Otay Mesa – Mesa de Otay
Binational Corridor

Early Action Plan
September 2006
TABLE OF CONTENTS

INTRODUCTION
Foundation of the Otay Mesa-Mesa de Otay Binational Corridor Strategic Plan................................. 1
The Collaboration Process.......................................................................................................................... 1
The Strategic Planning Process and Early Actions.................................................................................. 3
Organization of the Report ........................................................................................................................ 3

ISSUES FOR EVALUATION AND WORK PROGRAMS
Introduction .................................................................................................................................................... 5
The Binational Study Area ........................................................................................................................ 5
Issues Identified ......................................................................................................................................... 5
Interactive Polling ..................................................................................................................................... 7
   Process .................................................................................................................................................. 7
   Results .................................................................................................................................................. 8
Strategic Plan Work Program .................................................................................................................... 8
   Transportation ....................................................................................................................................... 8
   Economic Development ....................................................................................................................... 9
   Housing ............................................................................................................................................... 10
   Environment ........................................................................................................................................ 10

POPULATION, HOUSING, LAND USE, AND EMPLOYMENT
Population ................................................................................................................................................... 11
   Current Population ............................................................................................................................... 11
   Projected 2030 Population .................................................................................................................. 12
Housing .................................................................................................................................................... 12
   Current Housing Units ......................................................................................................................... 13
   Forecasted Housing Units .................................................................................................................... 14
Land Use .................................................................................................................................................. 15
   Current Land Use ................................................................................................................................. 15
   Planned Land Use ................................................................................................................................. 16
   Otay Mesa Community Plan Land Use Alternatives ....................................................................... 19
Employment ............................................................................................................................................ 20
   Current Employment ............................................................................................................................ 20
   Forecasted 2030 Employment ............................................................................................................. 20

INTERREGIONAL TRAVEL
Otay Mesa Port of Entry: Key Findings of Crossborder Travel Surveys.................................................. 21
Conclusions............................................................................................................................................ 24
# TRANSPORTATION

**Introduction** ...............................................................................................................................................25  
**Existing Setting** ..........................................................................................................................................25  
  - Otay Mesa-Mesa de Otay POE ................................................................................................................25  
  - Highways ................................................................................................................................................30  
  - Transit .....................................................................................................................................................31  
  - Airports ...................................................................................................................................................32  
  - Freight Rail .............................................................................................................................................33  
**Future East Otay Mesa – Otay II POE and Connecting Roads** .................................................................34  
  - Status of the Proposed East Otay Mesa-Otay II POE ............................................................................34  
**Improvements to Otay Mesa-Mesa de Otay POE and Connecting Roads** ..............................................37  
  - Background ............................................................................................................................................37  
  - Proposed Improvements to Otay Mesa-Mesa de Otay Commercial POE .............................................37  
**Crossborder and Regional Public Transportation Services** ........................................................................39  
  - South Bay BRT ........................................................................................................................................39  
  - Otay Mesa POE Paseo de la Amistad Pedestrian and Bicycle Circulation Alternatives Study ..........39  
  - City of Tijuana’s Draft Public Transportation Plan ..............................................................................42  
**Early Action Strategies** ..............................................................................................................................42

# ECONOMIC DEVELOPMENT

**Introduction** ...............................................................................................................................................49  
**Existing Setting** ..........................................................................................................................................49  
**Existing Plans and Programs** .....................................................................................................................50  
  - San Diego Regional Economic Evaluation and Prosperity Strategy ...................................................50  
  - Otay Mesa Community Plan Update ....................................................................................................51  
**Crossborder Innovation and Competitiveness Initiative** .........................................................................53  
**Early Action Strategies** ..............................................................................................................................55

# HOUSING

**Existing Setting** ..........................................................................................................................................59  
**Housing Characteristics** ...........................................................................................................................59  
**Tijuana and San Diego Home Prices** .........................................................................................................60  
**Tijuana and San Diego Housing Markets** ..................................................................................................61  
**Tijuana and San Diego Housing-Related Infrastructure and Irregular Developments** .........................62  
**Existing Plans and Programs** .....................................................................................................................63  
  - City of San Diego – Otay Mesa Community Plan .................................................................................63  
  - Brown Field Municipal Airport .............................................................................................................63  
  - City of Tijuana ........................................................................................................................................64  
  - City of Tijuana’s International Airport ..................................................................................................64  
  - County of San Diego ...............................................................................................................................64  
  - City of Chula Vista ..................................................................................................................................64  
**Early Action Strategies** ..............................................................................................................................65
ENVIRONMENTAL CONSERVATION

Introduction ...............................................................................................................................................66
Existing setting ........................................................................................................................................67
  Biological Resources ............................................................................................................................67
  Coniferous Forest .................................................................................................................................67
  Californian ...........................................................................................................................................67
  Watersheds ......................................................................................................................................68
Existing Plans and Programs .....................................................................................................................72
  Multiple Species Conservation Program ............................................................................................72
  Las Californias Binational Conservation Initiative ............................................................................72
  Otay River Watershed Management Plan ............................................................................................73
  A Binational Vision for the Tijuana River Watershed ........................................................................74
  San Diego/Tijuana Clean Diesel Demonstration Projects ....................................................................75
Early Action Strategies ..............................................................................................................................77

LIST OF TABLES

Table 1 Otay Mesa-Mesa de Otay Binational Corridor Strategic Plan Stakeholders List .....................2
Table 2 Estimated Population of Study Area (2004) ...........................................................................11
Table 3 Forecasted Population of Study Area (2030) ........................................................................12
Table 4 Estimated Number of Housing Units (2004) .........................................................................13
Table 5 Residential Density (2004) ....................................................................................................13
Table 6 Forecasted Number of Housing Units (2030) .........................................................................14
Table 7 Forecasted Residential Density (2030) ................................................................................14
Table 8 Existing Land Use Distribution (2004) ................................................................................15
Table 9 Vacant Developable Acres (2004) ........................................................................................16
Table 10 Forecasted Land Use Distribution (2030) ...........................................................................18
Table 11 Forecasted Vacant Developable Acres (2030) ....................................................................18
Table 12 Otay Mesa Community Plan Land Use Alternatives: Residential and Industrial ...............19
Table 13 Total Employment (2004) ..................................................................................................20
Table 14 Regional Forecast Results ....................................................................................................52
Table 15 Shared Export-Driven Industrial Clusters in the San Diego Region and Tijuana .................53
Table 16 Mexico’s Homebuyer Profile (2005) ..................................................................................60
| Figure 1 | Otay Mesa-Mesa de Otay Binational Corridor Strategic Plan Study Area | 6 |
| Figure 2 | Study Area and Vicinity | 7 |
| Figure 3 | Planned Land Use and Transportation Network | 17 |
| Figure 4 | Current Transportation Network | 26 |
| Figure 5 | Planned Land Use and Transportation Network | 27 |
| Figure 6 | Otay Mesa POE - Northbound Passenger Vehicle and Bus Crossings | 28 |
| Figure 7 | Otay Mesa POE: Northbound Pedestrian Crossings | 28 |
| Figure 8 | Otay Mesa POE: Northbound Truck Crossings | 29 |
| Figure 9 | Otay Mesa-Mesa de Otay POE: Two-Way Value of Trade | 29 |
| Figure 10 | San Diego-Tijuana POEs: Projected Crossborder Daily Vehicle Travel Demand (Two-Way) | 30 |
| Figure 11 | Current and Planned Transit Services | 32 |
| Figure 12 | Proposed Capital and Operational Improvements at the Otay Mesa-Mesa de Otay Commercial Port of Entry | 38 |
| Figure 13 | South Bay Bus Rapid Transit Corridor | 40 |
| Figure 14 | Paseo de la Amistad Pedestrian and Bicycle Circulation Alternatives | 41 |
| Figure 15 | City of Tijuana’s Travel Zones | 43 |
| Figure 16 | Organizational Chart of the San Diego-Tijuana Border Liaison Mechanism | 45 |
| Figure 17 | Otay Mesa – Mesa de Otay Watersheds | 68 |
| Figure 18 | Binational Watersheds | 73 |

**APPENDICES**

A. Interactive Polling Results
B. Biological Resources
C. Mexico’s Housing Financing Mechanisms
D. Glossary of Acronyms and Terms
INTRODUCTION

FOUNDATION OF THE OTAY MESA-MESA DE OTAY BINATIONAL CORRIDOR STRATEGIC PLAN

The Regional Comprehensive Plan (RCP) for the San Diego Region, which was adopted by the San Diego Association of Governments (SANDAG) Board of Directors in 2004, calls for the creation of a partnership with Mexico to address binational border planning issues with a focus on transportation and infrastructure, energy and water, homeland security, and the environment.

Also in 2004, SANDAG held its 8th Binational Summer Conference entitled: “Cooperation across the California-Baja California Border: Where do we go from here?” Stakeholders from the United States and Mexico, including governmental agencies, the business sector, academia, and community groups examined cross-border collaboration in the Californias. The main recommendation from this conference was to create a formal interregional partnership between SANDAG and local, state, and federal agencies in Mexico to address transportation and other related issues. The partnership was proposed to be modeled after the I-15 Interregional Partnership, which is a voluntary partnership between SANDAG and the Western Riverside Council of Governments (WRCOG).

Subsequently, in 2005, SANDAG’s Borders Committee and the Committee on Binational Regional Opportunities (COBRO) identified the Otay Mesa-Mesa de Otay binational corridor as an area of opportunity to create an effective binational planning partnership. Transportation, economic development, housing, and environmental conservation are the four key issue areas that were recognized for evaluation as part of the Otay Mesa-Mesa de Otay Binational Corridor Strategic Plan (Strategic Plan).

THE COLLABORATION PROCESS

The Borders Committee has provided policy guidance in the development of the Strategic Plan, while COBRO has served as the primary stakeholders group. Staff from the City of Tijuana’s Municipal Planning Institute (Instituto Municipal de Planeación or IMPlan), the California Department of Transportation (Caltrans), the Secretariat of Infrastructure and Urban Development of Baja California (Secretaría de Infraestructura y Desarrollo Urbano del Estado or SIDUE), and SANDAG have conducted the technical work for the preparation of the Strategic Plan through a joint Project Development Team (PDT). A diverse group of stakeholders from the United States and Mexico were invited to collaborate in the preparation of the Strategic Plan, as shown on Table 1.

To kick off the preparation of the Strategic Plan, two public workshops on “Crossborder Collaborative Planning for Otay Mesa-Mesa de Otay” were held in October 2005 and were co-sponsored by SANDAG and IMPlan. One of the workshops was held in the San Diego region and the other in Tijuana. Nearly 200 participants provided input on issues to be addressed in the Strategic Plan.
# Table 1

**Otay Mesa-Mesa de Otay Binational Corridor Strategic Plan**

**Stakeholders List**

<table>
<thead>
<tr>
<th>United States</th>
<th>México</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOCAL</strong></td>
<td><strong>LOCAL</strong></td>
</tr>
<tr>
<td>• SANDAG</td>
<td>• Instituto Municipal de Planeación (IMPlan)</td>
</tr>
<tr>
<td>• City of San Diego</td>
<td>• Ciudad de Tijuana</td>
</tr>
<tr>
<td>• City of Chula Vista</td>
<td>• Comité de Planeación y Desarrollo Municipal (COPLADEM)</td>
</tr>
<tr>
<td>• County of San Diego</td>
<td></td>
</tr>
<tr>
<td>• Metropolitan Transit System (MTS)</td>
<td></td>
</tr>
<tr>
<td>• San Diego County Regional Airport Authority</td>
<td></td>
</tr>
<tr>
<td>• San Diego County Water Authority</td>
<td></td>
</tr>
<tr>
<td><strong>STATE</strong></td>
<td><strong>ESTATAL</strong></td>
</tr>
<tr>
<td>• Caltrans</td>
<td>• Secretaría de Infraestructura y Desarrollo Urbano (SIDUE)</td>
</tr>
<tr>
<td>• California Environmental Protection Agency</td>
<td>• Dirección de Ecología</td>
</tr>
<tr>
<td>• California Department of Fish &amp; Game</td>
<td>• Comisión Estatal de Servicios Públicos de Tijuana (CESPT)</td>
</tr>
<tr>
<td>• California Highway Patrol</td>
<td></td>
</tr>
<tr>
<td><strong>FEDERAL</strong></td>
<td><strong>FEDERAL</strong></td>
</tr>
<tr>
<td>• U.S. Customs and Border Protection</td>
<td>• Consulado General de México</td>
</tr>
<tr>
<td>• U.S. General Services Administration</td>
<td>• Instituto de Administración y Avalúos de Bienes Nacionales (INDAABIN)</td>
</tr>
<tr>
<td>• International Boundary and Water Commission</td>
<td>• Comisión Internacional de Límites y Aguas (CILA)</td>
</tr>
<tr>
<td>• Bureau of Land Management</td>
<td>• Secretaria de Comunicaciones y Transporte (SCT)</td>
</tr>
<tr>
<td>• Federal Highway Administration</td>
<td>• Aeropuerto Internacional de Tijuana</td>
</tr>
<tr>
<td>• Federal Transit Administration</td>
<td>• Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT)</td>
</tr>
<tr>
<td>• U.S. Fish and Wildlife Service</td>
<td></td>
</tr>
<tr>
<td><strong>NON-GOVERNMENTAL ORGANIZATIONS (NGOs)-COMMUNITY</strong></td>
<td><strong>ORGANIZACIONES NO GUBERNAMENTALES (ONGs)-COMUNIDAD</strong></td>
</tr>
<tr>
<td>• Chambers of Commerce-Economic Development Corporations</td>
<td>• Cámaras de Comercio</td>
</tr>
<tr>
<td>• Academia</td>
<td>• Academia</td>
</tr>
<tr>
<td>• Las Californias Binational Conservation Initiative</td>
<td>• Pronatura</td>
</tr>
<tr>
<td>• Others</td>
<td>• Otros</td>
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</tbody>
</table>
THE STRATEGIC PLANNING PROCESS AND EARLY ACTIONS

The planning process to develop the Strategic Plan includes several elements. First, a study area was defined in collaboration with binational stakeholders. At the binational workshops held in October 2005, issues related to transportation, economic development, housing, and environmental conservation were identified and ranked through an interactive polling exercise. Following the workshops, staff developed a work program that includes a series of tasks to address the issues that were identified.

In December 2005, the PDT set out to research the various issues brought up by the stakeholders. This initial exploration provided staff with a better understanding of the issues that could be advanced in the first phase of the study or early action plan.

For example, in the transportation arena, Caltrans’ progress on the environmental phase of the proposed State Route (SR) 11 and coordination with federal agencies for the East Otay Mesa border crossing provided a catalyst for identifying early actions on both sides of the border toward the implementation of a new land port of entry (POE) in East Otay Mesa. On the other hand, there are other planning activities underway, such as the San Diego County Regional Airport Authority’s Brown Field Master Plan Update, which may affect the Strategic Plan’s recommendations and actions, but where outcomes are not known yet. Thus, actions for issues where more research still needs to be conducted or that depend on other ongoing planning efforts will be identified in the final Strategic Plan, which is anticipated to be completed in early 2007.

This Early Action Plan is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 (Feasibility and Planning Studies) which states that “a project involving only feasibility or planning studies for possible future actions which the agency, board, or commission has not approved, adopted, or funded does not require the preparation of an Environmental Impact Report or Negative Declaration, but does require consideration of environmental factors.”

ORGANIZATION OF THE REPORT

The “Issues for Evaluation and Work Program” chapter outlines transportation, economic development, housing, and environmental issues identified within the study area and includes the Strategic Plan’s work program. The “Population, Housing, Land Use, and Employment” chapter presents a profile of the study area, which describes current and projected population, employment, housing, and land uses. The “Interregional Travel” chapter describes interregional crossborder travel patterns via the Otay Mesa POE. The remaining chapters present background information for each of the four issue areas, as well as a policy analysis that leads to the early action initiatives.
ISSUES FOR EVALUATION AND WORK PROGRAM

INTRODUCTION

This chapter describes the issues identified for evaluation in the categories of transportation, economic development, housing, and environmental conservation within the study area. It also provides an overview of the results of the polling conducted at the two binational workshops held in October 2005, where interactive technology was used to elicit participants’ opinions on the importance of these issues. The remainder of this chapter outlines the work program to develop the Otay Mesa-Mesa de Otay Binational Corridor Strategic Plan (Strategic Plan). COBRO and the Borders Committee concurred with the tasks included in the work program in fall 2005.

THE BINATIONAL STUDY AREA

Figure 1 illustrates the study area, which was identified in collaboration with local and binational stakeholders. It encompasses the City of San Diego’s Otay Mesa Community Planning Area, the County of San Diego’s Otay Community Planning Area (including Otay Lakes), the eastern portion of the City of Chula Vista east of Interstate 805 and south of Olympic Parkway, and the planning areas of Mesa de Otay and Centenario (including the Alamar River) in the City of Tijuana. Figure 2 shows the study area and vicinity on both sides of the border.

ISSUES IDENTIFIED

SANDAG and IMPlan co-sponsored two binational workshops, which were held on October 3, 2005, in National City, and on October 11, 2005, in Tijuana. Approximately 100 people participated at the workshop held in National City, and more than 80 people attended the workshop held in Tijuana.

These workshops drew stakeholders from both sides of the border, which provided a wide range of opinions. Participants included government officials, academics, and representatives from business and non-governmental organizations. The following issues were discussed at the binational workshops.
## Issues Identified

<table>
<thead>
<tr>
<th>Area</th>
<th>Issues Identified</th>
</tr>
</thead>
</table>
| **TRANSPORTATION**          | - Future East Otay Mesa-Otay II Port of Entry and connecting roads  
- Improvements to existing Otay Mesa Port of Entry and connecting roads  
- Improvements to crossborder and regional public transportation services |
| **TRANSPORTATION FUNDING ALTERNATIVES**  | - Toll revenues for new ports of entry and access roads  
- Additional local gas tax  
- Additional residential development impact fees for transportation  
- Non-residential development impact fees for transportation |
| **ECONOMIC DEVELOPMENT**    | - Promote creation or expansion of common economic clusters on both sides of the border  
- Address future industrial land supply and demand  
- Address relationship between the area’s airports operations and existing and future industrial land use  
- Address infrastructure needs of existing and future industrial land uses (water, energy, etc.) |
| **HOUSING**                 | - Address future housing supply and demand  
- Address housing affordability issues and opportunities  
- Address relationship between Brown Field Municipal Airport and Tijuana’s International Airport operations and existing and future residential land use  
- Address infrastructure needs of existing and future residential land use (water, sewage, schools, etc.) |
| **ENVIRONMENT**             | - Address conservation of sensitive habitat corridors  
- Address conservation of urban river corridors (e.g., Alamar River and Otay River Watershed)  
- Address air quality |

*The transportation financing issues were discussed at the workshop held in the San Diego region only.*

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**Figure 1**

Otay Mesa-Mesa de Otay Binational Corridor Strategic Plan Study Area
INTERACTIVE POLLING

Process

Interactive polling technology was used to help the workshop participants prioritize critical issues that are important to address in the Strategic Plan. Each participant was provided with a remote FM radio input terminal to respond to questions generated by computer and projected onto a large screen. The technology provided the ability to quickly prioritize the issues. The results were tabulated and immediately presented back to the group for discussion. Demographic information was collected to assess the different perspectives of the participants based on where they lived and what organization they represented.

The participants prioritized the importance of the issues outlined in the previous section. A forced-pair prioritization technique was used where two of the critical issues were presented to the group, and each participant selected which was most important. After evaluating every possible pair, the relative importance of the issues was calculated on a scale from 0 to 100 and immediately presented to the group for discussion.
It is important to note that the interactive polling process was designed to stimulate discussion and understanding of the perspectives of the various participants. It was not designed to be statistically representative of a broader group of participants. The number of participants may vary among polls since all participants may not have participated in every poll.

**Results**

Summary results of the interactive surveys are presented in this section. Appendix A includes detailed interactive polling results.

The polling results from both workshops, with a few exceptions, revealed an overall consistent response from both American and Mexican participants. This was especially evident in the area of transportation. Participants from the United States and Mexico gave high priority to both making improvements to the existing Otay Mesa POE and pursuing a new POE at East Otay Mesa. Also, both sides were in agreement when asked if they would support seeking toll revenues for new POEs and access roads.

With regard to economic development issues, addressing infrastructure needs of existing and future industrial land use and promoting the creation or expansion of common employment clusters were identified as top priorities.

Related to housing, addressing residential infrastructure needs ranked highest. There was some variation with regard to housing affordability. This issue ranked second in the National City workshop and third in Tijuana.

Conservation of urban river corridors came out on top under issues relating to the environment. Habitat conservation, air quality, and water quality issues also were discussed.

**STRATEGIC PLAN WORK PROGRAM**

Feedback gathered at the binational workshops was considered in the preparation of a list of tasks for the development of the Strategic Plan, which are outlined below.

**TRANSPORTATION**

1. **Improvements to existing Otay Mesa POE and connecting roads**
   a. Analyze crossborder travel characteristics at the Otay Mesa and San Ysidro POEs from recent surveys
   b. Collaborate with U.S. Customs and Border Protection and Mexican Customs to evaluate short-term and long-term improvements to the Otay Mesa POE (operations and facilities)
   c. Implement pedestrian access improvements and customer amenities for Metropolitan Transit System (MTS) Route 905 stop at the Otay Mesa POE
   d. Evaluate current transit serving the Mesa de Otay POE
2. Future East Otay Mesa - Otay II POE and connecting roads
   a. Hold coordination meetings with staff involved in East Otay Mesa-Otay II POE planning
      and implementation
   b. Prepare a joint work program and master calendar to align implementation activities for
      the new POE, including connecting roads and land acquisition on both sides of the border
   c. Conduct a financial feasibility study for the new POE and connecting roads in the United
      States and Mexico, including tolls (pending funding)

3. Improvements to crossborder and regional public transportation services
   a. Explore multimodal transit center in the vicinity of the Otay Mesa POE
   b. Monitor findings of MTS' Comprehensive Operations Analysis for Route 905
   c. Monitor development of new regional transit services in Tijuana (Ruta Troncal)
   d. Evaluate timing of the proposed South Bay Bus Rapid Transit Phase II service between
      eastern Chula Vista and the Otay Mesa POE

ECONOMIC DEVELOPMENT

1. Address infrastructure needs of existing and future industrial land uses (e.g., water, energy)
   a. Evaluate elements of the Integrated Regional Infrastructure Strategy (IRIS) and Mesa de
      Otay Specific Plan

2. Promote creation or expansion of common employment clusters on both sides of the border, and

3. Address future industrial land use supply and demand
   a. Participate in the update of the 1998 San Diego Regional Economic Prosperity Strategy
      (REPS) and the 2001 Employment Lands Inventory and Market Analysis
   b. Evaluate the city of Tijuana’s Municipal Development Plan (2005-2007)
   c. Participate in updates of the City of San Diego’s Otay Mesa Community Plan, City of Chula
      Vista’s General Plan, County of San Diego’s East Otay Mesa Specific Plan, and Mesa de
      Otay Specific Plan

4. Address relationship between the area's airports operations and existing and future industrial land use
   a. Monitor the San Diego County Regional Airport Authority's update of the Airport Land
      Use Compatibility Plan
# Issues For Evaluation And Work Program

### HOUSING

1. **Address infrastructure needs of existing and future residential land use (e.g., water supply, sewage, schools)**
   a. Evaluate elements of the IRIS and Mesa de Otay Specific Plan

2. **Address housing affordability issues and opportunities, and**
3. **Address future housing supply and demand**
   a. Analyze crossborder work trip characteristics at the Otay Mesa and San Ysidro POEs from recent surveys
   b. Gather information on housing plans and housing production in Tijuana (public and private sector)
   c. Provide results for SANDAG’s interregional commute model of the 2030 San Diego Regional Growth Forecast update
   d. Participate in updates of the City of San Diego’s Otay Mesa Community Plan, City of Chula Vista’s General Plan, County of San Diego’s East Otay Mesa Specific Plan, and Mesa de Otay Specific Plan

4. **Address relationship between Brown Field Municipal Airport and Tijuana’s International Airport operations and existing and future residential land use**
   a. Monitor San Diego County Regional Airport Authority’s update of the Airport Land Use Compatibility Plan

### ENVIRONMENT

1. **Address conservation of urban river corridors (e.g., Alamar River and Otay River Watershed),**
2. **Surface water quality, and**
3. **Address conservation of sensitive habitat corridors**
   a. Research Mesa de Otay conservation planning activities by local, state, and federal agencies
   b. Analyze Multiple Species Conservation Program, Las Californias Binational Conservation Initiative, and other conservation studies
   c. Monitor implementation of Tijuana Master Plan for water and wastewater infrastructure

4. **Air Quality**
   a. Collaborate with the U.S. Environmental Protection Agency in the Border 2012 program, the Binational Air Quality Task Force, and the San Diego Air Pollution Control District in binational clean air effort
POPULATION, HOUSING, LAND USE, AND EMPLOYMENT

This chapter presents a profile of the communities within the binational study area\(^1\) and includes current, as well as projected population, housing, land use, and employment data.

POPULATION

This section presents data on current and projected population within the study area. The tables below show the number of inhabitants in each subarea.

Current Population

In 2004, approximately 174,184 people resided in the Otay Mesa-Mesa de Otay binational study area. Since the year 2000, most of the growth has occurred in the areas of Otay Ranch (south of Olympic Parkway)\(^2\), Otay Mesa, and Mesa de Otay. Table 2 shows current population by subarea.

Table 2

<table>
<thead>
<tr>
<th>Subarea</th>
<th>2004 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Chula Vista – Otay Ranch South of Olympic Parkway</td>
<td>5,638</td>
</tr>
<tr>
<td>City of San Diego – Otay Mesa</td>
<td>12,273</td>
</tr>
<tr>
<td>County of San Diego – East Otay Mesa*</td>
<td>2</td>
</tr>
<tr>
<td>City of Tijuana – Alamar River</td>
<td>57,245</td>
</tr>
<tr>
<td>City of Tijuana – Mesa de Otay</td>
<td>99,026</td>
</tr>
<tr>
<td><strong>Total Population</strong></td>
<td><strong>174,184</strong></td>
</tr>
</tbody>
</table>

Source: SANDAG and IMPlan

* Population figure does not include the 7,380 group quarters population

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1. Current data for the San Diego Region is based on SANDAG’s Series 11 and approved land use plans. Forecast data reflects SANDAG’s Final Regional Growth Forecast (December 2003).

2. This area also includes neighborhoods west of the County landfill up to the I-805, industrial areas along east Main Street, and neighborhoods bordering Otay Mesa.
Projected 2030 Population

In 2030, the forecasted study area population will be approximately 362,799 people. This represents an increase of 245,860 people and a 210 percent increase from 2004.

Table 3
Forecasted Population of Study Area (2030)

<table>
<thead>
<tr>
<th>Subarea</th>
<th>2030 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Chula Vista – Otay Ranch South of Olympic Parkway</td>
<td>49,871</td>
</tr>
<tr>
<td>City of San Diego – Otay Mesa</td>
<td>49,282</td>
</tr>
<tr>
<td>County of San Diego – East Otay Mesa*</td>
<td>20,142</td>
</tr>
<tr>
<td>City of Tijuana – Mesa de Otay**</td>
<td>243,504</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>362,799</strong></td>
</tr>
</tbody>
</table>

Source: SANDAG and IMPlan

* This does not include the 10,442 group quarters population
** 2025 population projections were used to forecast 2030 population using IMPlan’s forecasted growth rate

Note: Alamar River data is being collected and will be available in fall 2006

It is forecasted that by 2030 Mesa de Otay’s population will increase by approximately 144,478 residents, bringing the total population to 243,504 (Table 3). This represents a 246 percent increase in population and the largest numerical increase of all the subareas.

It should be noted that the City of San Diego is currently updating its Otay Mesa Community Plan and is considering changes that would increase the future population of this area. In addition, there are proposed plans for a new satellite city called Valle de las Palmas within the city of Tijuana’s boundaries but outside the study area (see Figure 2 on page 7). Build out is expected to be in 2040. The project would build approximately 280,000 housing units that would support a population of more than 1.1 million residents.

HOUSING

The following is an analysis of the number of housing units and residential density within the study area. The following tables quantify this information by subarea and the overall study area.

---

3 Alamar River population count is not available and will be included in future reports.
Current Housing Units

According to 2004 data, the total number of housing units in the study area, not including the Alamar River subarea, is approximately 29,048. Mesa de Otay has the largest share of existing housing units, with approximately 24,153 housing units or 83 percent of the total. This number combined with its size also accounts for why it is one of the most densely populated subareas. Table 4 shows 2004 housing units by subarea.

Table 4
Estimated Number of Housing Units (2004)

<table>
<thead>
<tr>
<th>Housing Type</th>
<th>Otay Ranch*</th>
<th>Otay Mesa</th>
<th>Mesa de Otay</th>
<th>Total Housing Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>1,758</td>
<td>2,482</td>
<td>N/A</td>
<td>4,240</td>
</tr>
<tr>
<td>Multiple Family</td>
<td>79</td>
<td>573</td>
<td>N/A</td>
<td>652</td>
</tr>
<tr>
<td>Total Housing Units</td>
<td>1,837</td>
<td>3,055</td>
<td>24,153</td>
<td>29,045</td>
</tr>
</tbody>
</table>

Source: SANDAG and IMPlan

* South of Olympic Parkway

Note: Alamar River data is being collected and will be available in fall 2006

In the year 2004, the subareas that shared relatively similar densities were both Otay Ranch, with a residential density\(^4\) of 8.74 households per acre, and Otay Mesa, with 8.67 households per acre (Table 5). At the high end of the spectrum, Mesa de Otay contains an average residential density of 12.78 households per acre.

Table 5

<table>
<thead>
<tr>
<th>Subarea</th>
<th>2004 Housing Units per Developed Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Chula Vista – Otay Ranch South of Olympic Parkway</td>
<td>8.74</td>
</tr>
<tr>
<td>City of San Diego – Otay Mesa</td>
<td>8.67</td>
</tr>
<tr>
<td>City of Tijuana – Mesa de Otay</td>
<td>12.78</td>
</tr>
</tbody>
</table>

Source: SANDAG and IMPlan

Note: Alamar River data is being collected and will be available in fall 2006

---

\(^4\) Total housing units per developed residential acre.
Forecasted Housing Units

By the year 2030, the number of housing units for the entire study area is expected to more than triple to 93,617 (Table 6). Mesa de Otay is still forecasted to hold the largest share of housing units at approximately 62,936 units or about two-thirds of the total units.

Table 6
Forecasted Number of Housing Units (2030)

<table>
<thead>
<tr>
<th>Housing Type</th>
<th>Otay Ranch</th>
<th>Otay Mesa</th>
<th>East Otay Mesa</th>
<th>Mesa de Otay</th>
<th>Total Housing Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>6,403</td>
<td>5,289</td>
<td>3,590</td>
<td>N/A</td>
<td>15,282</td>
</tr>
<tr>
<td>Multiple Family</td>
<td>7,766</td>
<td>7,633</td>
<td>0</td>
<td>N/A</td>
<td>15,399</td>
</tr>
<tr>
<td>Total Housing</td>
<td>14,169</td>
<td>12,922</td>
<td>3,590</td>
<td>62,936</td>
<td>93,617</td>
</tr>
</tbody>
</table>

Source: SANDAG, Final 2030 Regional Growth Forecast (2003), and IMPlan

* South of Olympic Parkway

Note: Alamar River data will be available in fall 2006

In 2030, forecasts show that Otay Ranch’s residential density\(^5\) will decrease to seven households per acre (Table 7), while Mesa de Otay’s will more than double from 12.78 to 29.39 households per acre. It is interesting to note that Mesa de Otay will continue to maintain the highest household density. On the low end of the residential density spectrum is East Otay Mesa, where the estimated residential density is forecast at 1.4 households per acre.

Table 7
Forecasted Residential Density (2030)

<table>
<thead>
<tr>
<th>Subarea</th>
<th>2030 Housing Units per Developed Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Chula Vista – Otay Ranch South of Olympic Parkway</td>
<td>7.00</td>
</tr>
<tr>
<td>City of San Diego – Otay Mesa</td>
<td>13.60</td>
</tr>
<tr>
<td>County of San Diego – East Otay Mesa</td>
<td>1.40</td>
</tr>
<tr>
<td>City of Tijuana – Mesa de Otay*</td>
<td>29.39</td>
</tr>
</tbody>
</table>

Source: SANDAG, Final 2030 Regional Growth Forecast (2003), and IMPlan

* Residential density is for 2025

Note: Alamar River data is being collected and will be available in fall 2006

\(^5\) Total housing units per developed residential acre.
LAND USE

The following is an analysis of the current and planned land uses in the study area. Land use tables below show the number of developed and developable acres for each land use.

Current Land Use

Table 8 shows the developed acres by land use category in 2004, while Table 9 displays vacant developable acres. As of 2004, there were a total of 5,335 developed residential acres. Mesa de Otay contained 1,934 of those acres, which represents the largest developed area for residential land use in the study area. For the entire study area, there were 4,808 developable acres set aside for residential land use. Nearly half of these acres are located in East Otay Mesa and are classified as spaced rural residential, which allows up to one dwelling unit per acre. Otay Ranch contains the largest portion of land that is dedicated to single- and multiple-family residential land uses.

For the category of commercial/office land uses, there were a total of 2,755 developed acres and 601 developable acres. Tijuana International Airport contains the most developed acres, and East Otay Mesa contains the largest inventory of developable acres. Also in 2004, there were an estimated 3,397 acres of developed industrial land in the study area. Out of all the subareas, Otay Mesa’s 1,807 acres represent the largest number of developed industrial acres.

The study area contains a total of 4,767 developable acres, which are designated for heavy/light industrial land uses. Out of this number, Otay Mesa contains 1,565 acres, which represents the largest acreage available among the subareas for these types of land uses. The County of San Diego’s Otay Community Planning Area has 28,577 acres set aside, which is the most land dedicated for the land use category of constrained acres and includes areas containing rare and endangered plant and animal species and all private land holdings.

Table 8

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Otay Ranch*</th>
<th>Otay Mesa</th>
<th>East Otay Mesa</th>
<th>Mesa de Otay**</th>
<th>Alamar River***</th>
<th>Tijuana Int’l Airport**</th>
<th>Total Developed Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaced Rural Residential</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>60</td>
<td>N/A</td>
<td>1,706</td>
<td>1,783</td>
</tr>
<tr>
<td>Single Family</td>
<td>170</td>
<td>306</td>
<td>0</td>
<td>1,874</td>
<td>1,116</td>
<td>0</td>
<td>3,466</td>
</tr>
<tr>
<td>Multiple Family</td>
<td>40</td>
<td>46</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
<td>0</td>
<td>86</td>
</tr>
<tr>
<td>Commercial/Office</td>
<td>292</td>
<td>122</td>
<td>0</td>
<td>841</td>
<td>30</td>
<td>1,470</td>
<td>2,755</td>
</tr>
<tr>
<td>Heavy/Light Industry</td>
<td>93</td>
<td>1,807</td>
<td>170</td>
<td>1,063</td>
<td>63</td>
<td>201</td>
<td>3,397</td>
</tr>
<tr>
<td>Agriculture/Extractive</td>
<td>131</td>
<td>535</td>
<td>1,743</td>
<td>1</td>
<td>69</td>
<td>0</td>
<td>2,479</td>
</tr>
<tr>
<td>Mixed Use &amp; Special Plan Area</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Schools</td>
<td>63</td>
<td>84</td>
<td>0</td>
<td>N/A</td>
<td>116</td>
<td>N/A</td>
<td>263</td>
</tr>
<tr>
<td>Constrained Acres****</td>
<td>7,798</td>
<td>5,647</td>
<td>28,577</td>
<td>1,377</td>
<td>822</td>
<td>39</td>
<td>44,260</td>
</tr>
<tr>
<td>** Total Acres</td>
<td>8,587</td>
<td>8,547</td>
<td>30,507</td>
<td>5,216</td>
<td>2,237</td>
<td>3,416</td>
<td>58,510</td>
</tr>
</tbody>
</table>

Source: SANDAG, 2004 base year data from Series 11 Forecast (2006), and IMPlan

* South of Olympic Parkway
** Boundary of Mesa de Otay and Tijuana International Airport subareas were overlayed on IMPlan’s land use GIS database to obtain these data
*** Final acreage numbers for Alamar will be published by IMPlan in early 2007
**** Final acreage numbers for Alamar River will be published by IMPlan in early 2007
Open space and recreation – IMPlan combines recreation space with school acreage
Table 9
Vacant Developable Acres (2004)

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Otay Ranch*</th>
<th>Otay Mesa</th>
<th>East Otay Mesa</th>
<th>Mesa de Otay**</th>
<th>Tijuana Int’l Airport**</th>
<th>Total Vacant Developable Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaced Rural Residential</td>
<td>0</td>
<td>0</td>
<td>2,325</td>
<td>0</td>
<td>0</td>
<td>2,325</td>
</tr>
<tr>
<td>Single Family</td>
<td>1,072</td>
<td>0</td>
<td>0</td>
<td>207</td>
<td>0</td>
<td>1,279</td>
</tr>
<tr>
<td>Multiple Family</td>
<td>661</td>
<td>676</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1,340</td>
</tr>
<tr>
<td>Commercial/Office</td>
<td>252</td>
<td>240</td>
<td>13</td>
<td>87</td>
<td>9</td>
<td>601</td>
</tr>
<tr>
<td>Heavy/Light Industry</td>
<td>655</td>
<td>1,565</td>
<td>2,416</td>
<td>111</td>
<td>20</td>
<td>4,767</td>
</tr>
<tr>
<td>Agriculture/Extractive</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mixed Use &amp; Special Plan Area</td>
<td>695</td>
<td>128</td>
<td>0</td>
<td>209</td>
<td>0</td>
<td>823</td>
</tr>
<tr>
<td>Total Acres</td>
<td>3,335</td>
<td>2,609</td>
<td>4,754</td>
<td>617</td>
<td>29</td>
<td>11,344</td>
</tr>
</tbody>
</table>

Source: SANDAG, 2004 base year data from Series 11 Forecast (2006), and IMPlan
* South of Olympic Parkway
** Boundary of Mesa de Otay and Tijuana International Airport subareas were overlayed on IMPlan’s land use GIS database to obtain these data
Note: Alamar River data is being collected and will be available in fall 2006

Planned Land Use

Table 10 presents the 2030 forecasted land use distribution, which is illustrated in Figure 3, while Table 11 shows vacant developable acres. This information is presented for the San Diego County portion of the study area only. No forecast data are available for the Tijuana subareas.

By the year 2030, nearly 30 percent of the 7,143 developed residential acres will be in the Mesa de Otay subarea. Another 26 percent of the residential acres are forecasted to be developed in East Otay Mesa. It is estimated there will be virtually no developable residential acres left in the study area at that time.

For the category of commercial/office land uses, it is estimated there will be approximately 3,233 developed acres and 383 developable acres.

It is forecasted that there will be approximately 4,772 acres of developed industrial land in the study area. Also, 1,309 acres are forecasted to be developable. The majority of the remaining developable industrial land will be in Otay Mesa.

Also at this time, the study area will have a total of 31,530 constrained acres. East Otay Mesa’s planning area will have 23,121 constrained acres. Based on the forecast, East Otay Mesa will maintain its place as the subarea with the most acreage set aside for these land uses.
Figure 3
Planned Land Use and Transportation Network
### Table 10
**Forecasted Land Use Distribution (2030)**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Otay Ranch*</th>
<th>Otay Mesa</th>
<th>East Otay Mesa</th>
<th>Mesa de Otay</th>
<th>Tijuana Int’l Airport</th>
<th>Total Developed Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaced Rural Residential</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>60</td>
<td>1,706</td>
<td>1,770</td>
</tr>
<tr>
<td>Single Family</td>
<td>1,509</td>
<td>618</td>
<td>1,862</td>
<td>2,081</td>
<td>0</td>
<td>6,070</td>
</tr>
<tr>
<td>Multiple Family</td>
<td>567</td>
<td>335</td>
<td>104</td>
<td>3</td>
<td>0</td>
<td>1,009</td>
</tr>
<tr>
<td>Commercial/Office</td>
<td>440</td>
<td>201</td>
<td>185</td>
<td>928</td>
<td>1,479</td>
<td>3,233</td>
</tr>
<tr>
<td>Heavy/Light Industry</td>
<td>259</td>
<td>2,296</td>
<td>822</td>
<td>1,174</td>
<td>221</td>
<td>4,772</td>
</tr>
<tr>
<td>Agriculture/Extractive</td>
<td>278</td>
<td>517</td>
<td>1,411</td>
<td>1</td>
<td>0</td>
<td>2,206</td>
</tr>
<tr>
<td>Mixed Use &amp; Special Plan area</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>209</td>
<td>0</td>
<td>209</td>
</tr>
<tr>
<td>Schools</td>
<td>393</td>
<td>114</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
<td>507</td>
</tr>
<tr>
<td>Constrained Acres**</td>
<td>4,129</td>
<td>2,864</td>
<td>23,121</td>
<td>1,377</td>
<td>39</td>
<td>31,530</td>
</tr>
<tr>
<td><strong>Total Acres</strong></td>
<td>7,579</td>
<td>6,945</td>
<td>27,505</td>
<td>5,833</td>
<td>3,445</td>
<td>51,306</td>
</tr>
</tbody>
</table>

Source: SANDAG, Final 2030 Regional Growth Forecast (2003), and IMPlan

* South of Olympic Parkway

** Open space and recreation

Note: Alamar River data is being collected and will be available in fall 2006

### Table 11
**Forecasted Vacant Developable Acres (2030)**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Otay Ranch*</th>
<th>Otay Mesa</th>
<th>East Otay Mesa</th>
<th>Mesa de Otay</th>
<th>Total Developable Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaced Rural Residential</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Single Family</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Multiple Family</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Commercial/Office</td>
<td>239</td>
<td>110</td>
<td>34</td>
<td>0</td>
<td>383</td>
</tr>
<tr>
<td>Heavy/Light Industry</td>
<td>379</td>
<td>698</td>
<td>232</td>
<td>0</td>
<td>1,309</td>
</tr>
<tr>
<td>Agriculture/Extractive</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mixed Use &amp; Special Plan area</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
</tr>
<tr>
<td>Schools</td>
<td>323</td>
<td>28</td>
<td>0</td>
<td>N/A</td>
<td>351</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>941</td>
<td>836</td>
<td>268</td>
<td>0</td>
<td>2,045</td>
</tr>
</tbody>
</table>

Source: SANDAG, Final 2030 Regional Growth Forecast (2003), and IMPlan

* South of Olympic Parkway

Note: Alamar River data is being collected and will be available in fall 2006
Otay Mesa Community Plan Land Use Scenarios

The City of San Diego is in the process of updating the Otay Mesa Community Plan. There are four alternatives being evaluated, and three of them include plans for a significant increase in housing. The adopted plan represents the No Project Alternative, which includes 12,400 housing units and 2,900 industrial zoned acres for development.6

Draft Scenario 1 would allow the construction of 29,400 housing units. This represents more than a doubling of housing units from the No Project Alternative. Under this scenario, 2,070 industrial zoned acres would be available for development, or a 29 percent decrease in industrial zoned land. Based on this scenario, the U.S. side of the study area would have a forecasted housing unit increase of 17,000 units or 55 percent. This scenario would decrease the U.S. portion of the study area’s industrial zone land by 830 acres.

Draft Scenario 2 has the greatest share of proposed future housing units and resulting reduction of industrial zoned land. The 31,800 housing units proposed would be a 156 percent increase from the No Project Alternative, and the 1,990 industrial zoned acres would represent a 31 percent decrease of this type of land. For this scenario, the U.S. side of the study area would have a forecasted housing unit increase of 19,400 units or 63 percent. This scenario would decrease the U.S. portion of the study area’s industrial zone land by 910 acres.

Draft Scenario 3 appears to be the closest related, in terms of proposed housing units and industrial zoned acres, to the No Project Alternative. This scenario proposes 18,800 housing units, which is a 52 percent increase from the No Project Alternative. This scenario would leave 2,370 industrial zoned acres for development, which is a 18 percent decrease compared to the No Project Alternative. The U.S. side of the study area, under this scenario, would have a forecasted housing unit increase of 6,400 units or 21 percent. This scenario would reduce the U.S. portion of study area’s industrial zoned land by 530 acres. Table 12 shows the residential and industrial land uses proposed for each draft land use scenario under evaluation.

Table 12
Otay Mesa Community Plan Draft Land Use Scenarios: Residential and Industrial

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Proposed Single-Family Detached Units</th>
<th>Proposed Attached and Multi-Family Units</th>
<th>Proposed Total Housing Units</th>
<th>Proposed Industrial Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Project</td>
<td>4,800</td>
<td>7,600</td>
<td>12,400</td>
<td>2,900</td>
</tr>
<tr>
<td>Draft Scenario 1</td>
<td>5,000</td>
<td>24,400</td>
<td>29,400</td>
<td>2,070</td>
</tr>
<tr>
<td>Draft Scenario 2</td>
<td>5,000</td>
<td>26,800</td>
<td>31,800</td>
<td>1,990</td>
</tr>
<tr>
<td>Draft Scenario 3</td>
<td>4,600</td>
<td>14,200</td>
<td>18,800</td>
<td>2,370</td>
</tr>
</tbody>
</table>

6 City of San Diego, Otay Mesa Community Plan Update: Information Packet, July 2006.
EMPLOYMENT

The following is an analysis of the current and projected employment in the study area. The following tables show the number of employees and employee density in each subarea.

Current Employment

Table 13 shows the total number of people employed in 2004. As of 2004, there were approximately 79,699 people employed in the study area.

Most of this employment is in the Mesa de Otay subarea, with approximately 65,000 people employed or 82 percent of the study area’s jobs. Out of that number, there are about 52,000 manufacturing jobs and 13,000 service sector jobs. The manufacturing jobs in Mesa de Otay account for almost one third of the manufacturing jobs in Tijuana.

About 17,000 people who work in Mesa de Otay’s manufacturing sector live in that subarea. These figures imply that the subarea is a significant labor draw for the rest of Tijuana. This is attributable to the maquiladora plant activity and its proximity to the border crossing. The Otay Mesa subarea has a total of 10,222 people employed. This subarea holds the second largest number of jobs in the study area and makes up 13 percent of the study area’s employment.

<table>
<thead>
<tr>
<th>Subarea</th>
<th>2004 Total Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Chula Vista – Otay Ranch South of Olympic Parkway</td>
<td>2,043</td>
</tr>
<tr>
<td>City of San Diego – Otay Mesa</td>
<td>10,222</td>
</tr>
<tr>
<td>County of San Diego – East Otay Mesa</td>
<td>2,434</td>
</tr>
<tr>
<td>City of Tijuana - Mesa de Otay</td>
<td>65,000</td>
</tr>
<tr>
<td><strong>Total Employment</strong></td>
<td><strong>79,699</strong></td>
</tr>
</tbody>
</table>

Source: SANDAG and IM Plan

* Alamar River data is being collected and will be available in fall 2006

Forecasted 2030 Employment

By 2030, it is forecasted that the number of employed people in the San Diego County portion of the study area will have increased from 14,699 to approximately 71,974. The largest numerical growth will be in the Otay Mesa subarea, where it is forecasted that the number of people employed will increase from 10,222 to 41,633. Substantial increases in employment also will occur in Otay Ranch and East Otay Mesa. East Otay Mesa’s employment population would increase from 2,434 to 19,344, while Otay Ranch’s employment population would increase from 2,043 to 10,997.

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7 Employment projections are not available for the study area in Tijuana.
INTERREGIONAL TRAVEL

In late 2004 and early 2005, SANDAG conducted surveys of crossborder travelers at the San Ysidro, Otay Mesa, and Tecate POEs to assist in the development of a model that estimates economic impacts of border delays in the economy of the San Diego-Baja California region. People traveling in personal vehicles and buses, as well as individuals crossing on foot, were interviewed as they crossed from Mexico into the United States.

A total of 3,603 interviews were conducted between November 10 and December 12, 2004, as well as between January 18 and February 26, 2005. Of those interviews, nearly 2,600 took place at San Ysidro, approximately 900 at Otay Mesa, and about 160 at the Tecate POE. This chapter provides results from surveys conducted at the Otay Mesa POE and highlights differences from the overall survey responses.8

OTAY MESA PORT OF ENTRY: KEY FINDINGS OF CROSSBORDER TRAVEL SURVEYS

- Nearly 70 percent of crossborder travelers who cross at the Otay Mesa POE live in Mexico.

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8 SANDAG’s analysis of crossborder surveys conducted at the Otay Mesa Port of Entry for Estimating Economic Impacts of Border Wait Times at the San Diego-Baja California Border Region, 2006.
• 97 percent of respondents who live in Mexico began their trip in Tijuana.

• For people who live in Mexico, almost 32 percent of the trips had a destination in the City of Chula Vista, and another 20 percent of the trips were destined for San Ysidro. The community of Otay Mesa was the destination of 14 percent of the trips.

• For people who live in the United States, 87 percent of the trips had a destination in the City of Tijuana.9

9 No chart is included for trip origins of crossborder travelers who live in the United States due to the large number of different origins.
On average, more than 60 percent of border crossings into the San Diego region via the Otay Mesa POE made by people who live in Mexico are for shopping or errands (63.1%), and nearly one out of four crossings are work or business trips (23.8%). The overall share of work trips for all respondents at San Ysidro, Otay Mesa, and Tecate POEs was 18.1%. Visiting friends and family also is a significant reason for crossing, and it accounts for almost one in five northbound crossings (19.8%).

The surveys revealed different patterns for crossings into Mexico. The most common trip purpose is visiting family or friends (58.7%), then shopping or errands (26.7%), followed by recreation or vacation (25%).
On average, in the previous 30 days, travelers who live in the United States crossed about eight times into Mexico, while travelers who live in Mexico crossed twelve times in the northbound direction. More than 38 percent of travelers who live in Mexico crossed more than ten times into the United States. About 22 percent of travelers who live in the United States crossed more than ten times in the southbound direction.

![Number Of Times Crossing The Border at Otay Mesa POE](chart.png)

**CONCLUSIONS**

Survey results indicate that nearly 70 percent of travelers from Mexico who cross at the Otay Mesa POE have a destination in South San Diego County, they travel mainly for shopping or work purposes, and almost 40 percent cross the border frequently (more than ten times in a month). These travel patterns suggest transportation improvements in Tijuana that would facilitate access to the border crossing both for drivers and for transit users, including implementation of peak period transit services to serve commute trips. Similarly, in the San Diego region, completion of SR 905 and the South Bay Expressway, as well as continuation of the MTS Route 905 service and implementation of planned regional transit routes, such as the South Bay Bus Rapid Transit service, would serve the crossborder travel patterns identified in the survey. It is estimated that, on average, at least 30,000 commuters travel across the border on weekdays from Tijuana/Tecate.

The survey also shows that all crossborder travelers from the San Diego region who cross at the Otay Mesa POE travel in the City of Tijuana, either as the final destination or to reach Rosarito or Ensenada. They cross principally to visit family and friends, although shopping and vacation trips also are an important reason to cross. In addition, more than 20 percent are frequent crossers. Improvements to local streets in Tijuana, which would link the POE with the regional transportation network, would facilitate the shopping and social trips identified in the survey.
TRANSPORTATION

INTRODUCTION

This chapter describes the multimodal transportation network in the study area and provides background information on the transportation issues discussed at the binational workshops, which are listed below. It also includes early action strategies to begin to address them.

- Future East Otay Mesa – Otay II POE and connecting roads
- Improvements to existing Otay Mesa-Mesa de Otay POE and connecting roads
- Improvements to crossborder and regional public transportation services

EXISTING SETTING

The transportation network in the Otay Mesa-Mesa de Otay binational area serves commuter, shopping, tourist, and goods movement travel within the United States and Mexico, as well as crossborder travel via the Otay Mesa-Mesa de Otay POE. This POE is the main commercial crossing between California and Mexico. In addition, the Otay Mesa POE handles a significant amount of commuter and tourist traffic between San Diego and Tijuana. The San Ysidro POE is located west of the study area and is the busiest passenger border crossing along the U.S.-Mexico border. It handles about 70 percent of the vehicle crossings and more than 80 percent of people traveling on foot into the San Diego region.

Interstate 805 (I-805) and SR 905/Otay Mesa Road are the main highways that serve the Otay Mesa area, while the Tijuana-Tecate Toll Road and the Tijuana-Rosarito Corridor are the principal regional facilities in Mesa de Otay. Figure 4 shows the existing transportation network, while Figure 5 illustrates the planned transportation network and land uses within the study area.

Otay Mesa-Mesa de Otay POE

In 1985, the Otay Mesa POE was developed as a passenger and commercial POE. From 1985 to 1994, it handled only northbound cargo operations. In 1994, all southbound commercial cargo was rerouted from the Virginia Avenue gate at the San Ysidro POE to Otay Mesa. However, more than two decades after the federal inspection facilities began operating, the transportation network to serve this new POE still is under development. For many years, the only linkage between the POE and the regional highway system was via a four-lane city street, Otay Mesa Road, which was widened to six lanes in 1999. The only section of SR 905 extended to date includes approximately one mile between the Otay Mesa POE and Airway Road, including the interchange at Siempre Viva Road.

More than 6.8 million private vehicles and about 1.5 million pedestrians crossed northbound at the Otay Mesa border station in 2005. Also in 2005, the Otay Mesa-Mesa de Otay POE handled
$24.4 billion worth of goods in both directions that were transported in more than 1.4 million trucks. The Otay Mesa POE has the highest rank in California and the third rank along the entire U.S.-Mexico border in terms of value of trade.

**Figure 4**
Current Transportation Network
Passenger and commercial crossings from Mexico into the United States, as well as bilateral trade, have grown significantly over the years, as shown in Figures 6 through 9. A noticeable increase in passenger vehicle crossings has taken place in 2004 and 2005. Pedestrian crossings have more than doubled since 2001, after reaching a peak in 2002 as a result of a shift from vehicle to pedestrian crossings due to longer vehicular waits at the border following the 9/11 events.

Delays in crossing the border have increased and become more unpredictable over time. Border wait times – especially in the northbound direction – are a result of growth in crossborder travel and stricter security screenings, coupled with constraints in transportation infrastructure. A recent SANDAG study\textsuperscript{10} quantified economic opportunities lost because of current and projected traffic congestion and delays at the San Diego-Baja California POEs. In particular, current delays for both personal crossborder trips and freight movement cost the San Diego-Baja California region

\textsuperscript{10} SANDAG, Estimating Economic Impacts of Wait Times at the San Diego-Baja California Border, 2006.
$4.2 billion in lost output and a loss of more than 42,000 jobs in 2005. If steps are not taken to improve border crossing and transportation infrastructure and management, these losses are projected to more than double in the next ten years.

Figure 6
**Otay Mesa POE - Northbound Passenger Vehicle and Bus Crossings**

Source: U.S. Customs and Border Protection, Field Operations Office (data represent federal fiscal year)

Figure 7
**Otay Mesa POE: Northbound Pedestrian Crossings**

Source: U.S. Customs and Border Protection, Field Operations Office (data represent federal fiscal year)
Figure 8
Otay Mesa POE: Northbound Truck Crossings

Figure 9
Otay Mesa-Mesa de Otay POE: Two-Way Value of Trade

Source: U.S. Customs and Border Protection, Field Operations Office (data represent federal fiscal year)

Source: U.S. Bureau of Transportation Statistics, Transborder Freight Data, 2006
Figure 10 shows projected crossborder travel demand at the San Diego-Tijuana POEs. To provide additional crossborder travel capacity, a new POE has been proposed about two miles east of the existing Otay Mesa crossing. SR 11, an east-west extension of future SR 905, would connect the future East Otay Mesa-Otay II POE to a new facility in Tijuana, which would link to the Tijuana-Tecate Toll Road and the Tijuana-Rosarito Corridor.

**Figure 10**

San Diego-Tijuana POEs: Projected Crossborder Daily Vehicle Travel Demand (Two-Way)

Highways

I-805 is the main north-south corridor serving the Otay Mesa area. Scheduled to open in early 2007, the South Bay Expressway (SR 125 Toll Road) will provide a new north-south corridor linking the border area and new communities in eastern Chula Vista to the rest of the San Diego region. This toll road is being funded through a public/private partnership.

Interim SR 905 (SR 905/Otay Mesa Road) is the principal east-west facility and provides the only access to the Otay Mesa POE. Forty thousand to sixty thousand vehicles travel daily on this road between I-805 and the border crossing. Trucks represent about 15 percent of the traffic. The first segment of the SR 905 extension, from the Otay Mesa POE to Airway Road, opened to traffic in September 2005. Construction of the second segment, from east of I-805 to Airway Road, is scheduled to begin in early 2007 and will take three to four years to complete. Cost increases, especially related to right-of-way acquisition, have delayed the completion of this project.
The Tijuana-Tecate Toll Road is the principal east-west highway in Mesa de Otay. It begins in the Mesa de Otay district of Tijuana, ending east of the city of Tecate. It is a 22-mile, 4-lane, controlled-access highway. This highway continues as a free facility for 41 miles to La Rumorosa and as a 30-mile toll road to El Centinela, west of Mexicali.

Currently under construction, the Tijuana-Rosarito Corridor will link Mesa de Otay in Tijuana and Playas de Rosarito. A connection to the future Otay II POE is under evaluation. The entire 28-mile facility is anticipated to be completed in late 2006.

As described in the previous section, the proposed SR 11 would link the future East Otay Mesa POE to SR 905 and the South Bay Expressway.

**Transit**

MTS provides public transportation between the Otay Mesa POE, the Iris Trolley Station, and the San Ysidro Trolley Station every 30 minutes on weekdays during morning and afternoon peak periods. Service starts at 4:50 a.m. and ends at 7 p.m. However, there is no service between approximately 10 a.m. and 1 p.m. In 2005, nearly 441,000 passengers traveled on MTS Route 905. Figure 11 illustrates current and planned transit services within the study area. The proposed routes shown in Tijuana are part of the City’s Draft Public Transportation Plan.

As a result of the MTS Comprehensive Operational Analysis, improvements to bus Route 905 are scheduled to start on September 3, 2006. Most notably, Route 905 will operate throughout the day with 30-minute frequencies (instead of only morning and afternoon peak periods), extending the service until 8:25 p.m. During peak periods, additional service will be provided to serve Otay Mesa business parks (Route 905A). Also, there will be new transit service on weekends every 30 minutes.

The end point of Route 905 will be at the Iris Avenue Trolley Station, while Route 929 will provide service between the Iris Avenue Trolley Station and the San Ysidro Trolley Station. Route 929 will be increasing to 15-minute frequencies all day on weekdays and 30-minute service on weekends.

The planned South Bay Bus Rapid Transit (BRT) will provide direct service between the Otay Mesa POE and downtown San Diego. This BRT route would travel on the South Bay Expressway, I-805, and SR 94 and would serve the developing communities in eastern Chula Vista. Service between eastern Chula Vista and downtown San Diego would be implemented in 2010, and the extension to the Otay Mesa POE is anticipated to begin operating in 2015.

The potential for additional regional transit services in the Otay Mesa area will be evaluated as the City of San Diego continues its update of the Otay Mesa Community Plan in the next several months.
Airports

Two airports are located in the Otay Mesa-Mesa de Otay binational area. Brown Field is a general aviation airport and POE for private aircraft flying into the United States from Mexico. This airport is owned and operated by the City of San Diego. It has an 8,000-foot-long runway that can accommodate most aircraft and a second 3,000-foot-long runway.\(^\text{11}\)

The San Diego County Regional Airport Authority is updating Brown Field’s Airport Land Use Compatibility Plan (ALUCP). The ALUCP contains compatibility criteria and review procedures for compatibility concerns such as noise, overflight, safety, and airspace protection. The City of San Diego is responsible for implementing the ALUCP, ensuring consistency with the General Plan, and submitting projects for review by the Airport Land Use Commissions (ALUC). The Airport Authority anticipates adopting the final ALUCP in 2007.

Tijuana International Airport is a passenger and cargo airport with service to major cities in Mexico. It has a single runway of 9,800 feet with options to extend it up to 15,000 feet and to build a second runway. Tijuana International Airport handled nearly 3.4 million passengers in 2004.\textsuperscript{12}

Since the late 1990s, the concept of a crossborder passenger terminal has been discussed to provide easier access for travelers from the United States to the Tijuana International Airport. Travelers would park at a terminal that would be located in the community of Otay Mesa and proceed to the Tijuana Airport via a secured walkway. The South County Economic Development Council conducted the Crossborder Air Passenger Terminal Facility study in 1998. According to this study, a crossborder terminal would reduce vehicular congestion at the San Ysidro and Otay Mesa POEs by as much as three percent. Direct foreign flights would increase the economic activity along the Otay Mesa-Tijuana corridor and extend the operational life of the San Diego International Airport. Surveys conducted for this study at the Tijuana airport estimated that 1.09 million annual passengers originate from the Southern California region.\textsuperscript{13}

In December 2005, the possibility of the cross border terminal was discussed with Mexican government officials during a trade mission to Mexico City arranged by the San Diego Regional Chamber of Commerce’s Mexico Business Center. In July 2006, the San Diego County Regional Airport Authority’s Board accepted its Strategic Planning Committee recommendation to develop a scope of work for a crossborder terminal development with participation from other stakeholder agencies, including the operator of the Tijuana International Airport. The scope of work and cost estimate are anticipated to be presented to the Authority’s Board in September 2006 for action. Following approval from the Authority’s Board, staff would seek funding from the Federal Aviation Administration.\textsuperscript{14}

\textbf{Freight Rail}

There is no freight rail service within the study area. However, there is a crossborder "short-haul" railroad, the San Diego and Arizona Eastern (SD&A) Railway, which connects San Diego to the north with Los Angeles and the nation’s intercontinental railway network via de Burlington Northern Santa Fe and Union Pacific Railways. In 2005, more than 6,000 carloads (equivalent to 48,000 truck trips) crossed the border predominantly in the southbound direction. The main commodities moved include liquefied petroleum gas, lumber, beverages, paper, grain, and sand.

The SD&A Railway also connects San Diego with the Imperial Valley via the Tijuana-Tecate Railway (owned by Mexico) and the SD&A Desert Line. Beginning in 2005, the Desert Line was opened to limited service (10 mph). Further rehabilitation of both the Desert and Tijuana-Tecate Lines and restoration to modern service is necessary to improve the market potential of this route for international and interstate movement of goods in, out, and through the Southern California/Baja California region.

\textsuperscript{12} http://www.aena.es/, accessed on 9/16/05.
\textsuperscript{13} South County Economic Development Council, Crossborder Air Passenger Terminal Facility, Phase I Report, 1998.
\textsuperscript{14} San Diego County Regional Airport Authority, Authority Board Meeting, July 24, 2006.
The proposed Desert Line improvements are not expected to significantly reduce the present amount of crossborder truck traffic on the region’s highways and arterials. However, rehabilitation of the Desert Line to modern service would likely attract companies with east-west shipping interests to locate in northern Baja California. In addition, proposals to expand port facilities at the Ports of San Diego and Ensenada (Mexico) would likely affect crossborder freight transportation, although those potential impacts have not been evaluated at this time.

As part of the development of the 2007 Regional Transportation Plan, SANDAG has prepared a draft Goods Movement/Freight Intermodal Strategy Issue Paper. One of the issues posed in this draft paper is whether rail alternatives should be considered to help reduce (or divert) the existing volume of crossborder trucks. Input from stakeholders and policy direction from the SANDAG Board of Directors on this and other freight issues will be sought in the next several months.

**FUTURE EAST OTAY MESA – OTAY II POE AND CONNECTING ROADS**

Development of a POE is a complex and lengthy undertaking which involves close coordination and collaboration with governmental agencies on both sides of the international border at the federal, state, regional, and municipal levels. Project development includes the border stations in each country and roads connecting those border stations to the regional transportation network. Various entities are responsible for different planning, permitting, and implementation activities in the United States and Mexico.

**Status of the Proposed East Otay Mesa-Otay II POE**

An early recognition of the need to plan for additional border transportation infrastructure is the letter of intent signed in 1998 by Caltrans, SANDAG, the County of San Diego, the City of San Diego, the Baja California Secretariat of Human Settlements and Public Works (Secretaría de Asentamientos Humanos y Obras Públicas del Estado de Baja California or SAHOPE), and the Municipalities of Tijuana and Playas de Rosarito to preserve the binational highway corridor created by SR 11/SR 125 and the Tijuana-Rosarito Corridor, including support for the creation of a new POE designated as East Otay Mesa-Otay II.

**United States**

In 2000, Caltrans prepared a project study report (project development support) for SR 11, which would connect the East Otay Mesa border station to the regional roadway network (SR 905 and SR 125), as well as provide local area access. In 2001, Caltrans also submitted an application to the U.S. Department of State (DOS) for a New Port of Entry at East Otay Mesa.

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16 There is also a proposal for a new Baja California seaport at Punta Colonet, south of Ensenada, which would have a rail connection to Mexicali.
17 SAHOPE was restructured and is now called Secretaría de Infraestructura y Desarrollo Urbano Estatal/Secretariat of Infrastructure and Urban Development or SIDUE.
18 At the time of submittal in 2001, Presidential Permits were not required for land crossings (crossings without a bridge). However, requirements for new land crossings were similar to those for projects requiring Presidential Permits, particularly with regard to environmental documentation and were evaluated through the same interagency process. In 2004, Executive Order 13337 was signed requiring Presidential Permits for land border POEs. DOS is developing new guidance...
In 2002, a Biological Constraints Report for SR 11 was completed. Spring biological surveys were conducted in 2005. A consultant was hired in November 2005 to prepare the environmental document.

In December 2005, Caltrans District 11 – as the East Otay Mesa POE project sponsor – met with the White House Council on Environmental Quality (CEQ) and other federal agencies to discuss the coordination of the presidential permit and environmental clearance processes for the East Otay Mesa POE and SR 11. At this meeting, it was agreed that Caltrans would conduct the environmental work for SR 11 to comply with the California Environmental Quality Act (CEQA) and would work as co-lead with the U.S. Federal Highway Administration (FHWA) to comply with the National Environmental Policy Act (NEPA) requirements.

At this meeting, it was also confirmed that the East Otay Mesa POE had been included in the U.S. Customs and Border Protection (CBP) five-year Capital Improvement Plan. Inclusion in this plan allows CBP to request that the U.S. General Services Administration (GSA) commence work on the project (e.g., preparation of standard prospectus, feasibility study, and design process). GSA has requested correspondence from CBP (Field Operations and the Office of Finance) stating that they would like GSA to move forward with the project development process for the East Otay Mesa POE.

U.S. DOS coordinates with the Government of Mexico through the Secretariat of Foreign Relations (SRE) and the Embassy of Mexico on issues affecting the U.S.-Mexico border. U.S. DOS communicates with the Government of Mexico via diplomatic notes. In January 2006, U.S. DOS sent the Embassy of Mexico a diplomatic note stating the interest of the U.S. federal government in the construction of a new border crossing at East Otay Mesa. A response from the Government of Mexico was forwarded to U.S. DOS in May 2006 indicating the Mexican government’s interest in conducting the necessary feasibility studies on both sides of the border.

As part of a recommended follow-up from the December 2005 meeting with the White House CEQ in January 2006, Caltrans District 11/U.S. DOS established a U.S. interagency working group that meets regularly to coordinate environmental clearance, the Presidential Permit process, and other project planning activities on the U.S. side of the border. The working group has been meeting bimonthly and includes federal, state, and regional stakeholders involved in the development of SR 11 and the proposed new POE.

The proposed East Otay Mesa POE and SR 11 are currently in the environmental phase. Caltrans has met with various federal agencies to discuss the NEPA process. To accelerate the development of the project, it has been agreed that Caltrans will prepare a tiered or programmatic environmental document. The first phase will consist of a preliminary environmental document that will cover the footprint for both the POE and SR 11. This will allow for protection of the corridor and will improve the ability to compete for capital funding. The second phase would be project-level environmental documents developed separately for each portion of the project.

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for the Presidential Permit process for land border POEs. Presidential approval and signature are not necessary. Permits are signed by the United States’ Secretary of State and by Mexico’s Secretary of Foreign Relations.
Mexico

In 2002, SCT conducted a preliminary feasibility study to assess cargo operations at the existing Mesa de Otay POE and future Mexican General Customs Administration (Aduanas) needs in Tijuana, based on forecasts of trade and truck traffic. This study projected that approximately 7,600 average daily trucks would travel across the San Diego-Tijuana border in 2010, which would represent three times the truck volume in 1995. By 2020, an average of 11,500 cross-border trucks would travel daily. A conclusion of this study is that pressure on border transportation infrastructure will continue to be strong, and a new POE at Otay II should be implemented expeditiously. Additional studies for the future Otay II POE were developed by SIDUE, the Autonomous University of Baja California (Universidad Autónoma de Baja California or UABC), and SCT.

IMPlan coordinated the preparation of a partial program for the Improvement of Mesa de Otay Este (Programa Parcial de Mejoramiento de la Mesa de Otay Este), which covers the period between 2004 and 2025. This document considered the location of the future Otay II POE in Mesa de Otay Este. It also developed a circulation study to analyze three alternatives to link the proposed POE to Tijuana’s regional transportation network.

Concurrently with the preparation of the partial program, in August 2005, the Municipality of Tijuana issued a resolution that restricts the use of a 37-hectare parcel adjacent to the international border in Mesa de Otay Este for the future Otay II POE.

SIDUE also has prepared a scope of work for the development of an economic and financial study for the Otay II POE. SIDUE is seeking funding to conduct this study. Caltrans and SANDAG are conducting a financial feasibility assessment for the proposed SR 11 and East Otay Mesa POE.

In Tijuana, the Industrial Maquiladora Association (Asociación de la Industria Maquiladora or AIM) has been coordinating activities related to the future Otay II POE with the public and private sectors.

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19 Secretariat of Communications and Transportation (Secretaría de Comunicaciones y Transportes), Análisis para el Puerto Fronterizo de Otay II, 2002.
20 Secretaría de Desarrollo Urbano and IMPlan, Programa Parcial de Mejoramiento de la Mesa de Otay Este, en la ciudad de Tijuana, Baja California, 2005.
IMPROVEMENTS TO OTAY MESA-MESA DE OTAY POE AND CONNECTING ROADS

Background

In 2004, Caltrans District 11 completed the Transportation Infrastructure and Traffic Management Analysis of Cross Border Bottleneck Study (Bottleneck Study) at the request of the U.S.-Mexico Joint Working Committee (JWC). The Bottleneck Study responded to the U.S.-Mexico Border Partnership Action Plan and, specifically, to Action Item 2 of the 22-Point Smart Border Action Plan, which calls for developing a prioritized list of infrastructure projects and taking immediate action to relieve bottlenecks. In addition, Caltrans carried out the Phase I case study of the San Diego-Tijuana Gateway and identified a number of improvements in the operational efficiency and flow of vehicles traveling across the Otay Mesa Commercial POE and the San Ysidro POE.

Recommendations for southbound flow at the Otay Mesa-Mesa de Otay Commercial POE mostly focused on improving unsignalized traffic intersections, access leading to the U.S. export facility, and the re-routing of commercial empties within the Mexican import facility. For northbound truck traffic, the recommendations focused on operational improvements. In the area between Mexico’s Export facility and U.S. Import facility, a need was identified to increase the capacity for trucks leaving from the Mexican export to the U.S. import facilities from three to four lanes, and ultimately to eight lanes for a more efficient use of the existing inspection gates. Another improvement identified at this location is to re-route empty trucks to avoid entering secondary inspection compound and passing through a new x-ray and CBP booth to expedite the processing of empty commercial vehicles. In 2005, the U.S.-Mexico JWC accepted the Bottleneck Study and its methodology for borderwide use.

Proposed Improvements to Otay Mesa-Mesa de Otay Commercial POE

To follow up on the work conducted by Caltrans in the Bottleneck Study, several coordination meetings were held with participation from CBP, Mexican Customs, Caltrans, and SANDAG staff to review possible improvements within the Otay Mesa-Mesa de Otay Commercial POE. Figure 12 illustrates the capital and operational improvements jointly reviewed.

Caltrans has prepared a draft project study report for improvements within the U.S. import yard at the Otay Mesa border station. This project includes the following components: add approaches and gates for two regular inspection booths; extend the existing Free and Secure Trade (FAST) lane; add another FAST lane north of the existing one; and stripe KEEP CLEAR zones at major changes of direction to help operational efficiency. The project components are shown in Figure 11 as items 6a and 6b. Caltrans will conduct additional preliminary engineering and environmental tasks in 2006. The project is anticipated to be operational in June 2007.

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22 The JWC was created through a memorandum of understanding between the U.S. Department of Transportation and Mexico’s Secretariat of Communications and Transportation in 1994. The JWC consists of transportation and planning representatives from the ten border states (four in the United States and six in Mexico), the U.S. Federal Highway Administration, U.S. Department of State, Mexican Secretariat of Communications and Transportation, and the Mexican Foreign Ministry. The formal charge of the JWC is “analyzing, developing, and coordinating border transportation plans and programs reflecting the needs of both countries.”


24 FAST is a commercial process offered by CBP to pre-approved importers, carriers, and registered drivers that results in quicker clearance across the border.
Figure 12
Proposed Capital and Operational Improvements at the Otay Mesa-Mesa de Otay Commercial Port of Entry

OTAY MESA COMMERCIAL PORT OF ENTRY
CAPITAL AND OPERATIONAL IMPROVEMENTS

1. Changeable Message Sign in U.S. at End of Tijuana 12th St.
2a. Remove Seized Vehicles to Redirect & Isolate FAST Traffic
2b. Install Gamma Equipment
3. Provide Lane Dividers
4b. Remove Seized Vehicles
4a. Expand Inspection Docks Re-Pave Compound
5a. Widen the Fence Opening to Accommodate Proposed Additional Truck Lanes Exiting Mexico's Export Facility
5b. Provide Additional Truck Return Lane (Rejected Vehicles) Additional Lane Empties With X-Ray Machine
6a. Stripe KEEP CLEAR & Provide Directional Signs to Open Booths
6b. Add 2 Incoming Lanes & Booths
7. Purchase Property for Additional Entry/Exit Inspection Booths

Legend

U.S.A.
MEXICO

U.S.A.
MEXICO

1 2 3 4 5

2.3.4.5

Short Term - 1 to 12 Months
Medium Term - 12 to 18 Months

5.7

Long Term - More Than 18 Months

Existing

High Priority

Medium Priority

Low Priority

June 22, 2006
CROSSBORDER AND REGIONAL PUBLIC TRANSPORTATION SERVICES

South Bay BRT

The South Bay BRT project is one of the highest priority transit projects in the 2030 Regional Transportation Plan (RTP) and the TransNet Early Action Program (EAP). The South Bay BRT will provide high-speed transit connections between downtown San Diego and the Otay Mesa POE along the I-805 Managed Lanes and a dedicated transitway through eastern Chula Vista.

Figure 13 illustrates the South Bay BRT Corridor. The long-range plan envisions the BRT providing access to regional employment centers in downtown San Diego, residential and commercial areas in National City, transit-oriented villages in Otay Ranch, the future Otay Ranch Eastern Urban Center, the Otay Mesa Business Park, and the Otay Mesa POE. The TransNet Extension provides capital and operating funding for the first phase of this project between downtown San Diego and the Eastern Urban Center in Chula Vista beginning in 2010. A description of the second phase of this project, or the Otay Mesa segment, is provided in the section below.

Phase II: Otay Mesa Segment

South of the Eastern Urban Center, the southernmost station in the Otay Ranch development would serve a future major university or multi-purpose university center. South of this university station, the BRT would access the SR 125 toll road at the Otay Valley Road interchange. The South Bay BRT would then exit SR 125 at the Otay Mesa Boulevard station just south of SR 905. The route would continue for one mile to a station at the Otay Mesa POE. The Otay Mesa segment is expected to begin operations in 2015.

Otay Mesa POE Paseo de la Amistad Pedestrian and Bicycle Circulation Alternatives Study

SANDAG, MTS, and the City of San Diego have been coordinating efforts with Caltrans on the Otay Mesa POE Paseo de la Amistad Pedestrian and Bicycle Circulation Alternatives Study. This study is evaluating bicycle and pedestrian circulation improvements in the vicinity of the Otay Mesa passenger border crossing, including the extension of a pedestrian bridge along the west side of SR 905. Figure 14 illustrates existing bicycle and pedestrian circulation and highlights proposed pedestrian bridge and streetscape enhancements.

As part of this project, a parcel of land has been identified for a South Bay BRT transportation center that would be immediately adjacent to the pedestrian bridge under evaluation and would connect the border area with the transit station. The property is currently for sale. Because of its ideal size and location, SANDAG has hired a consultant to develop an appraisal with the potential to make an offer for this property. While it is desirable to move quickly on the parcel due to the limited locations near the border, there could be implications for potential Federal Transit Administration (FTA) funding for the project as a result of advanced acquisition. If it is determined that an offer should be made, a recommendation will be presented to SANDAG’s Transportation Committee for action.

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25 SANDAG, South Bay Bus Rapid Transit Project Status, April 2006.
Figure 13
South Bay Bus Rapid Transit Corridor

Downtown
Golden
Hill
18th St
47th St
H Street
Palomar
Otay Ranch
Villages
Otay Mesa
Border Crossing

Phase I
Phase II
Figure 14
Paseo de la Amistad Pedestrian and Bicycle Circulation Alternatives

![Map of Paseo de la Amistad Pedestrian and Bicycle Circulation Alternatives](image)

**Legend**
- Existing bike and pedestrian traffic circulation flow
- Improve existing bike and pedestrian safety traffic circulation flow
  - *Crossing State Route 905* (An average of one crossing per minute)
  - *Walking along highway shoulder*
- Existing drop off and pick up points
- Existing / recently completed bike and pedestrian path
- Proposed north (extension) - south pedestrian bridge
- Proposed streetscape enhancements
  - *Widen sidewalks, benches, and bus stops / shelters*
- Photo location / orientation

Otay Mesa
Port of Entry Pedestrian and Bike Circulation Alternative Study
City of Tijuana’s Draft Public Transportation Plan

One of the objectives of the partial program for the Improvement of Mesa de Otay Este is to improve the accessibility and mobility of people and goods for local and regional travel, as well as crossborder travel, giving high-priority to public transportation. In addition, the Partial Program identifies the Industrial Zone as the most important job center in Mesa de Otay and proposes to improve its transportation facilities, transit services, and urban image.\(^{26}\)

A strong demand for transportation facilities and transit services in the City of Tijuana requires administration, control, and planning actions that could be implemented gradually over time. Restructuring transit services to meet the travel patterns of the residents represents a challenge.\(^{27}\)

The City of Tijuana has identified several current issues related to public transportation services,\(^{28}\) which include saturated streets and roads due to growth in vehicular traffic, transit boardings in inadequate places, an older bus fleet, congested travel lanes due to the lack of schedules for transit routes, as well as deficient control of transit operations.

An origin and destination survey revealed that the mode share for walking trips is estimated at nearly 42 percent, while 32 percent of the trips are auto trips. Fixed-route transit trips account for nearly 18 percent of the trips. Four percent of the trips are made by bicycle.

To analyze travel patterns within the city, 14 basins, or travel zones, were delineated. Zone numbers 8 and 9 correspond generally with Mesa de Otay Este and the Alamar River zone, as shown in Figure 15. Several transit routes are proposed in each of these zones. The City of Tijuana’s evaluation proposes a phased restructuring of the City’s transit services.

EARLY ACTION STRATEGIES

**ISSUE**— 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

\(^{26}\) Secretaría de Desarrollo Urbano and IMPlan, Programa Parcial de Mejoramiento de la Mesa de Otay Este, Pages 14 and 15, 2005.

\(^{27}\) City of Tijuana, Estudio Integral para la Reestructuración de Rutas de Transporte Público de Pasajeros en el Municipio de Tijuana (2004-2025).

\(^{28}\) Transit services are provided by private operators under concession agreements with the City of Tijuana.
Figure 15
City of Tijuana’s Travel Zones
Under the umbrella of the San Diego-Tijuana Border Liaison Mechanism (BLM), the Consulate General of Mexico in San Diego and the U.S. General Consulate in Tijuana would request that the Binational Group on Projects of International Ports of Entry (California – Baja California Region), under the Infrastructure and Ports of Entry Committee, establish a Technical Commission. This Technical Commission would be responsible for coordinating planning and implementation activities for the new POE and connecting transportation facilities on both sides of the border. Figure 16 illustrates the organizational chart of the San Diego-Tijuana BLM. Proposed objectives of the East Otay Mesa-Otay II POE Technical Commission are outlined below:

- Identify the planning process that needs to take place on both sides of the border to effectively implement the new POE and connecting roads.
- Prepare a joint work program and master calendar of tasks to align implementation activities for the new POE, including connecting roads and land acquisition on both sides of the border.
- Identify or confirm the lead agency for each task.
- Facilitate the dissemination and sharing of information on ongoing and future planning and implementation activities.
- Evaluate the feasibility of financing the POE and connecting roads on both sides of the border through public private partnerships, including tolls, developers’ contributions, or other innovative financing mechanisms.
- Evaluate the feasibility of utilizing innovative crossborder strategies to mitigate environmental impacts of transportation facilities.

**Technical Commission Representatives**

Initially, the East Otay Mesa-Otay II POE Technical Commission would include executive level staff from the following agencies:

- United States
  
Figure 16

Organizational Chart of the San Diego-Tijuana Border Liaison Mechanism

Border Liaison Mechanism San Diego - Tijuana

Public Safety and Civil Protection Committee
1. Public Safety, Civil Protection, and Border Incidents Authorities Working Group
2. Binational Public Safety Working Group
3. Auto Theft Working Group
4. Binational Communications Working Group
5. San Diego-Tijuana Emergency Preparedness Response Task Force

Infrastructure and Ports of Entry Committee
1. Ports of Entry Authorities Working Group
2. Port Working Group
3. Cargo Working Group
4. Binational Group on Projects of International Ports of Entry, California - Baja California Region
   a. Technical Commission for Otay II
   b. Technical Commission for El Chaparral-San Ysidro

Migration and Consular Protection Committee

Environment and Natural Resources Committee

Tijuana River Basin Working Group
Mexico
Secretariat of Exterior Relations (Secretaría de Relaciones Exteriores), Consulate General of Mexico in San Diego, Secretariat of Communications and Transportation (Secretaría de Comunicaciones y Transportes), General Customs Administration (Aduanas), National Migration Institute (Instituto Nacional de Migración), Institute for Management and Appraisals of Federal Properties (Instituto de Administración y Avalúos de Bienes Nacionales), Office of the Governor of Baja California, Secretariat of Infrastructure and Urban Development of Baja California (Secretaría de Infraestructura y Desarrollo Urbano del Estado), Municipality of Tijuana, Municipal Planning Institute of Tijuana (Instituto Municipal de Planeación), and Municipality of Playas de Rosarito.

Other agencies may be invited to participate on specific tasks as work progresses.

The San Diego-Tijuana BLM would call meetings of the East Otay Mesa-Otay II POE Technical Commission as needed to share progress on the activities under their guidance.

An initial set of studies and activities that would be conducted has been identified, as shown below.

- SR 11 and East Otay Mesa POE programmatic or tiered Environmental Impact Report (EIR)/Environmental Impact Statement (EIS).
- Feasibility Study for Otay Mesa and East Otay Mesa Border Stations (GSA’s Functionality Study).
- Otay II POE Technical Feasibility Study (INDAABIN’s Functionality Study).
- Financial Feasibility Assessment for the East Otay Mesa-Otay II POE and connecting transportation facilities and Otay II POE Financial Feasibility Study.
- Land Use/Open Space Conservation Study for SR 11 potential alignments.
- Land acquisition for the Otay II POE.

ISSUE— Improvements to existing Otay Mesa-Mesa de Otay POE and connecting roads

EARLY ACTION— Coordinate with CBP 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

As shown on Figure 11, several capital and operational projects have been identified to improve the efficiency of commercial inspections at the Otay Mesa-Mesa de Otay border crossing. Caltrans is leading the implementation of two of those projects in the Otay Mesa border station. In cooperation with
Caltrans, SANDAG proposes to continue coordination efforts with CBP, GSA, and Mexican Customs toward funding and implementing the remaining improvements at the U.S. and Mexican border stations.

**LEAD/PARTICIPATING AGENCIES**— SANDAG, Caltrans, CBP, GSA, Mexican Customs

**EARLY ACTION**— Explore the feasibility of short-term operational and capital improvements at the Otay Mesa-Mesa de Otay Passenger POE (operations and facilities)

SANDAG proposes to collaborate with CBP, GSA, Caltrans, and Mexican Customs to explore the feasibility of identifying short-term operational and capital projects to improve travel flows and the efficiency of security screenings at the passenger inspection facilities.

**LEAD/PARTICIPATING AGENCIES**— SANDAG, Caltrans, CBP, GSA, Mexican Customs

**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

As described in earlier chapters, the City of San Diego is analyzing three alternative scenarios that contemplate a range of industrial, commercial, and residential land uses. SANDAG proposes to work together with the City of San Diego, Caltrans, and MTS on the evaluation of future travel demand in the Otay Mesa corridor to serve the proposed alternative land uses.

**LEAD/PARTICIPATING AGENCIES**— City of San Diego, SANDAG, Caltrans, MTS

**ISSUE**— Improvements to crossborder 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

In its FY 2007 Overall Work Program, SANDAG proposes to conduct advanced planning, including studies of right-of-way requirements, station siting, and priority measures at the border for the Phase II: Otay Mesa segment of the South Bay BRT.

**LEAD/PARTICIPATING AGENCIES**— SANDAG, City of Chula Vista, City of San Diego, Caltrans, MTS
EARLY ACTION— Complete the Otay Mesa POE Paseo de la Amistad Pedestrian and Bicycle Circulation Alternatives Study. To complement this study, perform right-of-way engineering services, including title, appraisal, and potential acquisition negotiations for a parcel in the vicinity of the Otay Mesa POE where a proposed South Bay BRT Transportation Center would be located.

LEAD/PARTICIPATING AGENCIES— Caltrans, SANDAG, MTS, City of San Diego

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.

As described in this chapter, the City of Tijuana has evaluated trip origins and destinations, as well as travel modes and patterns within the city. An evaluation of the transit routes proposed to serve the Otay Mesa-Mesa de Otay POE, as well as consideration of transit services to and from the San Ysidro POE, is proposed to be conducted. This analysis also would take into account existing and planned transit services in South San Diego County.

LEAD/PARTICIPATING AGENCIES— SANDAG and IMPlan
ECONOMIC DEVELOPMENT

INTRODUCTION

Two of the economic development issues discussed at the binational workshops are to promote creation or expansion of common employment clusters on both sides of the border and to address future industrial land use supply and demand. This chapter provides background information on these issues and proposes early action strategies to begin to address them.

EXISTING SETTING

The Otay Mesa-Mesa de Otay binational area is home to the busiest commercial border crossing between California and Mexico. The Otay Mesa POE handled $24.4 billion worth of freight in 2005, which represents the third highest dollar value of trade among all land border crossings between the United States and Mexico. The Otay Mesa POE also accommodates the second largest volume of passenger vehicles and buses between California and Mexico, after the San Ysidro border crossing. Crossborder travel contributes to economic activity on both sides of the border since the predominant reasons for crossing the border are for shopping, work, or social visits, in addition to goods movement.

The border crossing is the main conduit for the economic relationship of the San Diego-Tijuana region. Structural and economic differences between San Diego and Tijuana have been capitalized over the years to provide the binational region with a competitive advantage in the global economy. The San Diego region relies on the labor force available in Mexico, while Tijuana’s economy benefits from employment opportunities in San Diego. Anecdotal evidence suggests that the Tijuana housing market may be filling a gap in affordable housing in the San Diego region, bringing about increased crossborder commuting for work.

However, as described in the Transportation chapter, congestion and delays to cross the border have increased and become more unpredictable over time. Traffic congestion and wait times at the San Diego-Baja California POEs for both personal crossborder trips and freight movement cost the binational region $4.2 billion in lost output and a loss of more than 42,000 jobs in 2005. If steps are not taken to improve border crossing and transportation infrastructure and management, these losses are projected to more than double in the next ten years.

The Maquiladora program has supported economic development in Baja California, particularly in Tijuana. Established in the mid 1960s, this program allows plants in Mexico to temporarily import component parts from the United States or other countries and then to export the products. Maquiladoras rely on comparatively lower-cost Mexican labor to assemble, process, or manufacture

goods. The maquiladora industry not only has created employment opportunities in Baja California, but also in the San Diego region, including the Otay Mesa area.

The Otay Mesa-Mesa de Otay area has the opportunity to play a major role in the economic development of the San Diego-Tijuana region. Land use and employment data shown earlier in this report indicate that the City of San Diego’s Otay Mesa and the County of San Diego’s Otay community planning areas, as well as eastern Chula Vista contribute a large supply of developable industrial, commercial, and office lands. Employment is forecast to grow significantly by 2030 in these areas from nearly 14,700 jobs in 2004 to almost 72,000 jobs in 2030. Mesa de Otay, in Tijuana, also includes industrial land uses in the vicinity of the existing and planned border crossings and already is an important job center in the City of Tijuana with about 65,000 jobs in 2004.

EXISTING PLANS AND PROGRAMS

The San Diego region, as well as the City of Tijuana and the State of Baja California, have identified export-oriented industrial clusters. Industrial clusters are groups of complementary, competing, and interdependent industries that drive wealth creation in a region, primarily through export of goods and services. This section describes relevant plans on both sides of the border that evaluate industrial clusters.

San Diego Regional Economic Evaluation and Prosperity Strategy

The REPS is an extensive analysis of the San Diego regional economy that provides a historical context of local economic performance and a current snapshot of the San Diego economy.31 A comparative analysis with other metropolitan areas across the United States on a wide selection of indicators creates a benchmark with which to compare San Diego. Through this analysis, REPS identifies challenges facing the San Diego region and offers a set of recommended actions designed to meet these challenges.

The current REPS examines San Diego by four major indicator categories, which are listed below along with examples of each type of indicator.

- **Social and Economic Performance**
  - Population: change and characteristics
  - Labor Force
  - Personal Income
  - Employment
  - Poverty
  - Consumer Price Index/Inflation

- **Economic Development Capacity**
  - Educational Attainment
  - Residential Density
  - Housing
  - Affordability
  - Air Quality

- **Business Vitality**
  - Gross Regional Product
  - Industrial Wage and Salary
  - New Business Licenses/Bankruptcy Filings
  - Labor Force Productivity

- **Regional Infrastructure Capacity**
  - Commute Time
  - Infrastructure Investment
  - Regional Capital Improvements
  - Educational Expenditures

---

Driving the San Diego regional economy are 16 export-oriented industrial clusters, which are listed below.

- Biomedical Products
- Biotechnology and Pharmaceuticals
- Communications
- Computer and Electronics
- Defense and Transportation Equipment
- Design
- Entertainment and Amusement
- Environmental Technology
- Financial Services
- Fruit and Vegetables
- Horticulture
- Publishing
- Recreational Goods
- Software
- Specialty Foods
- Travel and Hospitality

The 1998 Prosperity Strategy recommended a set of actions related to infrastructure investment and regulatory reform. Related to economic development in the San Diego-Baja California border region, Action 6 recommends improving “the collaborative effort on the part of private sector organizations and government agencies that are jointly responsible for maintaining and improving the region's access to domestic and international markets. Included in these discussions should be representatives from the Republic of Mexico.”

To evaluate the Prosperity Strategy, SANDAG produces a Sustainable Competitiveness Index, which was last updated in 2005. Currently, SANDAG is collecting and analyzing data to identify regional strengths and weaknesses. SANDAG will be relying on this information to update the Prosperity Strategy in 2006.

Previous Prosperity Strategy reports tracked San Diego’s progress through the economic restructuring of the mid to late 1990s. In 1998, the Prosperity Strategy tracked San Diego’s emergence from the economic restructuring of the 1990s as a world-class, high-technology economy. The San Diego region faces new challenges, which require analysis and the development of strategies to improve the San Diego region’s economic performance. This examination will be the focus of the 2006 San Diego Regional Economic Evaluation and Prosperity Strategy, which is an element of SANDAG’s RCP.

**Otay Mesa Community Plan Update**

SANDAG currently is updating the 2030 Regional Growth Forecast based on recent local demographic and economic trends, a new forecast of the U.S. economy, and updates to local general and community plans. Between 2005 and 2030, the San Diego region is expected to grow by almost one million people, add 285,700 new homes, and add 456,200 new jobs.32

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Table 14 shows the current data and forecast results.

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2030</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Numeric</td>
<td>Percent</td>
<td></td>
</tr>
<tr>
<td>Total Population</td>
<td>3,051,280</td>
<td>4,007,753</td>
<td>956,473</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td>Housing Units</td>
<td>1,108,500</td>
<td>1,394,165</td>
<td>285,665</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Total Employment</td>
<td>1,382,671</td>
<td>1,838,899</td>
<td>456,228</td>
</tr>
<tr>
<td></td>
<td></td>
<td>33%</td>
<td></td>
</tr>
</tbody>
</table>

Source: SANDAG, 2030 Regional Growth Forecast Update, May 2006

Results from the regional forecast suggest that there is an imbalance in current plans between areas identified for future residential and employment growth. Over the forecast, the region fully develops all of its residential capacity. In 2030, however, there is still enough land designated for employment (17,000 acres) to locate over 228,000 jobs.

As described earlier in this report, as part of its update of the Otay Mesa Community Plan, the City of San Diego is considering several land use alternatives that would result in more land designated for residential uses and, concurrently, would reduce industrial acreage. These alternatives would accommodate between 12,400 housing units (No Project Alternative) and 31,800 units (Alternative 2). Industrial zoned land would range between 1,990 acres (Alternative 2) and 2,900 acres (No Project Alternative). The City of San Diego is conducting outreach activities to obtain community input regarding the plan update.33

The Otay Mesa Community Plan update presents an opportunity for an evaluation of the future demand of land for high value industrial clusters, while also taking into account competing demand for residential uses.

**Development Plans for the City of Tijuana and the State of Baja California**

The City of Tijuana’s Municipal Development Plan includes policies, objectives, strategies, and actions to guide the municipal administration over the three-year period from 2005 through 2007. An objective of the 2005-2007 Municipal Development Plan is to promote the creation of industrial clusters in six strategic areas, such as automotive industry, medical products, wood products, electronic industry, software, and information technologies.34

This plan also calls for fostering the preparation of strategic plans to develop clusters in cooperation with the federal, state, and private sectors.

33 City of San Diego Otay Mesa Community Planning Workshop, July 2006.
One of the economic development objectives of the State of Baja California Development Plan is to improve the state’s industrial competitiveness. The State of Baja California has identified export-oriented industrial clusters in the Municipality of Tijuana, and several of those clusters coincide with the ones included in the City of Tijuana’s Municipal Development Plan, such as the electronic industry, medical products, and automotive parts.

Table 15 highlights the commonality of the industrial clusters in the San Diego-Tijuana region.

<table>
<thead>
<tr>
<th>San Diego Region</th>
<th>Tijuana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software</td>
<td>Software and Information Technologies</td>
</tr>
<tr>
<td>Computer and Electronics</td>
<td>Electronic Industry</td>
</tr>
<tr>
<td>Biomedical Products</td>
<td>Medical Products</td>
</tr>
<tr>
<td>Defense and Transportation Equipment</td>
<td>Automotive Industry</td>
</tr>
</tbody>
</table>

Crossborder Innovation and Competitiveness Initiative

San Diego Dialogue’s Crossborder Innovation & Competitiveness Initiative is a multi-year effort to explore the concept that the San Diego-Baja California region will be more globally competitive in key science and technology sectors by leveraging economic development opportunities linking both sides of the border. This concept includes not only crossborder research partnerships, but also catalyzing connections between the San Diego and Baja California economies in high value-added sectors that link the Research and Development (R&D) capabilities to manufacturing and service industries in our region.

In early 2006, San Diego Dialogue - in partnership with CENTRIS and CICESE - completed a research project that identified “clusters of opportunity” with the potential to help the San Diego-Baja California region better compete in the global economy. This is the first major project conducted to advance the Crossborder Innovation and Competitiveness Initiative.

Borderless Innovation identified clusters of opportunity in high value-added sectors on both sides of the border, which could stimulate new kinds of industry partnerships and institutional alliances that could be beneficial to both Baja California’s economic growth and the continued competitiveness of San Diego’s high tech economy. A new Innovation Corridor of the Californias would be promoted through collaborative efforts to promote a new vision of the regional economy.
Borderless Innovation identifies biomedical devices, aerospace and defense, software, marine biotechnology, and clinical research as the most promising areas of collaboration. Additional clusters with potential for collaboration and joint marketing include: energy and environmental technologies, recreation and sporting goods, semiconductor manufacturing, and automotive.

The study presents three major findings outlined below:

1. There is a need for aggressive and collaborative marketing efforts describing the high value-added crossborder clusters in the region focused on high-tech and biotech industries interested in the physical proximity to all the components of the innovation ecosystem — from R&D to manufacturing and distribution.

2. Leadership from both sides of the border needs to come together to work collaboratively to significantly expand the research, technical assistance, professional, and workforce education programs essential to assuring sustainable growth and competitiveness.

3. New social and institutional mechanisms are needed to move the crossborder region beyond symbolism into action — action which involves shared leadership, co-investment, and well-orchestrated programs that build the competitiveness capacity of the cross-border region.

To create the Innovation Corridor of the Californias, Borderless Innovation includes ten recommendations, which are listed below:

1. Creation of a Crossborder Innovation and Competitiveness Center;
2. Launching a crossborder program to foster scientific and technology relationships, awareness of research, and commercialization of discoveries;
3. Providing ongoing research and analytical reports on crossborder clusters;
4. Working with Baja California to establish crossborder clinical research as a precursor to growing a transregional biopharmaceutical industry;
5. Promoting private investor networks in the Californias;
6. Promoting “smart border” technologies and infrastructure;
7. Expansion of existing and new crossborder education and research linkages;
8. Harmonization of economic, health, and education data;
9. Convening a high-level working group to assess the feasibility of a Californias model based on Costa Rica’s successful INBio program for conservation and sustainable development; and
10. Exploration of broader, non-technological economic linkages.

The study also identifies a number of major challenges for achieving a dynamic and competitive Innovation Corridor of the Californias. The most significant of these is assuring a secure and efficient border that enables frequent and rapid border crossings.
**EARLY ACTION STRATEGIES**

**ISSUE**— Promote creation or expansion of common employment clusters on both sides of the border and address future industrial land use supply and demand


In May 2006, the SANDAG Board of Directors approved the Regional Economic Evaluation and Prosperity Strategy Working Group, which will provide technical expertise and background knowledge of the regional economy and factors that contribute to its performance. This Working Group will participate in forming an evaluation framework for measuring progress and comparing the San Diego region against its competitors. It also will develop recommended actions for infrastructure investments and public policy support to strengthen the San Diego region’s economic foundation.

Involvement of representatives from a cross section of agencies and organizations that are integral to the economic structure of the San Diego region is considered vital to the success of the Prosperity Strategy. Opportunities to foster collaboration among governmental agencies, business groups, and academia in the San Diego-Tijuana binational region will be explored in order to develop shared strategies to improve trade related infrastructure improvements and to advance the development of common crossborder industrial clusters.

**LEAD/PARTICIPATING AGENCIES**— SANDAG, Regional Economic Evaluation and Prosperity Strategy Advisory Working Group

**EARLY 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

**LEAD/PARTICIPATING AGENCIES**— City of San Diego, SANDAG

**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

**Establish the Crossborder Innovation and Competitiveness Center**

As described in Borderless Innovation, this Center is envisioned as a binational, nonprofit entity that would serve as a catalytic agent for an integrative economic growth strategy in the binational region of the Californias, operating
a core set of research, education, and networking programs, and providing funding through re-granting to organizations focused on crossborder issues. The Center would support regional groups in capacity-building efforts in four key areas:

- Research of regional significance (e.g., binational economic indicators, crossborder cluster analyses and tracking developments in science and technology that affect the region’s future);
- Technical assistance to enhance the capacity of firms on both sides of the border to build world-class capabilities and the tools and strategies essential to successful crossborder partnerships;
- Development of binational workforce education and training programs that meet the needs of dynamic crossborder industries; and
- Promotion of community forums and civic initiatives related to maintaining and improving the binational region’s quality of life in a more integrated economic context.

In summer 2006, San Diego Dialogue will convene an advisory committee and develop a business plan for the Center. Grant applications also will be submitted for specific programs.

**Initiate a crossborder program to foster scientific and technology relationships, awareness of research, and commercialization of discoveries**

This program intends to build on other ongoing efforts such as the UCSD-originated CONNECT program to extend professional, private sector, and academic networks into the binational region. It would provide a forum for high technology professionals on both sides of the border to build new relationships, increase the awareness of ongoing research in academia and the private sector, and support the potential commercialization of new technologies that have been developed in the binational region.

Under the auspices of the Crossborder Innovation and Competitiveness Center, San Diego Dialogue anticipates convening a Technology Forum in 2006 to kick off the crossborder program.

**Work with Baja California to establish crossborder clinical research as a precursor to growing a transregional biopharmaceutical industry**

The knowledge, experience, and technical quality required to conduct world-class clinical research represent the foundation upon which a new crossborder cluster can be built. Benefits from pursuing this opportunity include new drug therapies that would become available to help solve shared public health challenges, enhancements to the region’s human capital, as well as attracting new outside investment to the region. Tentative steps have been taken to explore crossborder clinical trials efforts that would lead to a new crossborder cluster. Future activities include creating new education and training programs to clarify trial protocols and other regulatory requirements of agencies such as
the U.S. Food and Drug Administration (FDA) and Mexico’s Secretariat of Health.

San Diego Dialogue will establish a committee of local, binational experts from government, academia, UCSD Extension, and the biopharmaceutical industry to outline a phased approach for developing the necessary research capabilities, the infrastructure, and legitimate parallel studies (approved by both the U.S. FDA and Mexico’s Secretariat of Health) that will lead to the development of a larger crossborder biopharmaceutical industry. A workshop to jump start this committee is planned in Summer 2006.

**LEAD/PARTICIPATING AGENCIES**— UCSD Partnership with Mexico, San Diego Dialogue, CENTRIS, CICESE
Housing

This chapter provides background information on the housing issues discussed at the binational workshops, which are listed below. It also includes early action strategies to begin to address them.

- Address infrastructure needs of existing and future residential land use (e.g., water supply, sewage, schools).
- Address housing affordability issues and opportunities.
- Address future housing supply and demand.

Existing Setting

Housing Characteristics

As of 2003, it was estimated that there were 341,908 housing units in the City of Tijuana. Data collected by the City of Tijuana's Department of Urban Administration (Administración Urbana), show a steady increase in the number of building permits issued for new housing from 2003 to 2005. In 2003, 13,835 building permits were issued, while in 2004, the number of home construction permits issued dropped to 12,957. In 2005, 14,846 permits were issued.40 The City of Tijuana's housing chamber, Cámara Nacional de la Industria de Desarrollo y Promoción de Vivienda, forecasts that in 2006, approximately 17,000 housing units would be constructed in the City of Tijuana. This would represent about a 20 percent increase from the 14,846 units that were permitted in 2005.41

The City of Tijuana holds the distinction of having one of the highest housing growth rates in Mexico, second only to Mexico City.42 In fact, this partially explains Tijuana's 5.55 acres (or 2.25 hectares) daily growth rate.43 Most of the developments are being constructed by large housing development groups and are being built on the southern and eastern fringes of the city, where there is still an abundance of available land. Housing forecasts show that the number of housing units would more than double by 2030. In the Mesa de Otay section of the study area, there would be an estimated 62,936 housing units by 2030, which is more than double the 2004 number of 24,153 housing units.

The City of Tijuana's Urban Development Plan identifies the number of housing units needed for the projected population and their densities. Planners for the City derived the amount of acreage needed for future housing based on the average number of acres used to build homes from 2000 to 2005.

40 City of Tijuana’s Department of Urban Administration (Administración Urbana), December 2006.
41 El Mexicano Newspaper, Information provided by CANADEVI (Mexico’s National Housing Chamber – Tijuana Branch), December 2005.
42 Banamex, Mexican Housing Overview, Page 72, 2005.
43 Programa de Desarrollo Urbano del Centro de Población de Tijuana (PDUAPT) B.C., 2005.
The City of Tijuana currently permits 60 units per acre in certain specific planning areas (e.g., Mesa Zona Rio). Due to proposals for higher vertical developments, the City is considering raising the density to 75 units per acre in these areas.\(^{44}\) This is comparable to the residential density permitted in some parts of downtown San Diego.

**Tijuana and San Diego Home Prices**

This section presents data on the production of housing by type and price in Tijuana. The Mexican housing market is divided into six different market segments defined by price and income that are detailed in the Table 16.

<table>
<thead>
<tr>
<th>Homebuyer Segment</th>
<th>Price of Home (U.S. Dollars)</th>
<th>Annual Income Range (U.S. Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>&lt;$8,000</td>
<td>&lt;$3,000</td>
</tr>
<tr>
<td>Social</td>
<td>$8,000 to $20,000</td>
<td>$3,000 to $8,000</td>
</tr>
<tr>
<td>Economic</td>
<td>$20,000 to $38,000</td>
<td>$6,000 to $20,000</td>
</tr>
<tr>
<td>Middle</td>
<td>$38,000 to $100,000</td>
<td>$15,000 to $50,000</td>
</tr>
<tr>
<td>Residential</td>
<td>$100,000 to $200,000</td>
<td>$40,000 to $100,000</td>
</tr>
<tr>
<td>Residential Plus</td>
<td>over $200,000</td>
<td>&gt;$100,000</td>
</tr>
</tbody>
</table>

Source: Banamex, Mexican Housing Overview; page 79, 2005

An example of a typical new home in Tijuana that falls under the category of Economic would be a two-bedroom unit that measures 500 square feet (sq. ft.) on a 968 sq. ft. lot and starts at about $32,000. Homes at this price and less are built for the “social interest,” which includes the Minimum, Social, and Economic segments of the housing market. The monthly payment on such a home, based on a ten percent down payment for a 25-year loan at a 9.5 percent interest rate, is approximately $250.\(^{45}\)

A home that measures approximately 1,173 sq. ft. on a 1,205 sq. ft. lot and has three bedrooms with a view located in a gated exclusive neighborhood in Tijuana would run about $139,000. This home would be classified in the Residential segment, comparable to what we identify in the United States as being from the upper middle class. At this price, the monthly payment based on a ten percent down payment for a 20-year loan at an 11.98 percent interest rate, would be about $1,539.\(^{46}\)

In San Diego, a four-bedroom home located in a middle class neighborhood that measures approximately 1,860 sq. ft. on a 4,800 sq. ft. lot cost about $607,370. At this price a standard loan with a 6.875 percent interest rate would require a ten percent down payment of $60,737 and a total monthly payment of $4,638. A household would have to earn about $12,000 a month to qualify for this loan amount.

\(^{44}\) City of Tijuana’s Department of Urban Administration, (Administración Urbana), December, 2006.


\(^{46}\) Chapultepec Décima Sección, Credimexusa and Impulsora Habitacional Mexicana S.A. de C.V., February 2006.
Land values, lot sizes, density, labor and material cost, and supply and demand are examples of the contributing factors to determining home prices. For example, the most commonly used home construction materials used in Tijuana are a combination of cinder block exterior walls, cement foundations, and tiled or shingle roofs. These materials, along with labor cost, are much less expensive in Tijuana than in San Diego. Homes in San Diego are usually made from a combination of wood frame construction, stucco exterior walls, and cement foundations. These materials are more readily available in San Diego and represent a lower assembly cost than for materials used in Tijuana.

Higher residential densities also reduce land cost, which in turn, make homes more affordable. In fact, in the Tijuana portion of the study area, as identified in the Population, Housing, Land Use, and Employment Chapter, residential density is about 30 percent higher than San Diego’s side of the study area. This is perhaps another variable contributing to the lower home prices in Tijuana.

**Tijuana and San Diego Housing Markets**

For some developments, it is estimated that up to 30 percent of homebuyers who purchase first or second homes in Tijuana work or live in the United States, while citywide, the number is five percent. Ninety percent of the coastal properties are purchased by U.S. citizens who primarily purchase them as second homes. Only two percent of the homebuyers on the coast are estimated to commute to work in San Diego.

Unlike the United States, construction loans in Mexico are primarily made for the residential sales market (Appendix C). Consequently, there are not very many rental properties because there are very few banks that loan money to construct rental units. This makes renting a home difficult since only thirteen percent of the housing stock in Mexico is rental units.

Approximately 50 percent of the homes built in Tijuana are targeted to the social interest (interés social) market segment, which are homebuyers seeking a house that is priced at $40,000 or less. Another thirty percent of new homes being built are priced between $40,000 and $70,000, and ten percent are priced between $70,000 and $150,000. The other ten percent of homes built are priced above $150,000.

In stark contrast, the homes available in the top ten percent category in Tijuana have prices that are comparable with the inventory of homes available for the lower economic end of the San Diego home buying market. In March 2006, the median price for a home in San Diego was $607,370. Considering the prices shown above, there is a potential draw for low-wage San Diego home seekers to the Tijuana housing market.

The percentage of households in San Diego that is able to afford a median-priced home stood at nine percent in December 2005, compared with 11 percent for the same period in 2004, according to a report released by the California Association of Realtors® (C.A.R.). This trend is leading to an

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47 Fernando Tenorio Zepeda (Coordinandor de Ventas), Vivieca - Paseos del Florido, May 2006.
48 Luís M. Bustamante (Director), Credimexusa, March 2006.
49 Banamex, Mexican Housing Overview, Page 64, 2005.
50 California Association of Realtors: http://www.car.org/index.php?id=MzU5Mjg=
51 California Association of Realtors: http://www.car.org/index.php?id=MzU5Mjg=
increase in long-distance interregional commuting by the region’s employees who seek less expensive housing in Tijuana and surrounding Southern California counties.

**Tijuana and San Diego Housing-Related Infrastructure and Irregular Developments**

The cost for housing-related infrastructure in Tijuana is absorbed both by the city and developers. Developers in Tijuana are responsible for installing basic infrastructure (sewer, streets, and septic tanks). The City of Tijuana also requires developers to dedicate land for public facilities (equipamiento urbano). Some examples of these dedications include land for schools and fire stations. At the same time, the long-term cost for infrastructure maintenance and construction is shouldered by the City of Tijuana and Baja California’s State Commission for Public Works (Comisión Estatal de Servicios Públicos – CESPT).

The City of Tijuana and CESPT’s budgets are further strained by the large number of irregular settlements that are being built. These settlements are similar to what San Diegans would recognize as “squatter camps.” However, the settlements in Tijuana are more diverse in terms of size, permanence, and construction materials used. The settlements can be defined as self-built housing developed by a household, typically with the assistance of extended family, that lacks clear land title, is not formally connected to urban services, and is financed primarily with cash.\(^{52}\)

The initial structures are commonly built with a combination of building materials, which can include recycled wood garage doors imported from California and recycled cardboard. Over time, these structures become more permanent structures of brick and mortar construction.

The magnitude of this housing phenomenon overwhelms Tijuana's infrastructure. It is estimated that about fifty percent of all new homes built in Mexico each year are of this type.\(^{53}\) This is consistent with the City of Tijuana’s estimate that fifty percent of Tijuana residents do not have legal title.\(^{54}\)

These irregular settlements rarely have access to basic infrastructure. The City of Tijuana eventually provides municipal services to these irregular settlements. This does not come without cost. Local and state governments have limited budgets and have to pay up to four times more for installing infrastructure such as electricity, drainage, and potable water in settlements like these than they would have otherwise if it was a permitted development.\(^{55}\) After a period of approximately 15-25 years, these neighborhoods become a normal part of the city.\(^{56}\) This is unlike the experience of squatter settlements, which are typically located in floodplains and rural, farming communities of San Diego. These settlements rarely become permanent residences and are not provided basic infrastructure.

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\(^{52}\) The State of Mexico’s Housing, (prepared for CIDOC and CONAFIOVI by Joint Center for Housing Studies of Harvard University), Page 15, 2004.

\(^{53}\) Banamex, Mexican Housing Overview, Page 50, 2005.

\(^{54}\) La Frontera, “Estima el 50% No Tiene Su Titulo de Propiedad,” January 30, 2006.

\(^{55}\) The State of Mexico’s Housing, (prepared for CIDOC and CONAFIOVI by Joint Center for Housing Studies of Harvard University), Page 65, 2004.

\(^{56}\) Banamex, Mexican Housing Overview, Page 64, 2005.
EXISTING PLANS AND PROGRAMS

Land use decisions in the County of San Diego are based on the local jurisdictions’ and County of San Diego’s general and community plans. The RCP builds on local general plans and links transportation and land use planning at a regional scale. Similarly, land use decisions in the City of Tijuana are based on the City’s Urban Development Plan, which is Tijuana’s equivalent to a general plan. This planning process builds on designated specific plans, which function like the County’s community plans and are developed for the City of Tijuana’s specific planning areas.

City of San Diego - Otay Mesa Community Plan

With the update of its Otay Mesa Community Plan, the City of San Diego is evaluating possibilities for more residential and mixed-use developments in this area. This decision-making process is occurring at the same time regional growth forecasts suggest a future deficit in land available for housing and a surplus of employment land in 2030 (see page 52 of Economic Development chapter). The existing Otay Mesa Community Plan allows for approximately 12,400 housing units. The Draft Concept Plan contains several scenarios that propose including up to 19,000 more housing units than the current adopted plan.\(^{57}\)

Conversion of industrially zoned land to residential zoning would help to address the regional imbalance of land uses that is being forecasted. At the same time, it will be important to evaluate the impacts of new residential development in this area on the future demand for regional transportation infrastructure and transit services, as well as other regional infrastructure needs.

In addition, the City of San Diego should consider the “smart growth” land use policies and concepts contained in SANDAG’s RCP in determining the appropriate locations and urban design for residential and mixed-use developments, particularly in relation to future regional transit service in the study area. SANDAG staff already has begun working with the City of San Diego on this evaluation.

Brown Field Municipal Airport

As described in the Transportation Chapter, the Brown Field Municipal Airport is located within the City of San Diego’s Otay Mesa Community Planning area.\(^{58}\) Even though it is within the City’s planning area, the San Diego County Regional Airport Authority (Airport Authority) also has certain responsibilities regarding land uses at the airport. In addition, the Airport Authority is responsible for preparing an ALUCP, which deals with land use compatibility around the airport such as noise, overflight, safety, and airspace protection. The Airport Authority currently is updating the San Diego County ALUCP. State law requires that future land use developments be consistent with compatibility criteria found within the ALUCP.

\(^{57}\) City of San Diego Otay Mesa Community Planning Workshop, dated July 19, 2006.
\(^{58}\) San Diego County ALUCP-Public Use Airports Background Data (March 2005 Draft), Page 3.
**City of Tijuana**

The City of Tijuana’s Specific Plan for East Mesa de Otay (Plan Parcial de la Mesa de Otay Este) was completed in August 2005, and the Partial Program for Conservation and Urban Improvement of the Alamar River Zone (Programa Parcial de Conservación y Mejoramiento Urbano para la Zona del Arroyo Alamar) is expected to be completed by January 2007. The preparation of these plans is a joint effort between federal, state, and municipal governmental entities. These plans, together with the City’s Urban Development Program 2002 – 2025, serve to regulate housing development and general land use in the City of Tijuana and the corresponding Plans’ specific planning areas. The Specific Plan for East Mesa de Otay estimates there will be a total of 62,936 housing units by the year 2030.

**City of Tijuana’s International Airport**

Tijuana’s International Airport is managed by Grupo Aeroportuario del Pacífico (Pacific Airport Group). The SCT is the Mexican government agency that oversees the operations of this government owned facility. The SCT controls land use in and around the airport that impact its safety and operation.

**County of San Diego**

The East Otay Mesa Specific Plan was adopted December 17, 1994, and amended February 2, 2005. It sets out a comprehensive plan for the development of approximately 3,300 acres. Anticipated uses are business and industrial. The Specific Plan does not propose housing within its boundaries. Certain steep slope and biologically sensitive resources have been identified in areas that are zoned Rural Residential and Mixed Industrial and Commercial. These areas are subject to the Sensitive Resource Area Regulations of the zoning Ordinance.

**City of Chula Vista**

Chula Vista’s General Plan Update and related amendments to the Otay Ranch General Development Plan were adopted on December 13, 2005. Through these actions several changes were made to the land use and circulation network within the remaining Otay Ranch project area west of the Otay Reservoirs and south of Olympic Parkway. As further described below, these changes collectively added approximately 7,000 units of housing capacity mostly at multi-family densities, introduced a new town center concept for the prior Villages 2, 4, 8, and 9 areas, expanded employment areas, introduced a new town center roadway classification, realigned and redesigned future Rock Mountain Road and Otay Valley Road, and extended the transit network consistent with SANDAG’s Regional Transit Vision (RTV).

Village 2 (Village of Montecito) is planned as a pedestrian- and transit-oriented village with a larger and more intense core with frontage on La Media Road that will serve nearby communities, as well as Village 2 residents. Some 1,800 of the planned 2,500 units will be in multi-family or mixed-use areas at a density of 18+ dwelling units per gross acre. The expanded transit network includes a bus rapid transit route on La Media Road with a station in Village 2. Village 2 contains a high school and other institutional uses, and will have approximately 12 acres devoted to commercial uses.

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59 City of Chula Vista’s Otay Ranch General Development Plan, 2005.
To the south in the prior Village 4 and 8 areas, a new pedestrian-oriented, mixed-use town center is proposed around the intersection of La Media Road and Rock Mountain Road. Of the approximately 1,800 total units, 1,000 units are in the town center in mixed-use and multi-family settings at densities of 18 dwelling units per gross acre. The town center is bisected by La Media Road and Rock Mountain Road, which are designated as town center arterials intended to use a couplet design that will better accommodate pedestrians and the extended BRT network with a station in the town center.

Just to the east of this new town center and west of future SR 125 is a proposed Regional Technology Park (RTP) of approximately 125 to 200 acres that would accommodate research and high-tech manufacturing activities providing high-quality jobs and taking advantage of proximity to the university site to the east.

A new town center (Village 9) is located to the east of the RTP across SR 125 and adjacent to the planned university campus. It is also intended as a pedestrian-oriented, mixed-use area with higher residential densities strongly tied to the university and providing housing, retail, and other commercial and related services necessary to support the university. Its approximately 2,500 residential units are mostly attached and multi-family products with densities from 18 to 30 dwelling units per gross acre. In conjunction with future university land dedications, it is possible that another 800 units could be allowed. The South Bay BRT network includes a transit station at this location, along with a link to the route connecting Otay Ranch to Downtown San Diego and other activity centers to the north and south.

The planned 240-acre Eastern Urban Center is located to the north of the Village 9 town center and university and is bounded on the west by SR 125. As the most intensely developed hub, this mixed-use urban center will serve eastern Chula Vista and South San Diego County, integrating high-density housing, low- and mid- to high-rise office uses, and community- and regional-serving commercial and entertainment uses. It is envisioned as a unique and symbolic focal point for Otay Ranch and the broader subregion. Over 3,300 dwelling units are proposed at a density of over 40 dwelling units per gross acre. Building height can be up to 15 stories, and major office, retail, and cultural uses are ultimately envisioned. It will also be served by the expanded BRT system, serving a hub for three routes, including the primary transit connection to Otay Mesa and the international border.

**EARLY ACTION STRATEGIES**

**ISSUE**— Address future housing supply and demand, housing affordability issues and opportunities, and infrastructure needs of existing and future residential land use

**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
The City of San Diego is in the process of updating the Otay Mesa Community Plan. In addition to the No Project Alternative, three draft scenarios include plans for a significant increase in housing. Conversely, each of the scenarios would require the rezoning of industrial land to accommodate additional housing.

The collaboration would entail analyzing the issues related to proposed changes in land use (e.g., industrial to residential), transportation infrastructure, and regional housing supply. In the context of the Otay Mesa Community Plan update, opportunities should be explored in order to address the need for additional land for housing while considering competing demands for vacant land.

**LEAD/PARTICIPATING AGENCIES**— City of San Diego, SANDAG

**EARLY 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

This will require the Identification of areas suitable for the implementation of a comprehensive (urban) development. Some characteristics that will help the implementation of this development would be:

- Lawful ownership of land;
- Closeness to jobs;
- Infrastructure that is in good condition;
- Areas for commercial and service activities; and
- Roads that are in good condition.

**LEAD/PARTICIPATING AGENCIES**— IMPlan, SANDAG
ENVIRONMENTAL CONSERVATION

INTRODUCTION

This chapter provides background information on the environmental issues discussed at the binational workshops, which are listed below. It also includes early action strategies to begin to address them.

- Address conservation of urban river corridors (e.g., Alamar River and Otay River Watershed)
- Address surface water quality
- Address conservation of sensitive habitat corridors
- Address air quality

EXISTING SETTING

Biological Resources

This section presents data on the biological resources within the study area, which include vegetation communities, species (including high-priority plants and animals), and habitat types (including quality of habitat).

The Otay Mesa-Mesa de Otay study area represents only a portion of the proposed open space binational habitat conservation corridor proposed by the Las Californias Binational Conservation Initiative and is part of one of the most threatened and biologically unique areas in the world. In fact, Conservation International has designated it as one of the world’s 25 biodiversity hot spots, with more than 400 species listed as endangered, threatened, or otherwise sensitive to human impacts. The hot spot section of the study area can generally be described as the “San Ysidro Unit,” which includes the Otay Mountain Wilderness area and proposed adjacent open space areas on the Mexican side. The San Ysidro Unit includes Otay Mountain, San Miguel Mountain, Cerro San Isidro, Jesus Maria Mesa, and Tecate Peak which are located near the study area. This area can further be characterized as two main phytogeographic regions within the study area, which are identified by their climate, topography, and species composition.

Coniferous Forest

One of the phytogeographic regions is the Coniferous Forest zone, which is recognized by the presence of Tecate Cypress Forest and the unique species with which it is associated. Tecate cypress groves on Otay Mountain, Tecate Peak, and Guatay Mountain in San Diego County represent the

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60 Conservation Biology Institute, Las Californias Binational Conservation Initiative, Page 8, September 2004.
The unique species associated with the Tecate cypress represent the unique biodiversity value of these areas. The Thorne’s hairstreak butterfly (Mitoura thornei) is an endemic species here, whose larvae are obligate to Tecate cypress. A list of the other plant and animal species can be found in Appendix B – the Tecate Cypress Forest table.

**Californian**

The second phytogeographic region is called the Californian, and the two most dominant groups of plant species located there are the California Coastal Sage (CSS) and Chaparral. The type of CSS that is dominant in the border region is referred to as the Martirian succulent scrub, a subspecies of CSS. The CSS and Chaparral are subsets of the Californian and are described below.

**California Coastal Sage**

One of the most well known endangered inhabitants of the Martirian succulent scrub is the Quino checkerspot butterfly. The habitat for Quino checkerspot butterflies can be defined in simple terms — extensive collections of patches of primary larval host plants, Plantago erecta, distributed in grassland — and coastal sage scrub-dominated open space. This habitat is present on both sides of the border. Adjacent to the study area, Jesus Maria Mesa, is on the southwest flank of Cerro San Isidro. It supports vernal pools and a population of Quino checkerspot butterfly that uses habitat on both sides of the border and is likely important to recovery of the species (USFWS 2000). A list of some of the other plant and animal species that can be found in this habitat are included in Appendix B – the Californian table.

**Chaparral**

Chaparral is a vegetation community generally composed of hard-stemmed, leathery-leaved shrubs. It is present on both sides of the border and hosts a variety of plant and animal species. Some of the species found there are included in Appendix B – the Chaparral table.

On the U.S. side, most of the San Ysidro unit is protected by the City of San Diego and County parks, the Otay Valley Regional Park, Bureau of Land Management (BLM), California Department of Forestry, Environmental Trust, and open space located on the County Detention Facility. The Mexican side of the study area has no official land management agency.

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62 Las Californias Binational Conservation Initiative, Page 23.
63 A Management and Monitoring Plan for Quino Checkerspot Butterfly (Euphydryas editha quino) and its Habitats in San Diego County, Page 7.
64 Las Californias Binational Conservation Initiative, Page 24.
66 Multiple Species Conservation Program (MSCP) - South County Segment, Page 3-3.
Watersheds

Within the Californian phytogeographic region are two watersheds: the Otay River Watershed and Tijuana River Watershed (Figure 17). They both support distinct plant and animal species.

Figure 17
Otay Mesa – Mesa de Otay Watersheds

Otay River Watershed

The predominant land uses in the Otay River Watershed are open space (67 percent) and urban/residential (20 percent). The major inland hydrologic features, the upper and lower Otay Lakes, are two water supply reservoirs that also provide important habitat and recreational opportunities. Other important conservation areas within the watershed include the San Diego National Wildlife Refuge, the Rancho Jamul Ecological Reserve, and the vernal pool lands in the region.

The Otay River Valley Regional Park is located within the Otay River Watershed and includes approximately 8,500 acres stretching from the San Diego Bay 11 miles up the Otay River Valley. The Otay River Valley runs between the southern boundary of the City of Chula Vista and the northern boundary of South San Diego (Otay Mesa/Nestor). In 1990, the Cities of Chula Vista and San Diego and the County of San Diego entered into a Joint Exercise of Powers Agreement (JEPA) to coordinate the creation of this multi-jurisdictional park. This park contains a mix of recreation opportunities ranging from playing fields and picnic areas to hiking, biking, and horse trails,
environmentally sensitive areas, wildlife, culture, historic, agriculture, archaeological, and scenic resources.

The northwestern and northeastern portions of the East Otay Mesa Specific Plan Subarea 1 are designated Conservation/Limited-Use Areas. This designation allows for uses such as outdoor participant sports, campgrounds, and resorts. This area, as well as Subarea 2 and the rest of the Otay Plan Area, include vernal pools, endangered plants, and golden eagle habitats.

Some of the native plant and animal species that can be found in the Otay River Watershed habitat are included in Appendix B – the Otay River Watershed table.

**Tijuana River Watershed**

The Alamar River, also known as the Arroyo Alamar, is located in the southern portion of the study area and is a major river in the Tijuana River Watershed. It is situated in the Tijuana River Watershed with the Tijuana River downstream and the Tecate River upstream. The water that flows through this river eventually makes its way into the United States via the Tijuana River. This river is unlike the Tijuana River in that it has not been channelized, therefore, it is able to serve as an important riparian habitat. It also provides a continuous riparian corridor link from the study area east to Tecate. The Alamar River is one of the few relatively undisturbed riparian corridors in the San Diego-Tijuana region.

There are three distinct riparian segments of the Alamar River Corridor. Only two of these zones are fully located within the study area, while the eastern portion of the study area partially covers Zone 3. Zone 1, the urbanized section, begins at the end of the channelized Tijuana River, directly south of Mesa de Otay, and extends to the bridge on Boulevard Manuel J. Clouthier. Riparian habitat in this zone is disturbed by irregular settlements, sand mining, commercial activities, and unauthorized dumping of solid waste.

Zone 2, identified as the “Transition Section,” begins at Boulevard Manuel J. Clouthier and extends eastward to Boulevard Otay-Matamoros. Agriculture and sand mining are conducted in this zone. This zone also is disturbed by encroaching urban settlements.

The portion of the study area that covers the western section of Zone 3 begins at Boulevard Otay-Matamoros and extends beyond the study area to the bridge located near the Tecate-Tijuana Toll Road. This is a sparsely populated area where cattle ranching, agriculture, and brick making are the main economic activity. The riparian habitat and water quality in this area is considered to be in pristine condition.

Most of the Alamar River riparian corridor serves as prime habitat for many native plant and animal species. Some of the native plant and animal species that can be found in this habitat are included in Appendix B – the Alamar River Watershed. In addition, the Alamar River needs to be protected because it serves as an important source for replenishing the City of Tijuana’s underground aquifer.

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67 County of San Diego, East Otay Specific Plan Amendment, Page 30.
69 The Alamar River Corridor: An Urban River Park Oasis in Tijuana, Baja California, Mexico, Page 9.
The City of Tijuana imports 96 percent of its potable water, with the potential of drawing 10 to 15 percent of its potable water from an aquifer recharged by this river and the Tijuana River.\textsuperscript{70}

Although several bands of pristine riparian habitat still exist along the Alamar River, encroaching development and pollution threaten the river’s well being. There are several key factors that threaten this river. The most serious of these threats come from point and non-point sources of pollution, sand mining, and potential channelization.

- **Point sources of pollution** come from raw sewage draining from a pipe directly into the river. Currently, the river receives renegade sewage flows upstream from Tecate and downstream from the Mesa de Otay area.

- **Non-point pollution sources** may include soil erosion from farm land and construction sites, rural and urban pesticide and fertilizer runoff, failing septic systems, animal waste, motor oil, and antifreeze. The threat of contaminating groundwater is already present by these sources. If this continues to go unchecked, groundwater could be overly polluted and unfit to use as drinking water.

- **Sand mining** threatens habitat and percolation of the river bed. In areas where sand mining occurs, the native vegetation is often removed, and the natural sand bottom of the river is disturbed. The native vegetation and sand bottoms not only help absorb water into the aquifer, but slow and dissipate the volume of water that enters the Tijuana River during a flood event.\textsuperscript{71}

- **Channelization** generally serves to control flood waters from leaving the river banks. However, where the channelization ends, larger quantities of water are discharged at a higher rate and consequently, disproportionately inundate areas at its outfall more than it would if the channel was not in place. Some of the other destructive consequences that are associated with river channelization are the following: decreased wildlife habitat and biodiversity; decreased groundwater infiltration; decreased stream base flows; decreased surface and groundwater storage; increased storm water runoff and volume; increased storm water peak discharge rate; increased channel erosion; increased frequency of local flooding; and increased pollutant concentrations and quantities in storm water.\textsuperscript{72}

The concept of “Sustainable River Architecture” is being supported for the Alamar River. Essentially this concept supports the managed development of riparian corridors that do not rely on channelizing river basins. This type of managed development is still possible for the Alamar River since most of it has not yet been channelized.

**Water Quality**

As described in the biological resources section of this chapter, the Otay River Watershed and the Tijuana River Watershed are the most important water resources in the study area. Water quality is an extremely important environmental resource issue since the study area is located in a semi-arid region and over 90 percent of its consumption depends on imported water. Furthermore, point and non-point sources of pollution remain a continual threat to local groundwater and above-water supplies, as well as the Tijuana River Estuary and local beaches. Ultimately, comprehensive watershed management plans will play a major role in addressing these issues in the future.

\textsuperscript{70} The Alamar River Corridor: An Urban River Park Oasis in Tijuana, Baja California, Mexico, Page 10.

\textsuperscript{71} The Alamar River Corridor: An Urban River Park Oasis in Tijuana, Baja California, Mexico, Page 38.

\textsuperscript{72} The Alamar River Corridor: An Urban River Park Oasis in Tijuana, Baja California, Mexico, Pages 33 - 34.
Air Quality

The two regions not only share habitat corridors and watersheds, but also share similar air quality issues. Air pollutants in the San Diego-Tijuana area derive from a variety of sources. Stationary sources include power plants, as well as manufacturing and industrial facilities that emit air pollutants. Mobile sources are sources of air pollution such as automobiles, trucks, off-road vehicles, boats, and airplanes. These sources generate particulate matter, carbon monoxide, ozone, and other toxic air pollutants.

In California, there are 15 air basins, which are land areas with generally similar meteorological and geographic conditions throughout. The San Diego Air Basin encompasses the entire county of San Diego. In Baja California, there are no official designations for air basins.

In general, air quality in the San Diego region has improved dramatically over the past two decades, but continued efforts are needed to sustain this positive trend and ensure clean air.

EXISTING PLANS AND PROGRAMS

This section focuses on the several existing conservation plans and studies on both sides of the border.

Multiple Species Conservation Program (MSCP)

The MSCP is a comprehensive, long-term conservation plan for southwestern San Diego County. Through the MSCP, high-priority habitat areas are designated and protected, while urban development is allowed for less sensitive areas. The boundaries extend to the U.S.-Mexico border and cover mostly the eastern portion of the study area. The City of Chula Vista and the County of San Diego prepared MSCP subarea plans.

Las Californias Binational Conservation Initiative

The Las Californias Binational Conservation Initiative (LCBCI) – prepared for the San Diego Foundation, Resources Legacy Fund Foundation, and the International Community Foundation – is a vision document created by the need for a shared conservation vision for San Diego/Tijuana/Tecate border region. Many species in this region are endangered or threatened. Natural resources and the environmental services they support, such as water quality and water supply protection, flood control, and scenic and recreational resources, function across large landscapes, which are increasingly threatened by expanding human land uses.

As populations continue to grow on both sides of the border, urbanized areas continue to encroach on sensitive habitat areas. Many of these habitat areas are interconnected wildlife corridors that permit animals to freely circulate between both countries. This delicate ecosystem is under threat of being lost forever unless more steps are taken to control the tide of development. Among other binational conservation proposals, the LCBI’s goal is to protect binational conservation corridors, which includes open space areas between the Tijuana-Tecate corridor, Sweetwater and Otay River

73 Las Californias Binational Conservation Initiative, Page 1.
watersheds in California, and the Rio Guadalupe watershed in Baja California (Figure 18). The LCBI boundaries include and extend beyond the Otay River and Tijuana River Watershed.

**Figure 18**
**Binational Watersheds**

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**Otay River Watershed Management Plan**

The Otay River Watershed Management Plan (ORWMP) encompasses approximately 160 square miles in southwest San Diego County. The ORWMP is one of the three hydrologic units that discharge to the San Diego Bay. The watershed management plan area encompasses several jurisdictions, including the unincorporated area and portions of the cities of Chula Vista, Imperial Beach, Coronado, National City, and San Diego. The ORWMP involves characterizing the Otay River watershed’s various resources and land uses; identifying goals and objectives; assessing and prioritizing threats to existing beneficial uses and natural resources; and identifying implementation strategies for the protection, enhancement, and restoration of beneficial uses and natural resources, including a water quality monitoring program to monitor, maintain, and enhance water quality.

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74 Las Californias Binational Conservation Initiative, Page 1.
In 2004, the County of San Diego and Cities of Chula Vista, Imperial Beach, and San Diego, and the Unified Port of San Diego entered into a JEPA to develop and adopt the final draft ORWMP. The final draft ORWMP was adopted by the San Diego County Board of Supervisors on May 10, 2006. The City of Imperial Beach City Council adopted the Plan on May 17, 2006, and the Port of San Diego adopted this plan on June 6, 2006. Other hearings will be scheduled in the future by the City of Chula Vista and the City of San Diego.76

**A Binational Vision for the Tijuana River Watershed**

“A Binational Vision for the Tijuana River Watershed” is a template for a binational watershed management plan which was developed by the Binational Watershed Advisory Council (BWAC), that is made up of 155 Tijuana River Watershed stakeholders. It contains baseline data and trends for the major areas of concern identified by stakeholders: water, air, ecosystems and natural resources, waste, and socioeconomic issues.77 It also has a list of action plans which identify ways to protect the watershed.

The Tijuana River Watershed vision document proposes to develop a watershed management mechanism that cuts across several local, state, and international boundaries. The Tijuana River Watershed (TRW) lies across the U.S.-Mexican international boundary and is approximately 1,750 square miles (4,465 square kilometers) in area, with one-third in California and two thirds in Baja California (Figure 16). It extends from the Laguna Mountains in the northeast, the Sierra Juarez Mountains in the south, and to the Pacific Ocean in the West.78

As development continues to encroach on the watershed, many threats accompany it. Some of the most pressing environmental and cultural issues identified in the watershed include rapid population growth, uncontrolled urbanization, increased demand for water, flood control, poor water quality, and the loss of important animal and plant species and habitats.79

The rapid population growth degrades habitat, which in turn affects animal and plant species. It also promotes housing and industrial development that stretches already overburdened sewer infrastructure very thin. As described in the Housing chapter of this report, the lack of sewage infrastructure in the sprawling irregular settlements and in some new and older housing tracts located in Tijuana bring with it renegade sewer flows that pollute ground water, streams, estuaries, and beaches downstream, as well as destroying plant and species habitat.

The many toxins and bacteria these waste streams carry jeopardize the public’s health. An example of this threat is evident by the many beach closures attributable to this contamination. In addition, soil erosion caused by this type of development further contributes to the polluted sedimentation of the Tijuana River Estuary. This pollution threatens the survival of the estuary and all living things in it.

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77 A Binational Vision for the Tijuana River Watershed, Page 3.
“A Binational Vision for the Tijuana River Watershed” proposes several actions that address the many threats facing the Watershed. In order to give the Watershed long-term protection, these actions will need to be implemented through a binational watershed management plan framework. This ambitious proposal presents several challenges and opportunities. Most of the challenges lie in the fact that the institutional mechanisms that govern watersheds are very different.

This is apparent when looking at the United States’ and Mexico’s institutional approaches to managing watersheds. In Mexico watershed management is more focused on water supply in the riparian corridor and aquifers, whereas in the United States, vegetation, habitat, and species also are accounted for and considered throughout a watershed.

Despite some fundamental differences in each country’s approach to watershed management, there are opportunities for collaboration. By developing a binational watershed plan, the two regions can better plan together for the benefit of future generations. They also can mitigate potentially future harmful effects that could threaten the shared region’s natural environment, cultural resources, quality of life, and the health of their residents.

San Diego/Tijuana Clean Diesel Demonstration Projects

Background

As illustrated in the Transportation chapter, crossborder truck traffic has increased substantially as a result of continued growth in U.S.-Mexico trade. Cost-effective emission control retrofit technologies are increasingly being used in the United States to substantially reduce diesel exhaust emissions. However, these technologies are not currently used by the Mexican trucking industry, resulting in excess emissions in San Diego County. The following section focuses on programs to address emissions generated by crossborder truck traffic.

Current Demonstration Project

To begin to address air quality concerns in the border region, in 2004, the San Diego County Air Pollution Control District (APCD) applied for and received a grant from the U.S. Environmental Protection Agency (EPA) to: draw together U.S. and Mexican stakeholders; evaluate the nature of crossborder truck fleets; and identify retrofit technologies that could be used to reduce diesel exhaust emissions from Mexico-based trucking operations in the San Diego-Tijuana border region.

Following up on this effort, in 2005, the APCD applied for and received another grant from the U.S. EPA to fund the San Diego/Tijuana Clean Diesel Demonstration Project, with the objective of mitigating the air quality impact of increased crossborder, heavy-duty diesel truck traffic. This innovative binational project involves identifying and retrofitting up to 50 Mexican-based, heavy-duty diesel trucks operating in the San Diego County/Tijuana border region with emission control devices to demonstrate their viability under Mexican operating conditions and encourage implementation of similar cleaner diesel projects.

80 Information provided by San Diego County Air Pollution Control District, April 2006.
The devices, diesel oxidation catalysts (DOCs), reduce diesel particulate emissions by 25 percent and hydrocarbons and carbon monoxide by 40 to 50 percent. Diesel particulate emissions are a potent, cancer-causing toxic air contaminant, and hydrocarbons form ozone (smog). Carbon monoxide, at high levels, reduces the oxygen-carrying capacity of blood.

As of April 2006, 20 heavy-duty, diesel trucks have been retrofitted with DOCs, and installation of five more DOCs is pending. The 25 participating trucks range from model years 1988 to 2000 and are classified as either heavy, heavy-duty, or medium heavy-duty diesel vehicles. Additional trucks are anticipated to be retrofitted in the next several months.

Four Tijuana-based crossborder trucking companies are currently participating in the program: Transportes R y F, Transportes Camacho, Montana Express, and Sisipo Transports. Each provides short-haul, crossborder freight transportation within the San Diego/Tijuana region, transporting raw materials (such as metals, woods, and plastic), finished goods (such as furniture and electronics), and canned food and produce across the border. In addition to short-haul transportation, one of the participating companies, Transportes Camacho, also operates long-haul, diesel trucks to transport freight to the other states, including Washington and Texas.

Potential for Future Demonstration Projects

Clean Freight Strategies

U.S. EPA and APCD are considering implementing a second transborder demonstration project to capitalize on the relationships APCD has established with border stakeholders to improve air quality. Specifically, U.S. EPA is interested in demonstrating “clean freight” strategies on transborder commercial heavy-duty diesel trucks in the San Diego-Baja California region. Clean freight measures are designed to improve fuel economy and lower emissions through idle reduction, improved aerodynamics, advanced (low-viscosity) lubricants, and single, wide-base tires.

Clean freight strategies are promoted by the U.S. EPA through its voluntary SmartWay Transport Partnership, which includes dozens of domestic freight carriers throughout the nation. By demonstrating that clean freight technologies result in fuel savings and emissions reductions, there may be greater incentive by the private sector to invest in these technologies, ultimately leading to greater deployment and reduced fuel consumption and emissions. This would be the first-ever participation in the Partnership by transborder commercial vehicles domiciled in Baja California.

Diesel Particulate Filters

Another retrofit technology that could be evaluated is the installation of diesel particulate filters (DPFs). However, several challenges must be addressed to ensure success of a DPF demonstration.

First, DPFs require higher exhaust temperatures, which are rarely achieved during low travel speeds that currently dominate trucking activity at the border. In addition, DPFs also require ultra-low sulfur diesel (ULSD) fuel to operate properly. ULSD will not become widely available in California until September 1, 2006. It has been announced that ULSD will become available in northern Baja California in 2007.
Finally, maintenance issues may also pose a challenge for implementation of a DPF demonstration program. Unlike DOCs, DPFs are not maintenance free. To avoid backpressure problems due to excessive ash build-up, semi-annual or annual filter cleaning is required. Because of limited resources and the small nature of trucking firms operating in the border region, DPF maintenance could represent an issue. There are also challenges concerning the effectiveness of the DPFs dependent on the age of engines equipped. Engines built before U.S. and Mexico’s 1994 Particulate Matter (PM) emission standards—which represent a majority of the engines in today’s Mexico-registered diesel truck fleet—exhibit excessive PM emissions for DPF applications.

However, a future program involving DPFs could still be explored when the circumstances discussed above are more favorable.

**EARLY ACTION STRATEGIES**

**ISSUE** — Address conservation of sensitive habitat and urban river corridors (e.g., Alamar River and Otay River Watershed) and water quality

**EARLY ACTION** — Analyze San Diego County’s MSCP, “A Binational Vision for the Tijuana River Watershed,” and the “Las Californias Binational Conservation Initiative” to develop a framework for a binational approach for habitat corridor conservation and watershed management for the Tijuana River Watershed

As mentioned in the Biological Resources section, the above-mentioned planning documents are an important step in binational watershed and habitat conservation corridor planning. Further analysis and discussion of these documents should occur among the key stakeholders listed below, with the goal of developing an overall framework for preparing and implementing a comprehensive binational watershed management plan for the Tijuana River Watershed. The analysis should address the specific objectives of this planning process, as well as institutional mechanisms and resources necessary to prepare it.

**LEAD/PARTICIPATING AGENCIES** — Border Liaison Mechanism’s Environment and Natural Resources Committee – Tijuana River Basin Working Group (Lead); SANDAG, IMPlan, U.S. and Mexican federal, state, and local agencies/organizations.

**EARLY ACTION** — Expand the environmental analysis of the draft Partial Program for Conservation and Urban Improvement of the Alamar River Zone to further assess the habitat conditions in the Alamar River area

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

Both of these early actions are being developed by IMPlan and would require implementation assistance by the following agencies: Mexico’s National Water Commission (CONAGUA), Federal Investigating Agency for Environmental Conservation.
Protection (Procuraduría Federal de Protección al Ambiente or PROFEPA), Baja California’s Secretariat of Environmental Protection (Secretaría de Protección al Ambiente de Baja California). These efforts should be evaluated in conjunction with the analysis of a comprehensive Tijuana River Watershed Plan as outlined above.

**LEAD/PARTICIPATING AGENCIES**— IMPlan, SIDUE

**ISSUE**— Address conservation of sensitive habitat corridors

**EARLY ACTION**— Explore the feasibility of a binational land use/open space conservation study for SR 11, the future East Otay Mesa-Otay II POE, and proposed connection from the POE to the Tijuana-Tecate Toll Road (Route 2D), including consideration of binational environmental mitigation strategies

As part of this feasibility analysis, the area of study will be defined. This study area may include areas of influence outside the current binational corridor study area that would help maintain north-south habitat connectivity. The study area would be evaluated for potential mitigation or as conservation zones in the context of the future East Otay Mesa-Otay II POE and connecting roads.

**LEAD/PARTICIPATING AGENCIES**— Caltrans, SANDAG, County of San Diego, California Department of Fish and Game, U.S. Fish and Wildlife Service, Bureau of Land Management, IMPlan, and U.S. and Mexican federal, state, and local agencies/organizations

**EARLY ACTION**— In Mexico, explore possibilities for cooperative agreements between private, public, and community sectors, to build partnerships and private agreements to incorporate the payment for environmental mitigation, purchase of development rights, permits or quota rights, and other similar uses

Conduct a general analysis (conceptual) of the applicable incentives and the mechanism for its implementation. Direct incentives in money or in kind, through taxes directed to conservation, or through other mechanisms that permit the incorporation of cost and project generated impacts. The application of incentives can be improved if they are tied to mechanisms, like the creation of environmental easements.

**LEAD/PARTICIPATING AGENCIES**— IMPlan

81 The U.S. Fish and Wildlife Service has submitted a letter of support and would like to be involved in this joint effort.


**EARLY ACTION**— Use existing legal mechanisms to acquire private or public land for conservation.

Recommend administrative and economic mechanisms that support the creation and conservation of these areas. Explore legal mechanisms on both sides of the border to transfer subsidies for environmental protection, purchase of development rights, and assignment of quota rights. Promote creation of environmental easements and the agreements to allow private contracts for conservation.

**LEAD/PARTICIPATING AGENCIES**— IMPlan

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**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's crossborder clean air demonstration projects

**LEAD/PARTICIPATING AGENCIES**— San Diego County APCD (Lead), SANDAG

**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

Estimate potential emissions from motor vehicles to assess mitigation of hydrocarbon emissions in conservation areas (i.e., reforestation projects).

**LEAD/PARTICIPATING AGENCIES**— IMPlan
APPENDIX A

Otay Mesa-Mesa de Otay
Binational Corridor Strategic Plan
Final Results

Plan Estratégico del Corredor
Binacional Otay Mesa-Mesa de Otay

Interactive Polling Results

National City - October 3, 2005
Tijuana - October 11, 2005

Prepared by

Strategic Initiatives

1886 Deer Canyon Road
Arroyo Grande, CA  93420
(805) 474-8105
strategicinit.com
This survey was structured to explore and understand the various perspectives of the participants. The results of the survey are not statistically representative of the community as a whole.
Process Overview

Interactive polling technology was used to help the meeting participants prioritize critical issues that are important to address in the Otay Mesa - Mesa de Otay Binational Corridor Strategic Plan. Each participant was provided with a remote FM radio input terminal to respond to questions generated by computer and projected on a large screen. The technology provided the ability to quickly prioritize the issues. The results were tabulated and immediately presented back to the group for discussion. Demographic information was collected to assess the different perspectives of the participants based on where they lived, and what organization they represented.

The participants prioritized the importance of strategic issues in the following categories:

- Transportation Improvements
- Transportation Funding Alternatives
- Economic Development
- Housing
- Environment

The list of strategic issues for each of the categories is presented in Appendix A. A forced-pair prioritization technique was used where two of the critical issues were presented to the group and each participant selected which was most important. After evaluating every possible pair, the relative importance of the issues was calculated on a scale from 0 to 100 and immediately presented to the group for discussion.

This report presents the results of the interactive surveys. The observations and conclusions from the discussion were recorded and will be reported separately. It is important to note that the interactive polling process was designed to stimulate discussion and understanding of the perspectives of the various participants. It was not designed to be statistically representative of a broader group of participants. The number of participants may vary among polls since all participants may not have participated in every poll.
This survey was structured to explore and understand the various perspectives of the participants.

The results of the survey are not statistically representative of the community as a whole.
This survey was structured to explore and understand the various perspectives of the participants.
The results of the survey are not statistically representative of the community as a whole.
**Transportation Priorities***

(Combined responses from participants on 10/3/05 and participants from 10/11/05 who did not participate on 10/3/05)

<table>
<thead>
<tr>
<th>Number of Responses</th>
<th>All Participants</th>
<th>Mexico</th>
<th>USA</th>
<th>Local Gov’t</th>
<th>State Gov’t</th>
<th>Fed Gov’t</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
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<tbody>
<tr>
<td>B-Improvements to existing Otay Mesa Port of Entry and connecting roads</td>
<td>121</td>
<td>54</td>
<td>67</td>
<td>33</td>
<td>16</td>
<td>17</td>
<td>7</td>
<td>21</td>
<td>11</td>
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<td>3</td>
<td>6</td>
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<td>Mejoras en el actual cruce fronterizo de Otay Mesa y caminos de acceso</td>
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<td>48.5</td>
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<td>C-Improvements to cross-border and regional public transportation services</td>
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</tbody>
</table>

*Relative priority on a scale of 1 (low) to 100 (high) determined using a paired-comparison technique where participants select their preference from each possible pair of alternatives.*
This survey was structured to explore and understand the various perspectives of the participants.
The results of the survey are not statistically representative of the community as a whole.
**Transportation Funding Priorities***

(Combined responses from participants on 10/3/05 and participants from 10/11/05 who did not participate on 10/3/05)

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<th>Number of Responses</th>
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**A-Toll Revenues for new ports of entry and access roads**
**Peaje para nuevos cruces fronterizos y caminos de acceso**

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<td>65.4</td>
<td>54.8</td>
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**E-Non-residential development impact fees for transportation**
**Impuestos al desarrollo no residencial para transporte**

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**B-Additional TransNet sales tax**
**Impuesto de ventas TransNet adicional**

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**D-Additional residential development impact fees for transportation**
**Impuestos al desarrollo residencial para transporte**

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**C-Additional local gas tax**
**Impuesto adicional a la gasolina**

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* Relative priority on a scale of 1 (low) to 100 (high) determined using a paired-comparison technique where participants select their preference from each possible pair of alternatives.

** Additional TransNet Sales Tax results are for the 10/3/05 meeting only. This revenue source was not evaluated at the 10/11/05 meeting.
This survey was structured to explore and understand the various perspectives of the participants. The results of the survey are not statistically representative of the community as a whole.
This survey was structured to explore and understand the various perspectives of the participants. The results of the survey are not statistically representative of the community as a whole.

### Economic Development Priorities*

(Combined responses from participants on 10/3/05 and participants from 10/11/05 who did not participate on 10/3/05)

<table>
<thead>
<tr>
<th>Number of Responses</th>
<th>All Participants</th>
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<th>Academia</th>
<th>News Media</th>
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<th>Other</th>
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<tbody>
<tr>
<td>D-Address infrastructure needs of existing and future industrial land uses (water, energy, etc.)</td>
<td>120</td>
<td>54</td>
<td>66</td>
<td>33</td>
<td>15</td>
<td>17</td>
<td>7</td>
<td>21</td>
<td>11</td>
<td>0</td>
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<td>6</td>
</tr>
<tr>
<td>Tratar las necesidades de infraestructura de usos de suelo industriales existentes y futuros (agua, energía, etc.)</td>
<td>73.9</td>
<td>74.4</td>
<td>73.5</td>
<td>68.4</td>
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<td>78.2</td>
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<td>A-Promote creation or expansion of common clusters on both sides of the border</td>
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<td>56.4</td>
<td>49.2</td>
<td>46.2</td>
<td>57.5</td>
<td>48.6</td>
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<td>69.5</td>
<td>0.0</td>
<td>44.0</td>
<td>60.7</td>
</tr>
<tr>
<td>Promover la creación o expansión de los sectores económicos comunes en ambos lados de la frontera</td>
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</tr>
<tr>
<td>B-Address future industrial land supply and demand</td>
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<td>44.7</td>
<td>37.5</td>
<td>44.1</td>
<td>37.1</td>
<td>33.1</td>
<td>42.6</td>
<td>48.9</td>
<td>39.0</td>
<td>0.0</td>
<td>55.3</td>
<td>27.5</td>
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<tr>
<td>Tratar la oferta y demanda futura de suelo industrial</td>
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</tr>
<tr>
<td>C-Address relationship between Brown Field Municipal Airport and Tijuana’s International Airport operations and existing and future industrial land use</td>
<td>28.8</td>
<td>20.2</td>
<td>35.6</td>
<td>35.2</td>
<td>24.8</td>
<td>35.1</td>
<td>61.7</td>
<td>15.8</td>
<td>12.0</td>
<td>0.0</td>
<td>11.0</td>
<td>22.0</td>
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<tr>
<td>Tratar la conexión entre las operaciones de los aeropuertos de Brown Field y Tijuana y los usos de suelo industriales existentes y futuros</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

* Relative priority on a scale of 1 (low) to 100 (high) determined using a paired-comparison technique where participants select their preference from each possible pair of alternatives.
This survey was structured to explore and understand the various perspectives of the participants. The results of the survey are not statistically representative of the community as a whole.
### Housing Priorities*

*(Combined responses from participants on 10/3/05 and participants from 10/11/05 who did not participate on 10/3/05)*

<table>
<thead>
<tr>
<th>Housing Priority</th>
<th>All Participants</th>
<th>Mexico</th>
<th>USA</th>
<th>Local Gov’t</th>
<th>State Gov’t</th>
<th>Fed Gov’t</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
<td><strong>D-Address infrastructure needs of existing and future residential land use</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Tratar las necesidades de infraestructura de usos de suelo residencial existente y futuro (agua, drenaje, escuelas, etc.)</td>
<td>78.0</td>
<td>81.9</td>
<td>74.7</td>
<td>74.5</td>
<td>82.0</td>
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<td>88.7</td>
<td>77.5</td>
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<tr>
<td><strong>B-Address housing affordability issues and opportunities</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
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<td>52.9</td>
<td>51.1</td>
<td>53.0</td>
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<td>42.6</td>
<td>45.7</td>
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<td>60.8</td>
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<tr>
<td><strong>A-Address future housing supply and demand</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tratar la oferta y demanda futura de vivienda</td>
<td>48.2</td>
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<td>51.7</td>
<td>42.2</td>
<td>46.2</td>
<td>52.8</td>
<td>66.3</td>
<td>55.2</td>
<td>39.0</td>
<td>0.0</td>
<td>44.0</td>
<td>55.2</td>
</tr>
<tr>
<td><strong>C-Address relationship between Brown Field Municipal Airport and Tijuana’s International Airport operations and existing and future residential land use</strong></td>
<td></td>
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</tr>
<tr>
<td>Tratar la conexión entre las operaciones de los aeropuertos de Brown Field y Tijuana y los usos de suelo residencial existente y futuro</td>
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<td>5.5</td>
</tr>
</tbody>
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* Relative priority on a scale of 1 (low) to 100 (high) determined using a paired-comparison technique where participants select their preference from each possible pair of alternatives.
Environmental Priorities

(Combined responses from participants on 10/3/05 and participants from 10/11/05 who did not participate on 10/3/05)

- B-Address conservation of urban river corridors (e.g. Alamar River and Otay River Watershed)
- Tratar los corredores fluviales en áreas urbanas (i.e. Río Alamar y Río Otay)

- A-Address conservation of sensitive habitat corridors
- Tratar la conservación de corredores ecológicos sensibles

Relative Importance

All Participants (115)
Mexico (52)
USA (63)
Local Gov (32)
State Gov (15)
Fed Gov (14)
CBO (7)
Business (20)
Academia (11)
News Media (0)
Local Gov (32)
Other (6)
## Environmental Priorities*

(Combined responses from participants on 10/3/05 and participants from 10/11/05 who did not participate on 10/3/05)

<table>
<thead>
<tr>
<th>Number of Responses</th>
<th>All Participants</th>
<th>Mexico</th>
<th>USA</th>
<th>Local Gov't</th>
<th>State Gov't</th>
<th>Fed Gov't</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-Address conservation of urban river corridors (e.g. Alamar River and Otay River Watershed)</td>
<td>64.3</td>
<td>67.3</td>
<td>61.9</td>
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<td>73.3</td>
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<td>50.0</td>
</tr>
<tr>
<td>Tratar los corredores fluviales en áreas urbanas (i.e. Río Alamar y Río Otay)</td>
<td>35.7</td>
<td>32.7</td>
<td>38.1</td>
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<td>28.6</td>
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<td>45.5</td>
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<td>50.0</td>
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</tbody>
</table>

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## Environmental Priorities*

<table>
<thead>
<tr>
<th>Priority</th>
<th>All Participants</th>
<th>Mexico</th>
<th>USA</th>
<th>Local Gov’t</th>
<th>State Gov’t</th>
<th>Fed Gov’t</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
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<tbody>
<tr>
<td>D-Water Quality</td>
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<td>66.5</td>
</tr>
<tr>
<td>Calidad de Agua</td>
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<td>70.6</td>
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<tr>
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<td>50.1</td>
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<td>19.8</td>
<td>0.0</td>
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<td>33.0</td>
</tr>
<tr>
<td>Tratar la conservación de corredores ecológicos sensibles</td>
<td>40.4</td>
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<td>30.5</td>
<td>46.2</td>
<td>0.0</td>
<td>100.0</td>
<td>33.0</td>
</tr>
</tbody>
</table>

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Interactive Polling Questions
October 3, 2005 and October 11, 2005

BACKGROUND INFORMATION / ANTECEDENTES

Where do you live? / ¿Dónde vive usted?
1. Mexico
2. USA

What is your organizational affiliation? / ¿A qué tipo de organización pertenece?
1. Local Government / Gobierno Municipal
2. State Government / Gobierno Estatal
3. Federal Government / Gobierno Federal
4. Community Based Organization / Organización de la Comunidad
5. Business / Sector Privado Empresarial
6. Academia / Académico
7. News Media / Medios de Comunicación
8. Private Citizen / Ciudadano
9. Other / Otro

Did you participate in the first workshop held in National City on October 3rd?
¿Participó en el primer taller el 3 de octubre en National City? (Tijuana – 10/1105 meeting only)
1. Yes / Sí
2. No / No

EXAMPLE OPINION POLL / EJEMPLO DE SONDEO DE OPINIÓN

Which do you prefer for Breakfast? / ¿Qué prefiere para el desayuno?
A. Caffeinated Coffee / Café
B. Decaffeinated Coffee / Café descafeinado
C. Bloody Mary / Bloody Mary
TRANSPORTATION / TRANSPORTE

Which is more important? / ¿Cuál es más importante?

A. Future East Otay Mesa - Otay II Port of Entry and connecting roads
   Futuro cruce fronterizo East Otay Mesa - Otay II y caminos de acceso

B. Improvements to existing Otay Mesa Port of Entry and connecting roads
   Mejoras en el actual cruce fronterizo de Otay Mesa y caminos de acceso

C. Improvements to cross-border and regional public transportation services
   Mejoras al transporte público transfronterizo y regional

TRANSPORTATION FUNDING / FINANCIAMIENTO DE TRANSPORTE

Which do you prefer? / ¿Cuál prefiere?

A. Toll Revenues for new ports of entry and access roads
   Peaje para nuevos cruces fronterizos y caminos de acceso

B. Additional local gas tax
   Impuesto adicional a la gasolina

C. Additional residential development impact fees for transportation
   Cobrar una aportación en nuevos desarrollos para apoyar el transporte
   Non-residential development impact fees for transportation
   Cobrar una aportación a desarrollos no residenciales para apoyar el transporte

ECONOMIC DEVELOPMENT / DESARROLLO ECONÓMICO

Which is more important? / ¿Cuál es más importante?

A. Promote creation or expansion of common economic clusters on both sides of the border
   Promover la creación o expansión de los sectores económicos comunes en ambos lados de la frontera

B. Address future industrial land supply and demand
   Analizar la oferta y demanda futura para suelo industrial

C. Address relationship between the area’s airports operations and existing and future industrial land use
   Entender la relación entre las operaciones de los aeropuertos del área y los usos de suelo industriales existentes y futuros

D. Address infrastructure needs of existing and future industrial land uses (water, energy, etc.)
   Cubrir las necesidades de infraestructura para los usos de suelo industriales existentes y futuros (agua, energía, etc.)
HOUSING / VIVIENDA

Which is more important? / ¿Cuál es más importante?

A. Address future housing supply and demand
   Analizar la oferta y demanda de vivienda a futuro

B. Address housing affordability issues and opportunities
   Analizar la posibilidad de ofrecer/crear vivienda de bajo costo

C. Address relationship between Brown Field Municipal Airport and Tijuana's International Airport operations and existing and future residential land use
   Entender la relación entre las operaciones de los aeropuertos de Brown Field y Tijuana y los usos de suelo residencial existente y futuro

D. Address infrastructure needs of existing and future residential land use (water, sewage, schools, etc.)
   Analizar la demanda de infraestructura para los usos de suelo residencial existente y futuro (agua, drenaje, escuelas, etc.)

ENVIRONMENT / MEDIO AMBIENTE

Which is more important? / ¿Cuál es más importante?

A. Address conservation of sensitive habitat corridors
   Tener políticas para la conservación de corredores ecológicos

B. Address conservation of urban river corridors (e.g. Alamar River and Otay River Watershed)
   Realizar las acciones adecuadas para mantener y proteger los ríos urbanos (i.e. Río Alamar y Río Otay)
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### Transportation Priorities*

<table>
<thead>
<tr>
<th>Number of Responses</th>
<th>All Participants</th>
<th>Mexico</th>
<th>USA</th>
<th>Local Gov’t</th>
<th>State Gov’t</th>
<th>Fed Gov’t</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-Improvements to existing Otay Mesa Port of Entry and connecting roads</td>
<td>86</td>
<td>21</td>
<td>65</td>
<td>24</td>
<td>13</td>
<td>17</td>
<td>7</td>
<td>12</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Mejoras en el actual cruce fronterizo de Otay Mesa y caminos de acceso</td>
<td>52.9</td>
<td>52.4</td>
<td>53.1</td>
<td>45.8</td>
<td>57.7</td>
<td>64.7</td>
<td>35.7</td>
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<td>0.0</td>
<td>33.3</td>
<td>50.0</td>
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<tr>
<td>A-Future East Otay Mesa - Otay II Port of Entry and connecting roads</td>
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<td>41.2</td>
<td>71.4</td>
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<td>66.7</td>
<td>75.0</td>
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<tr>
<td>Futuro cruce fronterizo East Otay Mesa - Otay II y caminos de acceso</td>
<td>44.2</td>
<td>38.1</td>
<td>46.2</td>
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<td>50.0</td>
<td>44.1</td>
<td>42.9</td>
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<td>0.0</td>
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<td>25.0</td>
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<tr>
<td>C-Improvements to cross-border and regional public transportation services</td>
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<tr>
<td>Mejoras al transporte público transfronterizo y regional</td>
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<td></td>
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</table>

* Relative priority on a scale of 1 (low) to 100 (high) determined using a paired-comparison technique where participants select their preference from each possible pair of alternatives.
**Transportation Funding Priorities***

<table>
<thead>
<tr>
<th></th>
<th>All Participants</th>
<th>Mexico</th>
<th>USA</th>
<th>Local Gov't</th>
<th>State Gov't</th>
<th>Fed Gov't</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
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<tbody>
<tr>
<td><strong>Number of Responses</strong></td>
<td>84</td>
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<td>63</td>
<td>24</td>
<td>12</td>
<td>16</td>
<td>7</td>
<td>12</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>4</td>
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<tr>
<td><strong>A-Toll Revenues for new ports of entry and access roads</strong></td>
<td>67.0</td>
<td>42.9</td>
<td>75.0</td>
<td>70.8</td>
<td>56.2</td>
<td>57.8</td>
<td>67.9</td>
<td>81.2</td>
<td>75.0</td>
<td>0.0</td>
<td>91.7</td>
<td>37.5</td>
</tr>
<tr>
<td><strong>E-Non-residential development impact fees for transportation</strong></td>
<td>53.9</td>
<td>63.1</td>
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<td>50.0</td>
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<tr>
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<td>57.1</td>
<td>39.7</td>
<td>36.5</td>
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<td>46.4</td>
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<td><strong>C-Additional local gas tax</strong></td>
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<td>35.3</td>
<td>30.2</td>
<td>31.2</td>
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<td>39.3</td>
<td>37.5</td>
<td>16.7</td>
<td>0.0</td>
<td>75.0</td>
<td>12.5</td>
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### Economic Development Priorities*

<table>
<thead>
<tr>
<th>Economic Development Priorities</th>
<th>All Participants</th>
<th>Mexico</th>
<th>USA</th>
<th>Local Gov't</th>
<th>State Gov't</th>
<th>Fed Gov't</th>
<th>CBO</th>
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<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
<td>Number of Responses</td>
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<td>21</td>
<td>64</td>
<td>24</td>
<td>12</td>
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<td>12</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>D-Address infrastructure needs of existing and future industrial land uses (water, energy, etc.)</td>
<td>73.1</td>
<td>69.5</td>
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<td>74.8</td>
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<td>0</td>
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<td>91.5</td>
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<td>A-Promote creation or expansion of common clusters on both sides of the border</td>
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<td>16.5</td>
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<td>32.4</td>
<td>23.7</td>
<td>35.2</td>
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<td>11.0</td>
<td>16.5</td>
</tr>
</tbody>
</table>

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<tr>
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<th>Fed Gov’t</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
<td>D-Address infrastructure needs of existing and future residential land use (water, sewage, schools, etc.)</td>
<td>83</td>
<td>21</td>
<td>62</td>
<td>24</td>
<td>12</td>
<td>15</td>
<td>7</td>
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<td>74.8</td>
<td>74.4</td>
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<td>Asuntos y oportunidades de vivienda a costos accesibles</td>
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<td>A-Address future housing supply and demand</td>
<td>47.8</td>
<td>39.3</td>
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<td>45.6</td>
<td>41.2</td>
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</tr>
<tr>
<td>C-Address relationship between Brown Field Municipal Airport and Tijuana’s International Airport operations and existing and future residential land use</td>
<td>19.3</td>
<td>23.6</td>
<td>17.9</td>
<td>28.9</td>
<td>16.6</td>
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<tr>
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* * Relative priority on a scale of 1 (low) to 100 (high) determined using a paired-comparison technique where participants select their preference from each possible pair of alternatives.
### Environmental Priorities*

<table>
<thead>
<tr>
<th>Number of Responses</th>
<th>All Participants</th>
<th>Mexico</th>
<th>USA</th>
<th>Local Gov't</th>
<th>State Gov't</th>
<th>Fed Gov't</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-Address conservation of urban river corridors (e.g. Alamar River and Otay River Watershed)</td>
<td>66.7</td>
<td>75.0</td>
<td>63.9</td>
<td>66.7</td>
<td>66.7</td>
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<td>66.7</td>
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<td>66.7</td>
<td>50.0</td>
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<tr>
<td>Tratar los corredores fluviales en áreas urbanas (i.e. Río Alamar y Río Otay)</td>
<td>33.3</td>
<td>25.0</td>
<td>36.1</td>
<td>33.3</td>
<td>33.3</td>
<td>28.6</td>
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<tr>
<td>A-Address conservation of sensitive habitat corridors</td>
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<td>33.3</td>
<td>33.3</td>
<td>28.6</td>
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<td>33.3</td>
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<td>50.0</td>
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<table>
<thead>
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<th>Transportation Priorities*</th>
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<th>State Gov't</th>
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<td>77.8</td>
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<td>60.5</td>
<td>61.1</td>
<td>77.8</td>
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<td>60.0</td>
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<tr>
<td>A- Future East Otay Mesa - Otay II Port of Entry and connecting roads</td>
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<td>Futuro cruce fronterizo East Otay Mesa - Otay II y caminos de acceso</td>
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<td>50.0</td>
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<td>72.2</td>
<td>33.3</td>
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<td>60.0</td>
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<td>C- Improvements to cross-border and regional public transportation services</td>
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<td>38.9</td>
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<td>30.0</td>
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<td>38.9</td>
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<td>75.0</td>
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* Relative priority on a scale of 1 (low) to 100 (high) determined using a paired-comparison technique where participants select their preference from each possible pair of alternatives.
### Transportation Funding Priorities*

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<thead>
<tr>
<th>Item</th>
<th>All Participants</th>
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<th>USA</th>
<th>Local Gov't</th>
<th>State Gov't</th>
<th>Fed Gov't</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
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<tbody>
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<td>63.5</td>
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<tr>
<td>E-Non-residential development impact fees for transportation</td>
<td>60.1</td>
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<td>79.6</td>
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<td>33.0</td>
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<td><em>Impuestos al desarrollo no residencial para transporte</em></td>
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<tr>
<td>D-Additional residential development impact fees for transportation</td>
<td>44.1</td>
<td>47.8</td>
<td>28.3</td>
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<td>22.0</td>
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<td>33.1</td>
<td>46.4</td>
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</tr>
<tr>
<td><em>Impuestos al desarrollo residencial para transporte</em></td>
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<tr>
<td>C-Additional local gas tax</td>
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<td>29.4</td>
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<td><em>Impuesto adicional a la gasoline</em></td>
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</tbody>
</table>

*Relative priority on a scale of 1 (low) to 100 (high) determined using a paired-comparison technique where participants select their preference from each possible pair of alternatives.*

---

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### Economic Development Priorities*

**Tijuana – October 11, 2005**

<table>
<thead>
<tr>
<th>Economic Development Priorities</th>
<th>All Participants</th>
<th>Mexico</th>
<th>USA</th>
<th>Local Gov't</th>
<th>State Gov't</th>
<th>Fed Gov't</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
<th>Private</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-Address infrastructure needs of existing and future industrial land uses (water, energy, etc.)</td>
<td>77.7</td>
<td>79.0</td>
<td>74.1</td>
<td>73.4</td>
<td>78.9</td>
<td>77.6</td>
<td>66.0</td>
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<td>86.4</td>
<td>0.0</td>
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<td>66.5</td>
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<tr>
<td>B-Address future industrial land supply and demand</td>
<td>48.2</td>
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<td>63.7</td>
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<td>53.6</td>
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<td>39.6</td>
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<tr>
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<td>47.0</td>
<td>45.5</td>
<td>47.8</td>
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<td>66.4</td>
<td>0.0</td>
<td>66.0</td>
<td>33.0</td>
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<tr>
<td>C-Address relationship between Brown Field Municipal Airport and Tijuana’s International Airport operations and existing and future industrial land use</td>
<td>20.8</td>
<td>18.4</td>
<td>22.8</td>
<td>15.6</td>
<td>20.6</td>
<td>40.7</td>
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</table>

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## Housing Priorities*

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<tr>
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<th>Mexico</th>
<th>USA</th>
<th>Local Gov’t</th>
<th>State Gov’t</th>
<th>Fed Gov’t</th>
<th>CBO</th>
<th>Business</th>
<th>Academia</th>
<th>News Media</th>
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<td>5</td>
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<td>2</td>
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<tr>
<td>D-Address infrastructure needs of existing and future residential land use (water, sewage, schools, etc.)</td>
<td>85.7</td>
<td>86.5</td>
<td>84.4</td>
<td>85.8</td>
<td>91.5</td>
<td>88.7</td>
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<td>86.4</td>
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<td>100.0</td>
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<tr>
<td>A-Address future housing supply and demand</td>
<td>46.5</td>
<td>46.3</td>
<td>48.4</td>
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<td>33.0</td>
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<tr>
<td>C-Address relationship between Brown Field Municipal Airport and Tijuana’s International Airport operations and existing and future residential land use</td>
<td>23.6</td>
<td>19.1</td>
<td>33.2</td>
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</table>

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<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-Address conservation of urban river corridors (e.g. Alamar River and Otay River Watershed)</td>
<td>60.3</td>
<td>68.2</td>
<td>38.5</td>
<td>77.8</td>
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<td>100.0</td>
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<tr>
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<tr>
<td>A-Address conservation of sensitive habitat corridors</td>
<td>39.7</td>
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<td>0.0</td>
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<tr>
<td>Tratar la conservación de corredores ecológicos sensibles</td>
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<tbody>
<tr>
<td><strong>Number of Responses</strong></td>
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* Relative priority on a scale of 1 (low) to 100 (high) determined using a paired-comparison technique where participants select their preference from each possible pair of alternatives.
APPENDIX B

BIOLOGICAL RESOURCES

The following tables depict plant and animal species which are found in the various habitats of the study area.

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<th>REPTILES</th>
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Source: Plants - Las Californias Binational Conservation Initiative; Page 23
# CHAPARRAL

**PLANTS**
- Manzanita (several species)
- Scrub oak
- Chamise

**BIRDS**
- Spotted towhee
- Wrentit

**MAMMALS**
- Bats
- Deer mice
- Pocket mice
- Black-tailed jackrabbit
- Brush rabbit

**REPTILES**
- Western whiptail lizard
- Granite spiny lizard

**Mimulus**
- Ceanothus

**Black-chinned sparrow**
- California thrasher

**Coyote**
- Bobcat
- Mule deer
- Mountain lion
- Ring-tailed cats

**San Diego horned lizard**
- Pacific rattlesnake

Source: Plants - Las Californias Binational Conservation Initiative; Page 23

# OTAY RIVER WATERSHED

**PLANTS**
- Willows (Salix spp)
- Cottonwoods (Populus spp.)
- Mulefat (Baccharis salicifolia)
- Western Sycamore (Platanus racemosa)
- Cordgrass (Spartina foliosa)
- Pickleweed (Saliornia spp)

**BIRDS**
- Southwest willow flycatcher
- Least bell’s vireos
- Cooper hawk
- Tricolored blackbird
- White-faced ibis
- Salt marsh bird’s beak
- Salt marsh skipper

**REPTILES**
- Arroyo southwestern toad

**Alkali-heath (Frankenia salina)**
- Shoregrass (Monanthchlie littoralis)
- Saltgrass (Distichilis spicata)
- Cattails (Typha spp)
- Bulrushes (Scirpus spp.)
- Rushes (Juncus spp.)

**Reddish egret**
- Light-footed clapper rail
- Long-billed curlew
- Belding’s savannah sparrow
- Large billed sparrow
- Northern harrier
- Western snow plover

**California red-legged frog**

## ALAMAR RIVER WATERSHED

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<td>▶ Juncus acutus</td>
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<td>▶ Brush rabbit (Lepus californicus)</td>
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<td>▶ Snake (Crotalus mitchelli)</td>
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**Source:** The Partial Program for Conservation and Urban Improvement of the Alamar River Zone
APPENDIX C

Mexico’s Housing Financing Mechanisms

The largest financer of housing in Mexico is the National Fund Institute for Workers Housing (Instituto de Fondo Nacional de la Vivienda para los Trabajadores - INFONAVIT). Funded by a compulsory contribution by employers of five percent of employees’ wages, INFONAVIT currently provides over half the loans for developer-built homes (and about three quarters of the loan value).[1] It has public and private membership on its governing board.

The Federal Mortgage Agency (Sociedad Hipotecaria Federal - SHF) is the second largest lender in Mexico, which is a federal development bank and is owned by the federal government. This organization channels funds through private Mexican commercial banks. It has the broadest market for loans, including home loans, home equity loans, and construction loans. In addition, it is the only institution that offers loans to workers that are not part of the formal economy.

The third largest capital source is Housing Fund for Civil Servants (Fondo de Vivienda del Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado - FOVISSSTE). It is the public sector equivalent to INFONAVIT and is funded by a five percent employee contribution. Loans are distributed based on a lottery system.

There are three other public agencies that offer home loans. They are Peoples Housing Fund (Fideicomiso Fondo Nacional de Habitaciones Populares - FONHAPO), States’ Housing Organization (Organismos Estatales de Vivienda - OREVIS), and Mortgage and Public Works Bank (Banco Nacional de Obras y Servicios Públicos - BANOBRAS). These lending institutions and private banks represent only a small segment of the home loan industry.

Unlike financing in Mexico, the U.S. lending market is mostly funded by private lending institutions with the exception of government sponsored institutions (e.g., Freddie Mac and Fannie Mae). Funding is available for residential sales and rental unit construction. It has no formal national employee contribution program, though, funding for the home loan industry does receive a lot of its capital from public and private employee pension investments funds.

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# APPENDIX D

## Glossary of Acronyms and Terms

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