exchange for reduced fuel costs, a resting environment, use of amenities and possibly (depending on the procedures) a shorter wait time.

The study also focused on how AI/TSE could work at the current Otay Mesa POE and the planned Otay II POE. Based on the characteristics of the location of the POE - congestion, length of wait, land availability, local climate, need for new/upgraded infrastructure, cost, and willingness to pay - the following conclusions were determined about the value of AI/TSE in these locations:

- **Otay Mesa-Mesa de Otay POE**: Due to high population density and expensive land costs in the area, the most effective AI/TSE approach would be a mandatory traffic control approach on the existing roadway, or a voluntary off-site AI/TSE parking area that serves the POE by a designated roadway.

- **East Otay Mesa POE**: since more land is available in the area, a mandatory on-site parking facility would be most effective.

Based on the study’s key findings, EPA made the following recommendations:

**Recommendation 1**: All new POEs should consider strategies for reducing idling through infrastructure and border crossing processes in their planning. The BECC and NADBank should consider an evaluation of AI/TSE approaches as air emissions mitigation strategies. NADBank could leverage AI/TSE facilities through loans for new ports. Decisions not to have anti-idling should be justified by showing that approaches are not viable or that air quality benefits are not sufficient over the life of the facility.

**Recommendation 2**: Existing POEs with congestion issues should evaluate options for retrofitting with anti-idling infrastructure and determine which model (with which adaptations) could work. Anti-idling retrofits
will not be appropriate or feasible for all border crossings.

 Recommendation 3: For the Mexican side of the Otay Mesa border crossing, the U.S. and Mexico should jointly conduct a feasibility study to evaluate and compare the cost and effectiveness for: 1) a mandatory on-road AI approach that uses traffic controls to “batch” trucks through the port using the existing access road and lanes (Strategy A) and 2) a fee-based, voluntary, remote, off-site parking/TSE area that serves the port via a dedicated roadway (Strategy C). The study should involve extensive outreach with stakeholders, especially those in the trucking and shipping sectors to make sure that the strategy is consistent with patterns of drayage logistics at the POE.

 Recommendation 4: For the Mexican side of the Otay II crossing, if congestion is predicted over the life of the facility, the project planning should include an AI/TSE facility that is incorporated into the port infrastructure so that all vehicles accessing the POE would use it (Strategy B). Otay II project planning should analyze options for using a portion of toll fees for the new port to cover the cost of the TSE facility. This facility should be evaluated as a possible staging area for access to the Otay Mesa POE as well, via a dedicated roadway.

Border 2020 Program

The Draft Border 2020: United States–Mexico Environmental Program (Border 2020 Program) is the latest cooperative environmental initiative and builds on previous binational efforts, particularly the Border 2012. The Border 2020 Program was released for public comment in fall of 2011. Policy Objective 1 in the Draft Border 2020 document relates to the previous AI/TSE efforts. By 2020, it proposes to reduce the number of vehicles operating in the border region that do not comply with the respective vehicle emissions standards; to limit the international trade of used vehicles that are not allowed to drive on the country of origin; and reduce vehicle emissions at POEs, through anti-idling and other feasible reduction measures.

Emissions from vehicles are a significant source of air emissions impacting border communities. Under this objective, the U.S. and Mexico seek to develop co-benefits strategies to reduce vehicle emissions (criteria pollutants and GHGs) in the border region, including improved fuels availability, improved engine standards, compliance with respective emissions standards, limiting the exports-imports of used vehicles, vehicle inspection and maintenance efforts, and reduced idling while waiting at POEs.