MEETING NOTICE
AND AGENDA

COMMITTEE ON BINATIONAL REGIONAL OPPORTUNITIES
The Committee on Binational Regional Opportunities (COBRO) may take action on any item appearing on this agenda.

Tuesday, July 6, 2010
3:00 to 4:30 p.m.
SANDAG, 7th Floor Conference Room
401 B Street, Suite 800
San Diego, CA  92101-4231

Staff Contact:  Hector Vanegas
(619) 699-1972
hva@sandag.org

AGENDA HIGHLIGHTS

•  GNEB: A BLUEPRINT FOR ACTION ON THE U.S.-MEXICO BORDER

•  2050 REGIONAL TRANSPORTATION PLAN (RTP): URBAN AREA TRANSIT STRATEGY AND DEVELOPMENT OF INITIAL UNCONSTRAINED TRANSPORTATION NETWORK

•  GREENHOUSE GAS EMISSIONS OF IDLING VEHICLES AT SAN DIEGO-BAJA CALIFORNIA BORDER CROSSINGS

MISSION STATEMENT
The Committee on Binational Regional Opportunities (COBRO) will advise the Borders Committee of the San Diego Association of Governments (SANDAG) concerning both short- and long-term binational related activities, issues, and actions; provide input regarding binational border-related planning and development; and identify ways to assist and coordinate with existing efforts in the binational area. The COBRO will serve as a working group to the SANDAG Borders Committee to facilitate a better understanding of the binational border-related issues and needs of the California-Baja California region.
Welcome to SANDAG! Members of the public may speak to the COBRO on any item at the time that the Committee is considering the item. Please complete a Speaker’s Slip which is located in the rear of the room and then present the slip to Committee staff. Also, members of the public are invited to address the Committee on any issue under the agenda item entitled Public Comments/Communications. Speakers are limited to three minutes. The COBRO may take action on any item appearing on the agenda.

This agenda and related staff reports can be accessed at www.sandag.org under meetings on SANDAG’s Web site. Public comments regarding the agenda can be forwarded to SANDAG via the e-mail comment form also available on the Web site. E-mail comments should be received no later than noon, two days prior to the COBRO meeting.

In compliance with the Americans with Disabilities Act (ADA), SANDAG will accommodate persons who require assistance in order to participate in SANDAG meetings. If such assistance is required, please contact SANDAG at (619) 699-1900 in advance of the meeting. To request this document or related reports in an alternative format, please call (619) 699-1990, (619) 699-1904 (TTY), or fax (619) 699-1905.

SANDAG offices are accessible by public transit. Phone 1-800-COMMUTE or see www.sdcommute.com for route information.
COMMITTEE ON BINATIONAL REGIONAL OPPORTUNITIES  
Tuesday, July 6, 2010  

ITEM #                  | RECOMMENDATION
------------------------|-------------------
1. WELCOME AND INTRODUCTIONS                      |
+2. COMMITTEE ON BINATIONAL REGIONAL OPPORTUNITIES (COBRO) MEETING SUMMARY OF APRIL 6, 2010 | APPROVE

Summary of the April 6, 2010, meeting.

3. PUBLIC COMMENTS/COMMUNICATIONS AND MEMBER COMMENTS  

Each speaker is limited to three minutes.  

CONSENT ITEM (#4)  

+4. UPCOMING EVENTS                                      | INFORMATION
+5. COBRO CALENDAR OF MEETINGS FOR FISCAL YEAR (FY) 2011 (Hector Vanegas, SANDAG) | ACCEPT

This report presents the proposed calendar of meetings for FY 2011.

CHAIR’S REPORT (#6)  

+6. THIRTEENTH REPORT OF THE GOOD NEIGHBOR ENVIRONMENTAL BOARD TO THE PRESIDENT AND CONGRESS OF THE UNITED STATES: A BLUEPRINT FOR ACTION ON THE U.S.-MEXICO BORDER | INFORMATION

This report describes the principal chronic environmental issues that plague the border region today, and identifies specific immediate and medium-term actions that the federal government and other key partners in the region can take to address these problems.
<table>
<thead>
<tr>
<th>RECOMMENDATION</th>
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<td>ITEM #</td>
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### REPORT ITEMS (#7 through #9)

<table>
<thead>
<tr>
<th>ITEM #</th>
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<tr>
<td>+7.</td>
<td><strong>REPORT AND SUMMARY OF THE 2010 SANDAG BINATIONAL SEMINAR “CROSSBORDER CLIMATE CHANGE STRATEGIES: RAISING AWARENESS ON ADAPTATION”</strong> (Chair Paul Ganster; and Hector Vanegas, SANDAG)</td>
</tr>
</tbody>
</table>

The 2010 binational seminar “Crossborder Climate Change Strategies: Raising Awareness of Adaptation” was held on June 1, 2010, at Caltrans, District 11. This report summarizes the outcomes from the seminar. COBRO is asked to form a task force to review the outcomes from the seminar and discuss possible recommendations to the Borders Committee, which would be presented first to this Committee.

| +8. | **2050 REGIONAL TRANSPORTATION PLAN (RTP): URBAN AREA TRANSIT STRATEGY AND DEVELOPMENT OF INITIAL UNCONSTRAINED TRANSPORTATION NETWORK** (Heather Werdick and Carolina Gregor, SANDAG) |

SANDAG is currently preparing the 2050 RTP. The Urban Area Transit Strategy will serve as the basis of the transit strategy to be included in the RTP. The transit networks, combined with highway improvements and other management strategies, will form the basis for the initial 2050 Unconstrained Transportation Network. Attached are two reports that were provided to the SANDAG Board of Directors in June 2010 on these topics.

| +9. | **GREENHOUSE GAS (GHG) EMISSIONS OF IDLING VEHICLES AT SAN DIEGO-BAJA CALIFORNIA BORDER CROSSINGS** (Suzanne Barzee, San Diego State University) |

This presentation will be an overview of research and findings from a recent study on GHG Emissions generated from idling vehicles at San Diego-Mexico Border Crossings.

| 10. | **NEXT MEETING DATE AND LOCATION** |

The next meeting of the Committee on Binational Regional Opportunities is scheduled for Tuesday, September 7, 2010, from 3:00 to 4:30 p.m., at SANDAG.

+ next to an item indicates an attachment
COMMITTEE ON BINATIONAL REGIONAL OPPORTUNITIES
MEETING SUMMARY OF APRIL 6, 2010

1. WELCOME AND INTRODUCTIONS

The April 6, 2010, Committee on Binational Regional Opportunities (COBRO) meeting was called to order by Chair Paul Ganster, Institute for Regional Studies of the Californias, San Diego State University (SDSU), at 3:00 p.m. (See the attendance sheet for COBRO member attendance posted in SANDAG’s Web site at http://www.sandag.org/index.asp?meetingID=2772&fuseaction=meetings.detail)

2. SUMMARY OF THE FEBRUARY 2, 2010, MEETING (APPROVE)

Chair Ganster acknowledged that there was no quorum, so this section of the agenda was postponed.

Action: No quorum. No action taken.

3. PUBLIC COMMENTS/COMMUNICATIONS AND MEMBER COMMENTS (INFORMATION)

Hector Vanegas introduced Domingo Vigil, new member (intern) of Team Borders. Domingo worked for the Air Pollution Control District in the County of San Diego and prior to that he worked for the U.S. Environmental Protection Agency. Domingo studied at SDSU and he is now enrolled full-time at University of California, San Diego, at the School of International Relations and Pacific Studies.

James Clark, San Diego Regional Chamber of Commerce, introduced Anthony Marquez, who is interning with the chamber. Anthony is a student at Universidad Iberoamericana in Tijuana. James also announced the conference on Wednesday, April 14, with the Secretary of Commerce of the United States, the Secretary of Economy of Mexico, and the Minister of Trade of Canada. He mentioned every panel at the conference had a representative from all three countries.

Clay Phillips, Tijuana River National Estuarine Research Reserve, announced that the Border Field State Park recently bid out a project to conduct renovations. Construction is expected to start in August with completion in October. Mr. Phillips acknowledged that one
of the things that remain to be done is a permanent improvement to the park entrance, which floods every year.

**CONSENT (Item #4)**

4. **UPCOMING EVENTS (INFORMATION)**

Chair Ganster invited attendants to review upcoming events that were included in the agenda packet.

**REPORTS (#5 through #7)**

5. **UPDATES ON THE ORGANIZATION OF THE 2010 SANDAG BINATIONAL SEMINAR (INFORMATION)**

Ron Saenz informed that the Save the Date for the Binational Seminar was available and it was included in the agenda packet in both English and Spanish. He announced that the Seminar will take place in Caltrans from 1 to 5 p.m., and it will follow the same format as last year’s Binational Seminar at Caltrans. This comes on the cuffs of a recent Memorandum of Understanding (MOU) signed between CalEPA and its counterpart in Baja California. Mr. Saenz attended the event in Tijuana where both directors of these agencies signed the MOU for opportunities to collaborate on best practices as they relate to climate change. Input will be provided from expert panelists during this conference that can be included in the 2050 Regional Transportation Plan (RTP), focusing on climate change adaptation.

**Action:** This item was presented for information only.

6. **THE UNITED STATES-MEXICAN BORDER: PROBLEMS, POLICIES, PRACTICES, PERCEPTIONS (INFORMATION)**

Jussi Laine, PhD candidate from the University of Eastern Finland-Joensuu, presented some of the preliminary results of his thesis work on a comparison of two asymmetrical border regions: U.S.-Mexico and Finland-Russia. The presentation focused on the results from a survey conducted in the U.S.-Mexico border region to assess the extent to which different variables represented a barrier to crossborder interaction.

**Action:** This item was presented for information only.

7. **METROPOLIS TRANSFRONTERIZA (TRANSBORDER METROPOLIS) (INFORMATION)**

Dr. Tito Alegría, El Colegio de la Frontera Norte (COLEF), Tijuana, presented some of the research behind his book “Metropolis Transfronteriza”, stressing the difference between interaction and integration of the Tijuana and San Diego metropolitan areas.

**Action:** This item was provided for information only.
8. NEXT MEETING DATE AND LOCATION

The next meeting of COBRO is the 2010 Binational Seminar on Crossborder Climate Change Strategies, scheduled for Tuesday, June 1, 2010, from 1 to 5 p.m., at Caltrans, District 11.

Chair Ganster adjourned the meeting at 4:10 p.m.
UPCOMING EVENTS

**WHAT:** State of the Port Address

**Otay Mesa Chamber of Commerce**

**WHEN:** June 30, 2010

**WHERE:** SANYO (2055 Sanyo Avenue, San Diego)

**MORE INFO:** (619) 661-6178 or (619) 661-6111 or www.otaymesa.org

**WHAT:** South County Economic Development Council Annual Meeting

**South County Economic Development Council**

**WHEN:** July 6, 2010

**WHERE:** San Diego Country Club (88 L Street, Chula Vista)

**MORE INFO:** (619) 424-5143 or www.sandiegosouth.com

**WHAT:** U.S.-Mexico Border 2012 Air Policy Forum

**U.S. Environmental Protection Agency (U.S. EPA) and Mexico’s Secretariat of Environment and Natural Resources (SEMARNAT)**

**WHEN:** July 7-8, 2010

**WHERE:** Hotel Encanto Las Cruces, New Mexico

**MORE INFO:** (202) 564-8309 or stendebach.sue@epa.gov or www.epa.gov

**WHAT:** Seminar on U.S.-Mexico Relations: Economic Interdependence and Integration on the Second Front

**COLEF and CASEDE**

**WHEN:** July 8, 2010

**WHERE:** EL COLEF (18.5 San Antonio del Mar, Tijuana, Baja California, C.P. 22560, México)

**MORE INFO:** +52 (664) 631-6300 ext. 1155 or medios@colef.mx

**WHAT:** Urban Land Institute (ULI) San Diego/Tijuana Monthly Breakfast-How Will San Diego Accommodate Projected Residential and Business Growth in Coming Decades

**ULI**

**WHEN:** July 13, 2010

**WHERE:** University Club (750 B Street, Suite 3400, San Diego)

**MORE INFO:** www.uli.org
WHAT: Roundtable discussion on Human Rights and Repatriation Processes between the U.S. and Mexico
EL COLEF and LA RECCI
WHEN: August 18, 2010
WHERE: El COLEF (18.5 San Antonio del Mar, Tijuana, Baja California, C.P. 22560, México)
MORE INFO: +52 (664) 631-6300 ext. 1155 or medios@colef.mx

WHAT: Clean Energy Commercial Tours
San Diego Chamber of Commerce
WHEN: September 14-15, 2010
WHERE: California Center for Sustainable Energy (8690 Balboa Avenue, Suite 100, San Diego)
MORE INFO: (858) 244-1177 or www.sdchamber.org

WHAT: Clean Energy Conference
San Diego Chamber of Commerce
WHEN: September 16, 2010
WHERE: California Center for Sustainable Energy (8690 Balboa Avenue, Suite 100, San Diego)
MORE INFO: (858) 244-1177 or www.sdchamber.org

WHAT: 2010 Economic Summit
South San Diego Economic Development Council
WHEN: September 19, 2010
WHERE: San Diego Convention Center
MORE INFO: www.sandiegosouth.com

WHAT: Elected Officials Reception
South San Diego Economic Development Council
WHEN: September 23, 2010
WHERE: TBD
MORE INFO: www.sandiegosouth.com

WHAT: One Region One Voice Washington D.C. Delegation
San Diego Regional Chamber of Commerce
WHEN: September 26-29, 2010
WHERE: San Diego Regional Chamber of Commerce (402 West Broadway, Suite 1000, San Diego)
MORE INFO: http://www.sdchamber-members.org/DCDelegation2.htm
Judith Andry at (619) 544-1341 or jandry@sdchamber.org

WHAT: U.S.-Mexico Border Energy Forum XVII
U.S. Environmental Protection Agency (EPA) and Mexico’s Secretariat of Environment and Natural Resources (SEMARNAT)
WHEN: September 30-October 1, 2010
WHERE: The Hotel Soberano Barranca del Cobre #3211 Fracc Barrancas Chihuahua, Chih, Mexico 31125
MORE INFO: (512) 463-5039 or soll.sussman@glo.state.tx.us

Key Staff Contact: Hector Vanegas, (619) 699-1972; hva@sandag.org
Committee on Binational Regional Opportunities (COBRO) File Number 3400200

Calendar of Meetings for Fiscal Year (FY) 2011:

The following meeting dates are proposed for the COBRO meetings in FY 2011 (July 2010 – June 2011). Meetings will be held at SANDAG, 401 B Street, Suite 800, San Diego, from 3:00 to 4:30 p.m., unless noted otherwise.

- Tuesday, July 6, 2010, 3:00 p.m.
- Tuesday, September 7, 2010, 3:00 p.m.
- Tuesday, November 2, 2010, 3:00 p.m.
- Tuesday, February 1, 2011, 3:00 p.m.
- Tuesday, April 5, 2011, 3:00 p.m.
- Tuesday, June 7, 2011, TBD (Annual Binational Event)

Key Staff Contact: Hector Vanegas, (619) 699-1972; hva@sandag.org
THIRTEENTH REPORT OF THE GOOD NEIGHBOR ENVIRONMENTAL BOARD TO THE PRESIDENT AND CONGRESS OF THE UNITED STATES: A BLUEPRINT FOR ACTION ON THE U.S.-MEXICO BORDER

This report describes the principal chronic environmental issues that plague the border region today, and identifies specific immediate and medium-term actions that the federal government and other key partners in the region can take to address these problems.

Attachment: 1. A Blueprint for Action on the U.S.-Mexico Border

Key Staff Contact: Ron Saenz, (619) 699-1922; rsa@sandag.org
A Blueprint for Action on the U.S.-Mexico Border

Thirteenth Report of the Good Neighbor Environmental Board to the President and Congress of the United States

June 2010

English and Spanish versions available
The 13th report of the Good Neighbor Environmental Board (GNEB) describes the principal chronic environmental issues that plague the border region today. The report also identifies specific immediate and medium-term actions that the federal government and other key partners in the region can take to address these problems. Although there certainly is a need for more funding to address the environmental problems of this underserved region of the United States, there is much that federal agencies can do to better implement existing programs and better use current resources. They can provide the leadership required to eliminate domestic and international barriers to facilitate efforts of state and local government, border communities, and the private sector. Federal participation is key to working effectively across the border with Mexico, and absolutely necessary for developing and applying solutions to environmental problems that spill across the border and cause problems for U.S. and Mexican communities.

The 13th report highlights important environmental problems and solutions in the areas of climate change, air quality, water quantity and quality, energy, habitat and biodiversity conservation, solid and hazardous waste, emergency response, environmental health, security along the border, and institutional mechanisms for addressing border environmental problems. Most of the topics are treated as stand-alone chapters. Some topics are integrated in a number of places in different chapters, as is the case with security, and with environmental health, which is treated in the water, air, and waste chapters.
The 13th report does not prioritize the border environmental problems according to their severity nor according to proposed recommendations. Instead, the Board provides its perspective of what the important border environmental problems are, and actions that the federal government can take to address those problems. This report aims to reflect the concerns of border communities. Many nongovernmental, state and local governmental, and tribal Board members live and work in border communities; federal members of the GNEB also are experts on these border issues. The Board typically meets three times annually, twice in border communities, and hears firsthand from local residents about the challenges that they face in the management of border environmental issues.

Context
There are a number of defining features and characteristics of the border region that make it fundamentally different from other regions within the United States. The U.S. border region is defined by rapid economic and population growth, rapid urbanization, spillover effects from Mexico, asymmetries with Mexican communities across the border, international commerce and trade flows, high rates of poverty, and a distinct ethnic identity. These features all present challenges that regions located within the interior of the United States often do not have to overcome, especially when they occur simultaneously and in the same place.

Population and urbanization
Since the 1940s, the population of the U.S. and Mexican border states has grown more rapidly than the national averages and the populations of the counties and municipalities along the border have grown faster than the states in which they are located. Driven by migration, especially of young people, the populations of Mexican municipalities have grown at a faster rate than their U.S. counterparts. These trends make the border region the most demographically dynamic region of the United States and of Mexico. By 2000, some 12.4 million people lived in the border counties and municipalities, and by 2010 that figure had reached 14.4 million, concentrated largely in binational metropolitan sister cities. By 2020, the border population is projected to reach 19.5 million.

Urban growth often outpaces the ability of government to provide adequate infrastructure in these border cities, especially on the Mexican side of the boundary where much of the urbanization has been unplanned. In burgeoning cities such as Ciudad Juárez, Nuevo Laredo, Nogales, and Tijuana, lands were settled and houses were constructed, but water and sewerage infrastructure installation occurred years afterward. In areas of the U.S. border region, principally in Texas and New Mexico, but also in Arizona and California, colonias—residential communities in rural areas of counties lacking basic services such as water, sewage, electricity, and often paved roads—developed without standard infrastructure. Thus, on both sides of the border, large numbers of residents do not have safe potable water piped into their homes and lack proper sewage collection and treatment services. Hundreds of thousands of U.S. border residents do not have the same levels of water and sewage services as their fellow citizens elsewhere in the United States. By 2000, the deficit in environmental infrastructure in U.S. and Mexican border communities ranged from $5.8 to $10.4 billion, and by 2010 the deficit was more than $1 billion for water and wastewater projects in U.S. and Mexican border communities.

One of the major difficulties for making environmental progress on the U.S.-Mexico border is that although the border region of the United States is one of the poorest areas of that nation (see graph below), Mexico’s border region is one of the wealthiest regions of Mexico, along with Mexico City, Guadalajara, and Monterrey. This fact has made it politically difficult for Mexican federal authorities to spend funds on border environmental infrastructure when there are more pressing needs elsewhere in the country.

Economic and trade expansion: North American Free Trade Agreement (NAFTA)
When NAFTA was being negotiated and debated in Congress in the early 1990s, many border residents had hopes that the trade agreement would address environmental problems of

![Border Per Capita Income as Percent of U.S. Per Capita Income](image-url)
their communities and also bring economic development, including well-paying jobs. NAFTA produced a large increase in trade and investment across the border with Mexico, but did not create prosperity in U.S. border communities. Although NAFTA stimulated commerce and created many jobs along the border, those jobs tended to be low-skill and low-paying, while border communities lost higher paying assembly and manufacturing jobs that moved into Mexico and elsewhere offshore. At the same time, the increased vehicular crossings saturated the border infrastructure and overwhelmed communities along the major trade corridors with increases in air pollution, producing health as well as safety concerns. Although regions throughout the United States benefited from the growth of NAFTA-related trade and investment, border communities absorbed a disproportionate share of the environmental costs related to congestion.

**Poverty and ethnicity**

A 2006 report by the U.S./Mexico Border Counties Coalition, *At the Cross Roads: US/Mexico Border Counties in Transition*, provides useful analysis for understanding key features of the U.S. border region. The report points out that if the 24 U.S. counties along the border were aggregated as the 51st state, they would rank 40th in per capita income, 5th in unemployment, 2nd in tuberculosis, 7th in adult diabetes, 50th in insurance coverage for children and adults, and 50th in high school completion—all characteristic of regions of poverty.

Hispanics constitute the largest ethnic group in the border region, are the largest minority group in the United States, and are a majority of the population in 18 of the 24 counties along the international border with Mexico. By 2008, 88 percent of the population of the border counties, excluding San Diego and Pima counties, was Hispanic. The percentage of Hispanics in the U.S. border population is increasing due to continuing migration from Mexico and the high birth rate of border Hispanic populations (see adjacent table).

Adding to the cultural and economic complexity, there are 26 U.S. federally recognized Native American Tribes in the border region that range in size from 9 to 28,000 members. Some of these tribes share extensive family and cultural ties to indigenous peoples in the border region of Mexico.

The border region, then, is a region where poverty and ethnicity coincide. It also is a region where the population is harmed by the health effects of deteriorated environmental conditions.

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**Estimated Population of U.S. Counties Adjacent to the Border, and Hispanic Percentage (July 2008)**

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<thead>
<tr>
<th>State/County</th>
<th>Total</th>
<th>Hispanics</th>
<th>Percentage Represented by Hispanics</th>
</tr>
</thead>
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<tr>
<td><strong>Arizona</strong></td>
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<tr>
<td>Cochise</td>
<td>129,006</td>
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<td>Pima</td>
<td>1,012,018</td>
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<td>Santa Cruz</td>
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<td>Yuma</td>
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<tr>
<td><strong>California</strong></td>
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<tr>
<td>Imperial</td>
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<td>San Diego</td>
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<td>Sub-total</td>
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<td><strong>New Mexico</strong></td>
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<td>Doña Ana</td>
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<td>Hidalgo</td>
<td>4,910</td>
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<td>Luna</td>
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<td><strong>Texas</strong></td>
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<td>Brewster</td>
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<td>Zapata</td>
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<td><strong>Total minus San Diego</strong></td>
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<td>2,799,158</td>
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<td><strong>Total minus San Diego and Pima</strong></td>
<td>3,074,859</td>
<td>2,463,901</td>
<td>84.0</td>
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Landscape and climate

The natural environment and climate of the border region provide a number of challenges for environmental quality and sustainability of communities. The border is mostly arid, and major populations such as San Diego and El Paso depend on scarce groundwater and surface water that is insufficient to meet current demands for urban and agricultural uses and ecosystem services. To meet these needs for potable water, border communities are forced to transport water over long distances or implement desalination of saline groundwater, both costly solutions. Climate predictions point to higher average temperatures and declining snowpack in the Colorado and Rio Grande systems; as a result, water resources are projected to decrease in the future (see Chapters 1 and 7).

Border location

Its location along the international boundary adjacent to a newly industrialized country with low per capita income and striking income inequalities provides the border region with challenges that other regions within the United States do not share. With populations doubling every 10 to 15 years, Mexican border cities tend to prioritize water supply for the population over other needs such as sewage treatment, hazardous and solid waste disposal, water for conservation, road paving, and motor vehicle emissions control systems. Although environmental spillover effects are inevitable in the densely settled sister-city pairs along the border, the level of development in Mexico means that U.S. border cities need to spend more to address these issues on their side of the border.

The ports of entry also have significant economic as well as environmental impacts on U.S. border communities because of the enormous quantities of freight that move through the trade corridors with Mexico, and the long crossing wait times for commercial and non-commercial vehicles. In 2007, these wait times for personal and commercial crossing from Tijuana to San Diego alone cost the U.S. and Mexican economies an estimated $7.2 billion in foregone gross output and more than 62,000 jobs. If compiled, the figure for losses produced by long wait times along the entire border with Mexico would be very large,
in excess of $10 billion per year. These are costs absorbed by border communities that benefit communities throughout the United States.

The Board addressed key border security environmental issues in its 10th and 11th annual reports. Many of the subjects raised in the 10th report, *Environmental Protection and Border Security on the U.S.-Mexico Border*, as well as those discussed in detail in the 11th report, *Natural Disasters and the Environment Along the U.S.-Mexico Border*, are addressed in other sections of this report, notably in the emergency preparedness and hazardous waste sections.

The international boundary adds complexities and costs for U.S. border communities in their attempts to address regional environmental issues. Organizing a proper emergency response system is greatly complicated by the international boundary, as is dealing with regional air pollution issues when part of the airshed is located in Mexico. Conservation, water quality protection, aquifer management, watershed management, and solid and hazardous waste are other examples of environmental issues that ultimately only have binational or international solutions.

**Conclusions**

The governments of the United States and Mexico have responded to the challenge of border environmental issues with a number of measures that include the 1944 international water treaty, the 1983 La Paz Agreement, the border environmental program of Border 2012, and the creation of the binational institutions of the North American Development Bank (NADB) and the Border Environment Cooperation Commission (BECC). Although these efforts to address border environmental problems have had positive results, they have been inadequate to meet the needs of dynamic border communities with growing environmental problems.

In 2009, the Board issued two separate letters of advice: the first on May 19, which addressed a wide variety of border issues, and a second letter on December 2, which addressed the environmental effects of the border fence. Both letters, and the reply to the Board from the Council on Environmental Quality (CEQ), are found in the Appendices. A response to the December 2 letter from the Department of Homeland Security (DHS) is available on the GNEB Web Site (http://www.epa.gov/ocem/gneb/pdf/2009_1224_gordon_letter_gneb_chair.pdf).

The GNEB in this 13th report recommends that all relevant federal agencies improve coordination and commitment to address the wide suite of environmental problems and opportunities present on the border, and facilitate cross-border efforts of the border communities whenever possible. At the same time, strategic funding increments are necessary, particularly to address the chronic environmental infrastructure deficit that still exists throughout the border and affects these communities.

**References:**

REPORT AND SUMMARY OF THE 2010 SANDAG BINATIONAL SEMINAR
“CROSSBORDER CLIMATE CHANGE STRATEGIES:
RAISING AWARENESS ON ADAPTATION”

Introduction

The 2010 Binational Seminar “Crossborder Climate Change Strategies: Raising Awareness on Adaptation” was held on June 1, 2010, at Caltrans, District 11. The event had the sponsorship of the Consulate General of Mexico in San Diego, the Secretariat of Environmental Protection of Baja California (SPA, in Spanish), El Colegio de la Frontera Norte (COLEF), the City of Tijuana Municipal Planning Institute (IMPlan, in Spanish), the California Environmental Protection Agency (CalEPA), and Caltrans, District 11. The seminar drew attendance by stakeholders and representatives from planning agencies from both sides of the border, including Tijuana and the San Diego region. A background document was prepared for the event containing information on climate change issues in the United States and Mexico, and on efforts being taken on both sides of the border in the area of climate change adaptation.

Recommendation

COBRO is asked to form a task force to review the outcomes from the seminar and discuss possible recommendations to the Borders Committee, which would be presented first to COBRO.

Discussion

The goal of this event was to seek input and discuss potential adaptation strategies to address climate change impacts. The seminar fostered dialogue between stakeholders, policy makers, and the general public on adaptation strategies, with an emphasis on linking them to the San Diego region 2050 Regional Transportation Plan (RTP).

The program for the event included presentations on the following: setting the stage for a discussion on crossborder strategies for climate change and the regional transportation plans, a review of SANDAG’s Climate Action Strategy, an Overview of Climate Change Adaptation and the 2050 RTP - White Paper, and briefings on the states of California and Baja California climate change adaptation planning efforts. The event concluded with an expert panel discussion on crossborder climate change adaptation strategies.
The following are highlights of comments made by the panel of experts:

- The issue of climate change should not only be addressed as an environmental topic but also as a developmental issue requiring cross-cutting policies.

- The issues of adaptation apply mainly at the local level.

- Social justice issues should be considered when planning climate change and adaptation strategies.

- When climate change is considered, transportation issues must be addressed along with water and energy issues, similar to how land use and transportation are integrated in smart growth plans.

- Regarding the implementation of climate change legislation, it would be beneficial to implement a strategy of incentives and even dedicate resources, such as the Green Fund proposed by Mexico at the 2009 Copenhagen Conference.

- While sharing information is vital for regional collaboration, it would still be desirable to ensure the continuity of cooperation on climate change by institutionalizing crossborder cooperation.

- Local implementation of potential federal and state mandates was identified as a challenge, since each region has peculiarities that make them different.

- Concerning planning efforts, there is still a gap between the scientific community and the end users (e.g., planners and engineers). In this regard, closer cooperation could help diminish uncertainties and lead to greater shared knowledge.

- Before trying to create a common baseline to measure greenhouse gas emissions, it is important to develop a common language for stakeholders for further research on both sides of the border.

**Next Steps**

The conclusions of the event will be discussed by COBRO, and will be presented along with any recommendations to the Borders Committee at a future meeting. If recommended, the 2010 Binational Seminar results would also be presented to the SANDAG Board of Directors.


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1. REGISTRATION AND NETWORKING TIME

The moderator of the first segment of the binational seminar, Chair Patricia McCoy, Councilmember of the City of Imperial Beach and Borders Committee Chair, announced that the event would be digitally recorded and posted on the SANDAG Web site.

2. WELCOME AND INTRODUCTORY REMARKS

The June 1, 2010, SANDAG Binational Seminar, “Crossborder Climate Change Strategies: Raising Awareness of Adaptation,” was called to order by Chair Patricia McCoy, Borders Committee. The seminar was held at Caltrans, District 11 offices.

Chair Patricia McCoy, Councilmember of the City of Imperial Beach and Borders Committee Chair, remarked that the seminar will focus on the strategies for adapting to climate change and the challenges it will pose. She explained that our unique geographic location, make us susceptible to many climate change concerns such as sea-level rise, extreme weather patterns, wild fire, and water scarcity. In this context it is important to recognize the need for collaboration to combat the effects of climate change, which will inevitably have an impact on everyone. Our response to this problem is therefore imperative to limiting the impacts we see in the near future. To finalize her remarks, Chair McCoy emphasized that today’s topic is an international issue that requires collaboration.

Marta Elvia Rosas, Deputy Consul General, Mexico, explained that as a binational border region, it is important to coordinate politically to address the climate change challenges we will face. She stated that the seminar is an opportunity for those in attendance to transform challenges into opportunities by sharing experiences and knowledge from both parts of the border region.

Laurie Berman, Director, Caltrans, District 11, stated that the topic of climate change is an important issue where transportation plays an important role. She explained that transportation infrastructure can be impacted by climate change through temperature extremes and its impacts on our pavement and landscaping, winter storms, which contribute to flooding and erosion, and wildfires, during times of drought, so mitigating the impacts will require participation from all of us by addressing climate change and focusing on methods of adaptation. She emphasized that change should start at home and Caltrans is a model of this through its environmentally conscious building. The Caltrans building is LEED Certified and Caltrans is continuing to improve in the LEED Scale. It has just received Gold Level and hopes to soon achieve a Platinum certification. Laurie Berman stressed that the small changes will ultimately lead to greater understanding and more improvements to our communities in the future.

Luis Duarte, IMPlan, XIX Ayuntamiento de Tijuana, explained that the topic of climate change adaptation is fundamental for the local, regional, and global development of both countries. Climate change does not recognize borders but concerns us all by affecting the
development of our regions. He recognized the work of El Colegio de la Frontera Norte (COLEF) who invited him to join Senator Cardenas. He explained that Senator Cardenas has recently proposed a climate change law in Mexico. He stated that the initiative is unique because there has never been a law to support current development plans addressing climate change. Furthermore, the new program requires the greater participation of municipalities in Mexico regarding climate change adaptation strategies. He also explained that the city of Tijuana is currently working to include climate change adaptation methods in its urban development plans, which is a significant step that marks the beginning of Mexico’s support concerning climate change adaptation.

3. SETTING THE STAGE FOR A DISCUSSION ON CROSSBORDER CLIMATE CHANGE PLANNING

Hon. Crystal Crawford, Councilmember of the City of Del Mar, reflected on the steps we have made on crossborder collaboration. She explained that the relationships and efforts have grown and that this seminar’s focus on adaptation as well as mitigation of climate change would mainly address existing infrastructure and discuss the update of the Regional Transportation Plan (RTP). The discussion will feed into the ongoing update of the RTP. SANDAG is currently in the process of updating the 2030 RTP to become the 2050 RTP. She reiterated that the focus of the seminar is adaptation and mitigation during these changing times. SANDAG is the first Metropolitan Planning Organization (MPO) that is complying with Senate Bill 375 (SB 375), which is a bill that requires regional transportation plan’s to include a sustainable community strategy that ensures the reduction of greenhouse gas (GHG) emissions through development patterns. SANDAG is working very hard to evaluate the possibilities of our actions in the long run. She explained that the focus on adaption will help us to better prepare and respond to climate changes. Crystal Crawford also stated that hopefully we can influence what is happening for future generations. She concluded by explaining that today is an opportunity for us to hear more about climate change impacts and provide input for various strategies and to learn more about what is going on across the border.

4. OVERVIEW OF CLIMATE CHANGE IMPACTS AND POSSIBLE ADAPTATION STRATEGIES AND REGIONAL TRANSPORTATION PLANS

This item was tabled as the speaker was unable to attend due to illness. Chair McCoy suggested scheduling this presentation at a future Borders Committee meeting.

5. OVERVIEW OF SANDAG CLIMATE ACTION STRATEGY

Andrew Martin, SANDAG Energy and Climate Change Planning Program, explained that although working to reduce the affects of climate change is a goal, the climate of our binational region is going to change because of the current GHG emissions, regardless of the future emissions. This is why mitigation is not the only focus and why adaptation is now being considered. He explained that the adaptation focus will change the climate action strategy at SANDAG, and the main goal is to reduce GHG emissions and mitigate the effects, by analyzing the proposed affects on our region, and transportation infrastructure. Areas of concern are climate change impacts on maintenance, and inspection, leading us to question
if we should stop building in particular areas where fortification and construction may be too costly. Ultimately, the question is not mitigation versus adaptation but the consensus is that integrated and comprehensive thinking are key. Andrew Martin stated that we also need to acknowledge that there is a great deal of uncertainty concerning climate change, and this serves as even more of an impetus to begin planning for methods of adaptation now.

6. OVERVIEW OF BAJA CALIFORNIA’S PLANNING EFFORTS ON CLIMATE CHANGE ADAPTATION STRATEGIES

Gabriela Muñoz from Estudios Urbanos y del Medio Ambiente (Urban and Environmental Studies) of COLEF, presented on behalf of Efrain Nieblas (Secretariat of Environmental Protection of Baja California). The presentation focused on the Climate Action Plan for Baja California (Plan Estatal de Acción Climática or PEAC-BC, in Spanish) regarding climate change and methods of mitigation and adaptation. She stated that in the past three years, strategies of mitigation have been implemented in Baja California, which included plans to protect the national park, biosphere reserves and the flora and fauna, as well as the re-categorization of forest reserves such as, the Sierra de San Pedro Mártir and Sierra de Juárez. One of the most important strategies of mitigation is the state program for vehicle inspection which will be a voluntary program from August until December of 2010 but will be mandatory in January 2011. Another method is the introduction of the first state wind power park which will reduce carbon emissions and energy use. Other mitigation efforts include the creation of energy efficient living places, offices, factories and construction processes. Gabriela Muñoz explained that the ultimate goal is to foster a stewardship concerning GHG emissions, regional climate change scenarios, public policy recommendations, communication, education, and monitoring vulnerability for each sector.

She then continued by elaborating on the climate action plan for Baja California and the transformation of the mitigation and adaptation recommendations into actions. She explained that until recently climate change was only viewed as an environmental concern and that unsustainable development is the underlying cause of climate change so development methods can determine the degree to which social systems are susceptible to climate change effects. Climate change will have varied effects such as scarcity and social conflicts. In anticipation of these effects, less developed countries should implement their National Adaptation Programs of Action. The PEAC-BC is a tool to support planning and development of public policies on climate change issues in the State of Baja California, by defining objectives, scope of activities, stakeholders, and period of actions and costs. She concluded by stating that climate change is a development issue and the PEAC-BC is an excellent tool to enhance public policy and planning regarding climate change adaption at the state and local levels.

7. QUESTIONS & ANSWERS (OPEN DISCUSSION PART 1)

Question: Federico Ruanova, Baker and McKenzie, asked the panelists if a study had been done, relating to air quality, analyzing the environmental impact associated with border wait times at Ports of Entry along the border region in the south county?
Paul Ganster, Director, Institute for Regional Studies of the Californias, explained that researchers at the San Diego State Graduate School for Public Health put monitors in vehicles driving and waiting in line to cross the border, and the levels of particulate matter and carbon-monoxide went up to very high levels, hazardous to one’s health, and showing one of the most obvious dangers. He explained that although there are some studies being done to evaluate the dangers associated with climate change, we will ultimately benefit from improved health by reducing pollutants such as GHGs. Paul Ganster also explained that he had learned of a study performed by the Border Patrol union regarding the health effects of air pollutants at the border region; however he has never been able to track that study down.

Dave Fege, San Diego Border Office, U.S. Environmental Protection Agency (EPA), was not aware of any studies. The EPA estimates the gross estimate of certain pollutants but not GHGs. He stated that it would take a fair amount of resources to estimate that amount at the border. However, even if we had that number, it would not change the urgency to strategize and reduce GHG emissions and wait times.

Ron Saenz, Associate Regional Planner, SANDAG, explained that Dr. Jenny Quintana has a graduate student at San Diego State University who should be finishing research on the GHG emissions generated from cars crossing at the Ports of Entry this June.

Gabriela Muñoz, COLEF, explained that Nobel Prize Mario Molina, is currently monitoring air pollution and air quality in the State of Baja California by measuring the GHG emissions. The Inventory of GHG Emissions in the State of Baja California is part of Mario Molina Center’s Climate Change Strategic Program.

Question:

Halla Razak, San Diego County Water Authority, referred to Gabriela Muñoz’s discussion on some of the adaptation techniques that were being used for water and she mentioned one was trying to conserve water in the urban areas. Halla Razak asked what some of the other five adaptation techniques were.

Gabriela Muñoz, COLEF, explained that the most important one is the efficient use of water in agricultural irrigation. Eighty percent of water is used for irrigation, 16 percent is used for urban purposes and the remainder is used for industry. Figures show that 70 percent of the water used for irrigation in Mexico is wasted because proper technology is not applied that could save water. She explained that the goal is to alter this system to reach the target for adaptation proposals.

Toribio Cueva, Centro de Estudios de Reuso y Conservación de Agua at CESPT (Baja California Water Utilities in Tijuana), explained that the residents of Tijuana consume approximately 4 or 5 percent of potable water and the principal use for re-use of water is for agricultural areas in Tijuana. He anticipates that the use of water will increase for green areas in Tijuana, making the current supply of potable water and water re-use difficult. He suggested that water re-use alternatives could be established, possibly through industrial improvements and changes. Furthermore, he explained that the goal to increase the re-use
of water by 20 percent by the year 2030 will be an ambitious and challenging task for Tijuana.

Gabriela Muñoz, COLEF, explained that another technique that is controversial and expensive is desalinization. Concerning the efficient use of water, water re-use is the best option. With desalinization you run the risk of high use of energy and water, and high generation of wastewater without a facility to deal with the drainage. She explained that other alternatives would be to use technology, through techniques such as the condensation of water in power plants and the last would be infrastructure improvements to ensure water efficiency.

**Question:**

Angelika Villagrana, San Diego Regional Chamber of Commerce, asked how action plans like smog programs and carbon markets will affect industries like maquiladoras? Will there be fines, incentives, or timelines?

Gabriela Muñoz, COLEF, explained that the main carbon footprint or GHG emissions of maquiladoras due to energy use is huge and that there is much room for improvement and that the most likely goal will be to help the factories monetarily to use renewable sources; however, she is unsure if they will be fined.

**Question:**

Mitch Beauchamp explained that in the Union Tribune newspaper there was a map that showed a project for wind-powered farms in the Sierra de Juárez and there seems to be a conflict because one of the national parks she showed was a part of Sierra de Juárez. With climate change Baja California is really two regions so that change in climate may cause Sierra de Juárez to be more fire prone and the wind-powered farms may impact this. Also, when you have wind-powered farms you need to protect the towers and if you’re going to use the credits for wood, the wood won’t be there and he stated that the ultimate concern is the use of resources.

Gabriela Muñoz, COLEF, explained that climate change is an environmental problem. When initiating ways of planning, it is important to look in the long-term and assess what is going to be better for a region. She acknowledged that there are conflicts that need to be considered, and it is not only about capacity but the need to look at how close wind farms are to transmission lines, because a lot of money will be spent on transmitting energy. She stated that ultimately, several factors need to be considered when evaluating wind farms that address long term affects.

8. **OPPORTUNITIES TO ADDRESS CLIMATE CHANGE ADAPTATION STRATEGIES THROUGH REGIONAL TRANSPORTATION PLANS**

Garth Hopkins, Chief, Office of Regional and Interagency Planning Division of Transportation Planning, Caltrans, discussed the RTP and some of the climate change activities Caltrans is implementing. He began with an introduction to regional planning and
discussed that MPOs will be charged with RTPs that address GHG emissions. He explained that Assembly Bill 32 (AB 32) or the Global Warming Solutions Act of 2006, which is a California state law, and SB 375, which is a subset of AB 32, addresses vehicle fuels and a wide range of issues. The impetus of AB 32 was to get GHG emissions back to the 1990 level by the year 2020. Additional actions include automobile emission standards, and the Executive Order from the Governor’s office, S 13.08, on sea level rise, for all state government agencies in California to address sea level rise on transportation and infrastructure projects. He discussed that we have SB 375 because 38 percent of GHG emissions in California come from the transportation sector but the emission proportions vary in other areas in the U.S., depending on areas of energy use. The emission targets will be out by this September 2010. The Air Resources Board is working with the larger MPOs to help provide input to the target setting process. To address climate change, Caltrans is keeping up to date on current research activities as best as possible to figure out what is valuable in terms of climate change. He stated that climate change has been a rallying point for the governmental agencies so coordination with regional and state agencies is essential. Important documents are the California Climate Adaptation Strategy, prepared with a multi-agency and multi-disciplinary approach, including Caltrans; and the 2010 Regional Transportation Guidelines. This document is our first effort to work with MPOs on the Sustainable Communities Strategies. Caltrans is trying to keep up to date in climate change issues. Also, Caltrans is developing interim sea-level rise assumptions to take them in account in our transportation plans. We are working with engineers and planning staff to come out with interim sea level rises within the next few months. Interim, because we are waiting for the National Academy of Sciences (NAS) that is set to release its sea-level rise study, which will be used for numerous infrastructure activities. He also explained that Caltrans is working to create a ‘hotspot map’ to identify where, at a county level, the transportation infrastructure is vulnerable and the goal is to establish a unified criteria to determine where the hotspots are. The map will also identify key local streets or roads and rail and planning departments at the local level can take this into account while developing their regional transportation plans.

Ron Saenz, Associate Regional Planner, SANDAG, explained SANDAG’s recent efforts to create the draft white paper focusing on climate change adaptation and recommendations. He began by clarifying that adaptation is defined as efforts that respond to the impacts of climate change or are an adjustment to minimize harm or take advantage of beneficial opportunities. This definition is important to consider when the steps towards climate change adaptation include objectives for the 2050 RTP, issues and policy implications and identifying a list of problems and recommendations. Ron Saenz explained that SANDAG is looking to the 2050 horizon because the TransNet tax will sunset by 2048. Furthermore, he notes that there is no template for a transportation plan that considers the new SB 375. This makes it challenging to meet the required goals and what is additionally challenging is the new Sustainable Communities Strategy (SCS). Also, SB 375 requires MPO’s to meet regional GHG emission targets.

Ron Saenz, SANDAG, stated that SANDAG’s transportation development process has been unique because it involves more environmental analysis and public participation. He then discussed the national and international movement towards climate change adaptation. He explained that President Obama recently created the Interagency Climate Change Adaptation Task Force, which is composed of several federal agencies that investigate
climate change adaptation. The task force is set to finalize their study this fall and give recommendations to the President. Also, in 2009, President Calderon of Mexico and President Obama signed a U.S.-Mexico Bilateral Framework on Climate Change and identified work on climate change adaption issues. U.S. Army Corps of Engineers (USACE) has also developed guidelines on USACE projects that could be affected by sea level rise. Furthermore, the Port of San Diego will be issuing a study on sea-level rise and how it will impact San Diego. He concluded by stating that the lack of funding and quantitative analysis are difficulties to overcome but that the efforts of various organizations and institutions are promising.

9. BINATIONAL PANEL’S ROUNDTABLE DISCUSSION ON CHALLENGES AND OPPORTUNITIES FOR CROSSBORDER CLIMATE CHANGE STRATEGIES

Participants at the roundtable discussion were Garth Hopkins, Chief, Office of Regional and Interagency Planning Division of Transportation Planning, Caltrans; Bill Figge, Deputy District Director, Planning Division, Caltrans; Nicola Hedge, Thomas Murphy Research Fellow, San Diego Foundation; Luis Duarte, IMPlan, XIX Ayuntamiento de Tijuana; Patty Krebbs, Executive Director, Industrial Environmental Association; Saúl Guzmán, Jefe de Unidad de Gestión, SEMARNAT; Antonio Rosquillas, Director de Protección Civil, XIX Ayuntamiento de Tijuana; and, Gabriela Muñoz, Estudios Urbanos y del Medio Ambiente, COLEF.

Question:

Paul Ganster, Director, Institute for Regional Studies of the Californias, and Chair of SANDAG’s Committee on Binational Regional Opportunities (COBRO) addressed the Panelists and asked them to explain the work of their respective organizations in regards to climate change adaptation and how their work might impact the regional transportation plan for SANDAG. Additionally, he asked if there are better ways to guarantee we are sharing ideas on climate change mitigation and adaptation strategies. He explained that we need to figure out how to institutionalize and ensure that we are not working on cross-purposes. Panelists need to evaluate the efforts of their organization on adaptation, and ask themselves what challenges have been addressed to better involve the public? Also, are there other issues that need to be looked at like temperature effects and sedimentation that will affect areas of life? He stated that we have worked to protect certain ecosystems but with climate change this should be reconsidered. He also explains that panelists may want to consider the role of the federal government. Paul Ganster then asked each panelist to take a few minutes to come up with ideas on where we should be going in regard to climate change adaptation strategies.

Garth Hopkins, Chief, Office of Regional and Interagency Planning Division of Transportation Planning, Caltrans, explained that the sharing of information across all boards is essential. One example is the National Academy of Sciences’ study on sea level rise, in addition to any information on adaptation, which benefits the efforts of everyone. Ultimately, ongoing communication and coordination are essential.
Bill Figge, Deputy District Director, Planning Division, Caltrans, District 11, stated that from the district’s perspective it is often a challenge for Caltrans, as a large State agency driven by ongoing policies and manuals prepared from a State perspective, to work while recognizing there are local differences. How we do that is a challenge for us. As we will start addressing these issues, in a way will be a step to institutionalize climate change with our normal processes on our day-to-day work. Additionally, Caltrans has been working to use water more efficiently because of its high water usage for irrigation purposes along the freeways. Also, changes have been made to the updating computer systems by switching to computer controlled sprinklers systems so that sprinklers aren’t on during rain. Caltrans is also working to have sensors in place to determine water base in soil. Furthermore, Caltrans uses recycled water and purple pipes have also been set-up in certain areas where water re-use may be established. Other topic of interest is disaster response map services. He explained that we can improve when sharing information during conditions of a fire or floods, such as road closures, and in working with the counties to establish an electronic means of information that incorporate GIS data to communicate real time data so staff can readily notify road conditions to the public and decision makers. He stated that this requires a statewide effort, so collaboration is key.

Question:

Paul Ganster, Director, Institute for Regional Studies of the Californias, asked if those efforts applied across the border as well?

Bill Figge, Deputy District Director, Planning Division, Caltrans, responded that emergency operations are San Diego County driven and there are some connections but coordination efforts could be improved.

Nicola Hedge, Thomas Murphy Research Fellow, San Diego Foundation, explained that the San Diego Foundation has had a climate change initiative for the last three years and has supported research involving infrastructure and climate change impacts. They recently approved a grant with the San Diego County water authority and with the Scripps Institute of Oceanography. The San Diego Foundation has also focused on raising public awareness and is currently working with the Tijuana River National Estuarine Research Reserve to plan for climate change workshops. They have also worked to convene non-profits and public officials and have provided technical assistance to local governments. Coordinated planning efforts are currently underway with regional entities such as the City of Chula Vista, City of San Diego, and the Port of San Diego. In coordination with Chula Vista, they have created a working group to develop a municipal strategy for climate change adaptation and to set up a public forum. The foundation has also made a conscious effort not to focus on mitigation and instead on adaptation. Nicola Hedge concluded by explaining that although our region will see significant impacts over the next decades there is still an urgency to act now to plan for climate change and we need to encourage civic dialogue. Furthermore, the regions have the chance to implement their plans and find ways for federal funds to support adaptation in the regions.

Luis Duarte, IMPlan, XIX Ayuntamiento de Tijuana, stated that Mexico is working to solidify its climate change adaptation strategies, but in order to achieve its goals the steps need to be practical. He elaborated that the new law encourages the participation of municipalities
and when an organization or company wants to develop industrially in Tijuana, the law can require the company to donate funds to conserve conservation areas in Tijuana which will lead to the better development of Tijuana. The law will also give the people more rights to protect conservation areas in Mexico. However, more steps can be taken to encourage people to take public transit, resulting in positive economic and social impacts. It is important to provide incentives to achieve these goals in Tijuana and to punish those who don’t comply with any regulations. Luis Duarte explained that it is necessary to promote, within the law, a system of incentives to encourage these changes, especially within areas of industry. The law will be ineffective without incentives so it is essential to encourage them at the industrial level. He also explained that it is important to acknowledge that this is a development issue and not just an environmental topic, so in order to make improvements at the various industrial and government levels climate change adaptation needs to be promoted as an integrated topic.

Patty Krebbs, Executive Director, Industrial Environmental Association, remarked that climate change has been moving to the forefront of the agenda for the Good Neighbor Environmental Board that she is a member of, which has also been working to strengthen the collaboration between the U.S. and Mexico. The Industrial Environmental Association (IEA) is composed of typically large industrial facilities; many operating as maquiladoras. She explained that the facilities are on the forefront of regulation for climate change programs and on the receiving side of all the strategies that are developed by planners. Energy and water are very important components that retain operations and on the energy side, many companies are looking to reduce their carbon footprint and increase energy and water efficiency through facilities and processes. She stated that it is not only a priority for environmental programs but climate change plans, and it is an aspect of corporate sustainability, and for social responsibility by forcing the organization to report to the public and benchmark their efforts to show reductions over the years. Transportation is also a factor related to carbon footprint and some industries have looked at the employee transportation department to reduce the environmental impacts. Industries have examined the carbon footprint of their supply chain and the GHGs associated to goods movement. Patty Krebbs emphasized that it is not too early to look at the outcomes and ensure consistency as well as consider the costs of environmental impacts.

Saúl Guzmán, Jefe de Unidad de Gestión, SEMARNAT, explained that it is difficult to reach a consensus at the regional, local or national level regarding climate change adaptation. Mexico is working to make changes and the Secretary of Environmental and Natural Resources and other government agencies have recognized Mexico’s significant GHG emission so the government is working to lower the levels. The goal is to reduce emissions by the year 2012. Although Mexico doesn’t have the highest emission levels, it is very important for Mexico to participate in the decision making to reduce its emissions. Furthermore, Saúl Guzmán described that there should be more goals to improve human capital and encourage people to buy green and use materials, water, and energy more efficiently. He concluded by stating that although, the Mexican government is committed to contributing and implementing the law it will not achieve climate change adaptation goals if the changes are not focused at the local levels first.
Antonio Rosquillas, Director de Protección civil de XIX Ayuntamiento de Tijuana, stated that there is a significant need for investigators and experts in climate change adaptation, to help teach those in Tijuana about the changes the region can anticipate. Climate change adaptation is much more difficult for poorer countries or for the poor residents in rich countries. Given this reality Mexico is considered a poorer country; it will therefore have greater difficulty adapting to climate changes.

He also stated his support of the initiatives that protect conservation regions and explained that his biggest worry concerns the depletion of the Colorado River. Antonio Rosquillas stated that the Colorado River has produced less water while the demand for the water source in Tijuana and in the United States is only increasing. Furthermore, sea-level rise is also a grave concern for areas such as Rosarito-Ensenada. Additionally, some regions in Mexico will be significantly affected by heat increases and the risk of fires. Regions like Tijuana lack the same fire prevention programs that exist within California, making the region inept in handling a fire disaster. He concluded by stating that the panel consists of experts in the area who understand the various concerns of the region and he hopes that they and others can provide insight and aid to regions, like Tijuana, who lack the resources and expertise.

Gabriela Muñoz, Estudios Urbanos y del Medio Ambiente, COLEF, explained that although we are sharing resources and our abilities, we need to collaborate and face climate change adaptation in a pragmatic way. The binational adaptation process needs to rely on a common language to ensure clearer communication and the achievement of goals. Furthermore, setting a unified baseline for all participants is not effective because countries and regions have political and cultural differences and are in varying development stages. She also explained that to aid the efforts we need to look at the problems that we have faced in the past and anticipate that they will be exacerbated by future climate change.

10. OPEN DISCUSSION PART 2

Question:

Patty Krebbs, Executive Director, Industrial Environmental Association, asked Gabriela Muñoz, Estudios Urbanos y del Medio Ambiente, COLEF, to explain why she thought establishing a common baseline would be difficult to accomplish?

Gabriela Muñoz, Estudios Urbanos y del Medio Ambiente, COLEF, replied that although she thinks that a common baseline is important, the groups need to be more realistic and understand they have differences in geography and economic activities, which will result in varying responses, making it even more important to accept a common language and not a common baseline.

Patty Krebbs, Executive Director, Industrial Environmental Association, responded that the baseline is important in establishing conditions and everything is measured against them baselines are critical to show that targets are met.
Gabriela Muñoz, Estudios Urbanos y del Medio Ambiente, COLEF, replied that considering that the U.S. and Mexico have power plants, it is not a realistic requirement to have the same baseline measuring improvement in efficiency because the results will vary and would be irrelevant; therefore, we need to recognize our differences and not miss opportunities.

Question:

Chair Patricia McCoy, Councilmember of the City of Imperial Beach and Borders Committee Chair, asked Saúl Guzmán, Jefe de Unidad de Gestión, SEMARNAT, that considering that the preservation of biodiversity is really important, what is SEMARNAT doing to conserve biodiversity as much as possible?

Saúl Guzmán, Jefe de Unidad de Gestión, SEMARNAT, responded that the biggest problem does not only concern the affects of climate change on biodiversity but involves public policy visions and the fact that there are insufficient local and external resources to support a program and maintain minimal biodiversity, or to use capital to better develop the country. He stated that the critical components are to foster a vision to drive the country and to obtain sufficient resources to achieve this. The efforts can’t be accomplished without sufficient resources and the type of initiatives that create conservation areas take away more resources needed for the development of municipalities and communities. He concluded by stating that the efforts being made are insufficient.

Question:

Elsa Saxod, San Diego County Water Authority, commented that last year the public support was evident but this year the general public does not feel that there is a problem with climate change. She further commented that we have a candidate for governor of California who is promoting to overturn AB 32, showing a lack of support. She then asked, how we can bring the public with us as we move forward.

Patty Krebbs, Executive Director, Industrial Environmental Association, stated that from an industrial perspective, we are still moving forward even though the speed of requirements may not be there, so even if the legislation is repealed voluntary efforts to move forward will exist.

Garth Hopkins, Chief, Office of Regional and Interagency Planning Division of Transportation Planning, Caltrans, said that public opinion polls are not as supportive of climate change and the economy is a part of the reason and he hopes that the public will support climate change. From a state government perspective they have to report to the Governor’s office so it is important to stay active and voice opinions to influence the planning process. He stressed the importance to remain engaged.

Question:

Mitch Beauchamp, commented that concerning biodiversity, in Isla de Guadalupe new species were found because of the removal of the goats. He then asked if Caltrans has a strategy of allocation or relocation for coastal routes?
Bill Figge, Deputy District Director, Planning Division, Caltrans, answered that Caltrans does not have a strategy yet but is working to figure out ways to assess how to make decisions for those facilities.

Garth Hopkins, Chief, Office of Regional and Interagency Planning Division of Transportation Planning, Caltrans, explained that the main concern is cost and the location of routes will be considered by evaluating cost effectiveness to relocate or mitigate the sea level rise repairs. He stated that Caltrans has scarce transportation funding resources and the difficulty continues to be getting local officials engaged in this topic.

11. CONCLUSIONS

COBRO Chair Paul Ganster concluded by thanking all participants and attendees.
2050 REGIONAL TRANSPORTATION PLAN (RTP): URBAN AREA
TRANSIT STRATEGY AND DEVELOPMENT OF INITIAL
UNCONSTRAINED TRANSPORTATION NETWORK

SANDAG is currently preparing the 2050 RTP. The Urban Area Transit Strategy will serve as the basis of the transit strategy to be included in the RTP. The transit networks, combined with highway improvements and other management strategies, will form the basis for the initial 2050 Unconstrained Transportation Network. Attached are two reports that were provided to the SANDAG Board of Directors in June 2010 on these topics.

Attachments: 1. June 11, 2010, Board of Directors Agenda Item No. 10-06-3A
2. June 11, 2010, Board of Directors Agenda Item No. 10-06-3B

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Every four years, SANDAG updates its Regional Transportation Plan (RTP). The current RTP, which extends to the year 2030, was adopted in 2007. SANDAG is currently preparing a 2050 RTP, which is scheduled for adoption in 2011.

An important part of the development of the 2050 RTP is the preparation of an innovative and visionary "Urban Area Transit Strategy." The Urban Area Transit Strategy will serve as the basis for development of the regional transit network to be included in the 2050 RTP along with all of the other modal networks (highway, high occupancy vehicle (HOV)/Managed Lanes, bicycle and pedestrian improvements, freight improvements, etc.). As part of the strategy, three draft transit network alternatives have been developed for analytical purposes.

The purpose of today's report is threefold: (1) to introduce the draft transit network alternatives and summarize feedback received to-date; (2) to review proposed transit mode share goals for key corridors/communities; and (3) to present a preliminary summary of the performance of each network. These items will help inform Board discussion on Item 3B, the development of the 2050 Unconstrained Transportation Network.

Initial Transit Scenarios and Feedback Received

Through the planning process, staff has developed and begun testing three transit network alternatives with a focus on the urban areas of the San Diego region. Ultimately, one of the networks (or a combination or variation) will be incorporated into the unconstrained transportation network in the 2050 RTP. The overarching goal is to create a world-class transit system for the San Diego region in 2050 that significantly increases the use of transit, walking, and biking in the urbanized areas of the region, makes transit more time-competitive with the automobile, maximizes the use of transit during peak periods, and reduces greenhouse gas emissions and vehicle miles traveled in the region.

The transit alternatives under study are grouped into three themes and illustrated conceptually as follows:

**Transit Propensity**
Expands Transit in the Most Urbanized Areas

**Commuter Point-to-Point**
Emphasizes Quick Access to Work

**Many Centers**
Connects Local Smart Growth Areas and Activity Centers
The three transit alternatives have been intentionally designed to vary significantly from one another in order to test how different transit strategies might function in the long-term when compared across a number of performance measures.

The draft networks have been presented to the Transportation and Regional Planning Committees, various SANDAG working groups, an outside Peer Review Panel, and at the five 2050 RTP public workshops (held April 26 - May 6, 2010). Subway-style maps of each draft alternative are provided in Attachments 1 – 3, and a brief description of the initial concept behind each alternative is provided in Attachment 4. The study area for the Urban Area Transit Strategy is provided in Attachment 5 for reference purposes. More detailed maps, including transit routes and station locations, are available on the SANDAG Web site at www.sandag.org/uats.

In Item 3B of today’s report, staff is recommending initial routes for incorporation into an unconstrained regional transit network for the 2050 RTP that is a combination of network elements from the draft transit alternatives based on comments by the policymakers, stakeholders, the public, and the Peer Review Panel; the overall performance of the networks with respect to identified performance measures (discussed below); the performance of specific routes and modes; and other factors. The report goes on to assess the regional highway network in order to set the stage for developing a comprehensive transportation network.

Feedback Received

In general, staff has received positive feedback on the concept of developing and testing alternative transit strategies, and on the draft networks developed to-date. At its April 16, 2010, meeting, Transportation Committee members articulated support for the networks being tested in the three alternatives and expressed excitement at the prospect of building a robust transit network that can enhance regional mobility options and potentially influence the region’s reduction of greenhouse gas emissions.

During the remainder of April, staff presented the transit networks to the Regional Planning Technical Working Group (TWG), the Cities/County Transportation Advisory Committee (CTAC), the Regional Planning Stakeholders Working Group (SWG), and the Quality of Life Stakeholder Working Group. Earlier this month, the networks also were presented to the Regional Planning Committee. Comments by the working groups generally have been positive. While some working group members are concerned that the alternatives do not sufficiently emphasize transit in the less urbanized areas, others are concerned that the networks are too broad and there is insufficient focus on the urban core. In addition, working group members have encouraged staff to conduct analysis on the effects of land use assumptions, user charges, and transportation demand management before finalizing mode share goals. Suggestions also have been received to identify regionally-based transit mode share figures, in addition to corridor-based mode share figures. Other ideas included evaluating a broader range of ideas for last-mile solutions that could include the use of taxicabs, addressing parking pricing, and considering fare-free zones or fare-free routes as a way of increasing mode share.

A wide range of comments were made at the RTP public workshops. Attachment 6 provides a sampling of some of the comments received. SANDAG is encouraging additional comments via the Web site at www.sandag.org/uats.
Peer Review Panel Key Findings

As a unique part of the planning process, SANDAG assembled an outside Peer Review Panel to critically assess the alternative networks. The Peer Review Panel, which consisted of two public sector and two private sector panelists with extensive professional experience in land use, economics, transportation, congestion management, transit management, and transit-oriented development, convened in San Diego during the week of April 19, 2010. (Peer Review Panel biographies are included in Attachment 7.)

Generally, the Peer Review Panel felt that the Transit Propensity and Many Centers transit networks had merit and could each result, to varying degrees, in a successful long-term transit network. The Panel stated that while the 2050 RTP will define the region’s long-term mobility vision, the plan’s ultimate success will be grounded in the implementation of near-term demonstration or “catalyst” projects that showcase elements of the transit vision, particularly the integration of transit into smart growth areas. More specifically, the following observations were made about the alternative transit scenarios:

- **Transit Propensity**: The Panel observed that this scenario may be too focused on some geographically-concentrated areas to the exclusion of other areas (such as major employment areas, University City, and North County) to meet the region’s long-term mobility goals.

- **Commuter Point-to-Point**: The Panel expressed nervousness about promulgating a type of mobility that supports a dispersed land use pattern. The Panel felt that this scenario may encourage longer trips by both autos and transit, and that this scenario portrayed a more “business as usual” approach that may not have the ability to influence land use decisions toward more integrated communities and sustainability.

- **Many Centers**: The Panel commented that this scenario provides a solid vision, but may need to be refined. Panelists suggested focusing transit investments into a smaller number of smart growth centers that either already have high housing and employment densities or have smart growth plans in the early phases of the regional growth forecast, thereby placing a priority on existing and near-term smart growth. The Panel recommended that SANDAG revisit its Smart Growth Concept Map and consider making changes that might coalesce the smaller smart growth areas into larger-scale ones, thereby promoting “smarter” smart growth.

In addition, the Panel provided broader, more global observations summarized in Attachment 8, focusing on issues such as economic competitiveness; technological savviness; world-class region; sustainability and co-benefits; land use development around transit stations; land use, freeways, and parking; project prioritization; leadership and champions; and dedicated funding sources. In addition to the group findings, several Peer Review Panelists also contributed individual opinions, summarizing their observations of the region’s strengths and weaknesses. Those individual viewpoints are contained in Attachment 9.

Interestingly, many of the observations by the Peer Review Panel reinforce some of the key “Overarching Themes” and “Considerations for San Diego” summarized in the Executive Summary of the Lessons Learned from Peer Regions report produced by the SANDAG consultant team on this project when it began late last year. These overarching themes and considerations are contained in Attachment 10.
**Proposed Transit Mode Share Goals**

The Urban Area Transit Strategy work program includes developing peak-period transit mode share goals for regionally significant corridors/communities for 2050. There are two general issues that must be addressed in identifying mode share goals: first, how to determine the most suitable corridors/communities for which to establish mode share goals; and second, how to set appropriate mode share goals for the selected areas. Theoretically, the goals should be ambitious yet achievable, based on quantifiable trends and patterns, and have the ability to be measured over time. As a starting point for identifying where transit mode share goals would be most appropriate, staff identified geographic areas and travel corridors based on:

- High-volume travel corridors (all motorized trips), both current and future, that factor in trip purpose, trip origins and destinations, and time of day (such as peak-period vs. off-peak);
- Major job centers that attract large volumes of peak-period trips;
- Land use patterns that focus on locations with transit-supportive land uses (such as higher densities, walkable communities) and where access to transit (and often existing transit mode share) is high; and
- Existing transit markets that have been identified through the Metropolitan Transit System Comprehensive Operational Analysis (COA) and the North County Transit District Mobility Plan to ensure that RTP transit mode share goals are consistent with current short-range transit plans.

Attachment 11 illustrates the travel corridors, major employment areas, and high-activity areas for use in identifying peak-period transit mode share goals.

After conducting research, it is staff’s conclusion that very few areas have actually established transit mode share goals for corridors or communities. As a result, an approach similar to one used in Brisbane, Australia, is being proposed to develop the mode share goals. This approach involved aiming to increase the proportion of trips made on public transit by 50 percent between the plan’s initial and target year. The plan recognized that achieving a 50 percent increase in public transit’s share of all travel would be an ambitious, yet achievable, target over the 14-year planning period. There was initial discussion of doubling the mode share (increasing it to 100 percent), and it was found that that goal would be impossible without requiring significant revisions to curtail the expansion of urbanization and strict new measures to restrain single-occupancy vehicle use during peak-period commute times. Neither of those actions appeared to be possible at that time, given community lifestyle and travel patterns, but the plan left open the possibility of revisiting the target in future plans.

Proposed Approach

In the case of the San Diego region, the staff recommendation is to start with a more aggressive base year — a base year consisting of a combination of the 2030 RTP transportation network and the 2050 land uses — as the foundation upon which to set peak-period, home-to-work transit mode share goals in the urban area. This would provide a higher starting point for any proposed mode share increase. Staff then proposes applying a goal of a 25 percent increase in the peak-

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1 The base year assumes the higher mode share value of either the currently adopted 2030 Reasonably Expected RTP or the 2030 Unconstrained RTP, combined with the 2050 land uses.
period transit mode share over this base year assumption. (This approach is different than the Brisbane method, which used an existing base year of 1997 as the starting point for a 50 percent increase.) The approach would be applied to the urban area, as well as to the identified corridors/areas.\\(^2\)

For example, the current 2030 RTP Unconstrained Network would increase the mode share for peak-period, home-to-work trips within the Urban Area Transit Strategy study area from the 2008 level of 5 percent to the 2030 projected level of 9 percent, an increase of 80 percent between 2008 and 2030. Applying the 25 percent goal would mean increasing the 2030 RTP mode share an additional 25 percent from 9 percent to 11 percent as the starting point for the 2050 transit mode share goal for the study area. The end result would be a rise in the mode share by 120 percent between 2008 and 2050. Because the year 2050 is 40 years away, and the current tools to predict human travel behavior that far into the future are not completely accurate, staff is proposing that the goals be generalized into “goal ranges” based on patterns of geographic groupings. This would result in a 10-15 percent transit mode share goal range for the urban area. This would more than double the peak-period, home-to-work transit mode share in the urban area during this time period. When considering the proposed mode share increases from existing levels to the year 2030 in the current RTP, it seems reasonable to set 25 percent as an ambitious, yet achievable, goal.

Proposed Goal Ranges

Attachment 12 contains the information described above and the peak-period, home-to-work transit mode share goal ranges based on the geographic groupings for the various corridors/areas. Attachments 13a, 13b, and 13c illustrate the 2008 peak-period transit mode shares, the mode shares for the 2030 RTP Network with the 2050 land uses, and the proposed 2050 transit mode share goal ranges from a geographic perspective.

Next Steps for Mode Share Goals

Over the next few months, staff proposes to conduct sensitivity tests by corridor/area to see how various adjustments could further affect peak-period transit mode share. These may include options such as increasing transit frequencies, increasing transit travel speeds, testing parking pricing, adjusting land use assumptions, or other scenarios to help refine the peak-period, home-to-work transit mode share goal ranges.

In addition, in an effort to consider mobility options from a multimodal perspective, staff also will examine mode share goals for walking/biking, carpooling, and vanpooling, which, when combined with transit mode share goals, can ultimately provide a more comprehensive view of overall non-single-occupancy vehicle peak-period mode share for incorporation into the 2050 RTP.

The Transportation and Regional Planning Committees are discussing the proposed methodology and the resulting transit mode share goal ranges at their joint meeting on June 4, 2010, and any comments made will be provided verbally at the June 11 Board Policy meeting. Staff will report the modeled transit mode share performance at a future meeting.

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2 Having transit mode share goals for the urban area and for several specific corridors/areas, rather than a single regionwide transit mode share goal, better reflects how transit investments are made, that is, focused on specific areas where the propensity for using transit is the highest.
Performance of Transit Network Alternatives

Analysis is underway to compare the three transit networks against one another, as well as against a baseline scenario, which consists of an overlay between the 2030 RTP transportation network and the land use assumptions included in the 2050 Regional Growth Forecast. The analysis is organized according to performance measures that line up with the following objectives that support the overall transit goals for the San Diego region in 2050:

- Increase peak-period mode share
- Maximize transit ridership
- Develop a cost-effective and implementable transit system
- Support an efficient and effective transportation system
- Address the need for sustainability
- Address the need for environmental justice/social equity
- Make transit more time competitive with the car

These transit-specific objectives also are consistent with the overall 2050 RTP goals and objectives. (The detailed set of performance measures was presented to the Transportation Committee at its April 16, 2010, meeting, and is available on the Web site at www.sandag.org/uats.)

Attachment 14 contains initial data comparing the performance of the three transit alternatives against the 2008 transit network and the baseline scenario described above. In order to isolate the performance of transit in each alternative, staff held constant the highway network and the land use assumptions of each transit network.3

Initial analysis shows that all three scenarios yield significantly better results than the existing (2008) transit network, and that all three scenarios result in modest to significant improvements in most performance measures when compared against the baseline scenario. The baseline scenario places the region at an aggressive starting point for comparison purposes, given the high level of transit investment included in the 2030 RTP. The overall concept was to test three varying strategies for expanding the role of transit in the region beyond that outlined in the current RTP.

In summary, the initial analysis shows that while none of the scenarios performs the best in all of the categories, the Many Centers scenario appears to have the highest overall performance, although it also requires the highest level of capital and operating cost support. That being said, the analysis shows that there are effective features in the Transit Propensity, Commuter Point-to-Point, and Many Centers alternatives that could be incorporated into a combined strategy. As a result, there appears to be an opportunity to combine the most effective features of all three scenarios into a “Hybrid” alternative that could then be further evaluated and refined as cost estimates and revenue assumptions become available. More detail on the “Hybrid” approach is contained in Item 3B of this report.

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3 All transit network alternatives hold the highway networks and land use assumptions constant. The highway network for each alternative consists of the highway network included in the 2030 RTP and the land use assumptions are those assumed in the 2050 Regional Growth Forecast.
**Next Steps**

Based on discussion today on both Items 3A and 3B of this report, staff will return to the Board of Directors in July with a report on the transit mode share performance for the geographic areas and with a refined list of transit projects for possible incorporation into the 2050 Unconstrained Transit Network.

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GARY L. GALLEGOS  
Executive Director

Attachments:  
1. Transit Propensity Subway-Style Map  
2. Commuter Point-to-Point Subway-Style Map  
3. Many Centers Subway-Style Map  
4. Draft Initial Transit Concepts  
5. Study Area for Urban Area Transit Strategy  
6. Sampling of Comments on the UATS from 2050 RTP Public Workshops  
7. Peer Review Panel Biographies  
8. Peer Review Panel Global Observations  
9. Peer Review Panel Individual Perspectives  
10. Executive Summary of Lessons Learned from Peer Regions Report  
11. Major Travel Corridors and Areas for Use in Identifying Initial Transit Mode Share Goals  
12. Proposed Transit Mode Share Goal Ranges for Identified Corridors and Areas  
13. Peak-Period, Home-to-Work Transit Mode Share Maps  
   a. 2008 Transit Mode Share  
   b. 2030 RTP Transit Mode Share (with 2050 Land Uses)  
   c. 2050 Proposed Transit Mode Share Goal Ranges  
14. Initial Performance of Transit Network Alternatives

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Funds are budgeted in Work Element #31003
Transit Propensity

Expanding Transit in the Most Urbanized Areas

Legend
- High Speed Rail
- COASTER Rail
- Light Rail Transit
- Bus Rapid Transit
- Rapid Bus
- Streetcar/Shuttle-Circulator
- High Frequency Local Bus Services
Many Centers

Connects Smart Growth Areas and Activity Centers

Legend

- High Speed Rail
- COASTER Rail
- Light Rail Transit
- Bus Rapid Transit
- Peak Bus Rapid Transit Commuter
- Rapid Bus
- Streetcar/Shuttle-Circulator
- High Frequency Local Bus Services

Many Centers

Connects Smart Growth Areas and Activity Centers

Legend

- High Speed Rail
- COASTER Rail
- Light Rail Transit
- Bus Rapid Transit
- Peak Bus Rapid Transit Commuter
- Rapid Bus
- Streetcar/Shuttle-Circulator
- High Frequency Local Bus Services
Draft Initial Transit Concepts

Transit Propensity:

*Expands Transit in the Most Urbanized Areas*

Builds on the San Diego region’s innovative trolley system - expands transit in the central core and in the region’s most urbanized areas, many of which are characterized by pre-World War II street grid patterns. Provides very frequent transit services, alleviating riders from schedules and allowing easy transfers. Major investments may include streetcars, grade separations, priority treatments, transit nodes, expanded light rail, enhanced bike and walk access, and improvements to the public realm.

Commuter Point-to-Point:

*Emphasizes Quick Access to Work*

Transit to work is an easy option - leverages new dedicated transit facilities and flexible use of Managed Lanes to serve work trips. A system of few transfers provides high speed, reliable commute options during peak periods with a variety of “last-mile” treatments. Major investments may include Managed Lanes with in-line stations, park and ride lots, new fixed guideways, and some rail expansion.

Many Centers:

*Connects Local Smart Growth Areas and Activity Centers*

Supports the San Diego region’s local commitments to smart growth - consists of a multi-radial transit system serving the region’s larger-scale smart growth areas and major activity centers. Transit services are oriented toward the centers, and supported with frequent connections between the centers. Major investments may include a variety of transit priority treatments between centers, expanded light rail, enhanced transit centers, shuttles and streetcars connecting to the transit centers, enhanced bike and walk access, and improvements to the urban realm.
Sampling of Comments on the Urban Area Transit Strategy from 2050 RTP Public Workshops

- Strong support for more bike projects, more bike racks on buses and trolleys, and related connections to transit stations;
- Suggestions on transit line extensions in particular areas (e.g., streetcar from Park Blvd. to I-805 along University Avenue; light rail to North County; streetcar along Monroe Avenue);
- Observation that places with great transit systems (e.g., London, Paris, Sydney, Moscow, San Francisco) have underground stations and lines;
- Support for extension of the planned high speed rail system to the international U.S./Mexico border;
- Support for building an extensive transit system ("build it and they will come" notion);
- Concern over the lack of funding for transit services and the related suggestion to be less ambitious in the transit planning process;
- Need for more real-time information at transit stations;
- Encouragement for the use of smaller buses to increase efficiency;
- Preference for the “Many Centers” alternative;
- Support for priority measures to bypass areas with traffic congestion and improve travel times;
- Concern about future mobility for seniors and the need to plan ahead to meet their needs for “aging in place;”
- Encouragement for expanding sidewalks and planting street trees to make walking and biking more pleasant, particularly at transit stations;
- Appreciation for the Spanish translation at the workshops.
John M. Inglish – General Manager/CEO, Utah Transit Authority (UTA)

John Inglish has worked in the transportation industry for more than 35 years. With an engineering background, Mr. Inglish began his career in 1970 as a systems planning engineer for the Utah State Highway Department. In the early 1970s he began working for the Wasatch Front Regional council on the early initiatives that formed today’s UTA. In 1977, he became the director of Transit Development for UTA, and in August 1997, the UTA Board of Trustees appointed Mr. Inglish as the general manager for the Authority. Under his leadership, UTA has garnered national and worldwide recognition for its transportation systems. He oversaw funding and construction of the $312.5 million Sandy to Salt Lake TRAX light rail line, completing the 15-mile TRAX line one year ahead of schedule and under budget, as well as the $118.5 million University TRAX light rail line connecting downtown Salt Lake City and the University of Utah in time for the 2002 Winter Olympics.

Martin Tuttle – Deputy Director, Planning and Modal Programs for the California Department of Transportation

Martin Tuttle has more than 25 years of top transportation and innovative land use planning management experience at the local, regional and state levels of government. As Deputy Director of Planning and Modal Programs at Caltrans, Mr. Tuttle is responsible for the Caltrans Divisions of Local Assistance, Mass Transportation, Planning, Rail, Aeronautics and Transportation System Information. As the executive director of the Sacramento Area Council of Governments (SACOG), he launched its nationally-recognized “Blueprint” transportation and land use growth plan. Mr. Tuttle also has served as the executive director of the Solano Transportation Authority (STA). As a top staff member to Assembly Majority Leader Tom Hannigan in the California State Legislature for 13 years, Mr. Tuttle managed innovative land-use and transportation reform legislation, including the bill establishing the successful Capitol Corridor intercity rail service between Sacramento and San Jose. Prior to joining Caltrans, he oversaw transit oriented development and urban infill housing projects for URS Corporation and New Faze Development.

George Hazel – Chairman, MRC McLean Hazel Ltd

George Hazel has extensive experience in all aspects of transport and communications, both urban and rural. He has specific expertise in strategic planning and policy development, the integration of transportation with other related areas, the prioritization of projects with respect to economic, environmental, and social objectives, and innovative funding of transportation infrastructure around the world. He has studied all forms of transportation policy around the world, including congestion charging and demand management, mode shift, goods movement, and growth management. Mr. Hazel has worked in the public, private, and academic sectors at a senior level and has acted as advisor to the Academy of Sustainable Communities, the Commission for Integrated Transport, Transport for London, the Queensland State Government, the Greater Toronto and Hamilton Region, the City of San Diego and many government agencies around the United Kingdom. Currently an honorary professor at the Robert Gordon University and adjunct professor at the Queensland University of Technology, Mr. Hazel has published a book on Making Cities Work and presents at conferences around the world.

Aidan Hughes – Principal, Arup

Aidan Hughes is the leader of Arup’s planning practice in the US, which focuses on integrated urbanism and sustainable planning and design. Mr. Hughes brings over 20 years experience and a proven track record in the management of complex multi-disciplinary projects. He consults to municipal governments, transportation agencies, and developers, and is currently leading the sustainable redevelopment of the Concord Naval Weapons Station in Concord, CA. A major part of the redevelopment program is compliance with California AB 32 (global warming act) and evaluating and mitigating carbon emissions from transportation, energy, and other sources for each redevelopment alternative. He also is involved in the Treasure Island Sustainability Planning project in San Francisco. Mr. Hughes is a USGBC LEED Accredited Professional, has worked in Europe, Asia and the United States, and has a broad understanding of the global approaches to delivering successful planning and infrastructure projects.
Peer Review Panel’s Global Observations

The Peer Review Panel convened in San Diego from April 19 – 21, 2010, to review and assess the work completed to date on the Urban Area Transit Strategy in relation to the preparation of the broader 2050 Regional Transportation Plan (RTP). In addition to the Panel’s comments on the three alternative transit networks summarized in the staff report, the Panel also made a number of more global observations, as follows.

- **Economic Competitiveness**: Transportation is seen as the major driver of regions’ economic competitiveness, and an increased focus on developing public transit systems is seen as a key factor in cities around the world for meeting mobility needs that ensure long-term economic sustainability.

- **Technological Savviness**: All over the world, technology is increasingly being used to market transportation options and other services to individuals based on user-preferences. Integrated electronic cards, such as the Octopus Card in Hong Kong and the Oyster Card in England, are providing tremendous potential to the private sector for marketing goods and services to end users; to the public sector for tailoring, directing, and providing incentives for transit/transportation services to end users; and for users who receive incentives and discounts for many kinds of products and services based on established purchasing choices. Global technology firms are actively seeking opportunities to develop markets. The Compass Card in the San Diego region is a solid start, and the region should proactively work to expand the Compass Card services beyond transportation to provide users with more convenience and incentives, and to maximize the region’s ability to direct future transportation marketing decisions.

- **World Class Region**: The San Diego region has true potential of becoming a world class region. The focus of the Urban Area Transit Strategy should shift from developing a “world class transit system” to developing a “transportation system that supports a world class region and its local communities.”

- **Sustainability and Co-Benefits**: In addition to pursuing transit as a means to help meet the Senate Bill 375 (SB 375) (Steinberg, 2008) regulatory mandates to reduce greenhouse gas emissions, transit also can help provide alternative transportation options, reduce foreign energy dependency, improve air quality, and reduce the proportion of American budgets spent on transportation. In addition, any co-benefits from smart growth development patterns and integrated transit systems should be highlighted and promoted, including internal trip capture, increased walking and biking, and carbon reductions in energy, waste, and water resulting from green building programs.

- **Land Use Development around Transit Stations**: Land use developers around the world recognize the economic potential for redevelopment around transit stations. Increasingly, the public sector is participating more directly with the private sector in the planning, design, and implementation of these types of redevelopment projects that result in more transit-oriented uses and direct economic benefits to the public sector that can then be invested back into transit infrastructure development. The Panel cited the proposed Tecolote Road, Clairemont Drive, and Balboa Avenue station sites along the Mid-Coast light-rail transit alignment as prime examples where such public/private partnerships could be forged. Additionally, the Panel
expressed concern over the proposed Genesee Avenue alignment in the University City area, where an elevated trackway and station are currently proposed in order to minimize impacts on auto traffic. The Panel felt that the added costs of grade-separation versus an at-grade alignment may not be justified given the benefit that would accrue to the overall transportation system with the addition of the Mid-Coast project. They emphasized the importance of having transit facilities at the ground level as a means to better integrate into the surrounding community rather than forcing a separation from vehicle traffic as a traditional method of addressing congestion.

- **Land Use, Freeways, and Parking:** Land use density, design, and mix are essential components of a successful urban fabric and transit system. Locations that have limited parking and freeway expansions, and have simultaneously added an array transit services, have increased the overall performance of their transit systems and have increased transit mode share. The Panel felt that SANDAG should more directly reward communities that currently have high land use densities near transit stations, and should more directly influence land development in areas that currently have regional transit services. In addition, the Panel encouraged SANDAG to work more directly with the development community to build higher-density projects at stations, and to evaluate the allocation of affordable housing through the Regional Housing Needs Assessment process. In addition, the Panel expressed concerns that the region’s Managed Lanes could be counterproductive toward transit if not properly implemented and operated, and suggested that SANDAG should monitor transit productivity as the Managed Lanes and Bus Rapid Transit (BRT) systems are implemented.

- **Project Prioritization:** The process to prioritize the funding of transportation projects needs to be easily understood by policymakers and the public, and needs to be conducted through a transparent process. A “policy audit table” example was provided. The audit helps to bridge the gap between the goals and objectives included in policy documents and the proposed transportation projects to help identify which transportation projects align with which policies, and alternatively which policies may not be addressed by any transportation projects.

- **Leadership and Champions:** Places that have successful transit systems have had strong leaders and champions to promote transit. Increasingly, bicycle and pedestrian advocates are supporting transit when they see opportunities for enhancements between the various modes. All successful transit systems need proactive and well-informed champions.

- **Dedicated Funding Sources:** Obtaining dedicated funding sources for transit is critical. In some cases, placing initiatives on the ballot solely for transit (versus for additional transportation modes and/or for other services) has culminated in success. (Within this context, the Panel recognized the difficulty of reaching California’s two-thirds voter approval threshold for new special taxes.) The Panel also noted the potential of exploring a subregional funding approach in San Diego as an innovative concept that should be pursued.
AIDAN HUGHES – PRINCIPAL, ARUP

Strengths
1. SANDAG has a strong relationship with the two transit operators and has good relationships with the Cities. This allows you to establish bold visions and work together to deliver on the vision. A more fractured relationship can get mired in delay and compromise.
2. SANDAG and the two operators have a very capable and experienced staff complemented with strong and committed leadership at the political and executive level. This translates into an ambition for leadership – learning from global best practice and seeking innovation in delivery and operation.
3. The existing system is operating successfully with strong farebox recovery and good coverage in the core areas. Much of the backbone system is in place through the LRT, Coaster and Sprinter systems linked into regional and international transport networks. While from the “inside” there is a recognition of some of the operational difficulties (for example, operating the trolley in the downtown), the public perception appears to be very positive. This establishes a strong platform for getting acceptance of system expansion and support for raising new capital. This also brings a responsibility to continue to deliver high quality service with clear benefits for riders as new projects are delivered.

Weaknesses
1. The Smart Growth plan is valuable as a comprehensive tool and it is being used appropriately as the basis for the transit networks. However, it is a bottom-up plan (the best the Cities are prepared to do right now) and it is not directly related to the availability of transit. There is an opportunity for SANDAG to take a lead in punching up the Smart Growth plan by using the carrot of transit investment to encourage Smart(er) Growth. Where there are proposed transit investments, they should be directly linked to some “threshold” metrics for smart growth.
2. The discussion we had around elevated light rail was interesting. It points to a fundamental issue that will face all projects, namely whether a case can (or should) be made to give transit priority in terms of road space at the expense of the auto. A greater commitment should be made to support trade-offs in favor of transit – case studies around the nation and world have demonstrated that this can be achieved with little downside. The upside is an ability to increase ridership, demonstrate the benefits of transit and make more complete communities with transit at its core. In many ways, this philosophical change in emphasis will be the platform for the world class community vision.
3. As we noted “parking is a big issue” and it is interesting that you have experience of the negative consequences in relation to parking for the downtown ballpark. We didn’t have time to address parking in all its complexities as part of the peer review, but parking policies should be dealt with as essential complementary measures to support successful transit.

GEORGE HAZEL – CHAIRMAN, MRC MCLEAN HAZEL LTD

Strengths
1. Enthusiasm, understanding, and competence of the team.
2. History of what you’ve done to date to build on.
3. In general, an exciting plan to deliver in a potentially world class city – you’re not there yet!

Weaknesses
1. Attitudes to not inconveniencing cars - unless you sort this out and the leadership backs and understands that it is the city’s and the car drivers’ best interests to have a world class transit system and give it top priority and road space, then you will find it very difficult. Discussion on elevated section of Mid-Coast is a key example.
2. Governance needs to be sorted - too many agencies saying different things and doing different things.
3. I worry about managed lanes as a transit policy, specifically that they could be counterproductive toward the performance of transit. I would suggest experimenting with peak time express transit service or local off-peak service and monitor the results.

In addition you should really look at the potential of Intelligent Commuting Technology (ICT) and the Transport Retail Model, building on the Compass Card you have, and also the potential regarding capturing increased land value to fund transit.
Urban Area Transit Strategy:
A Component of the 2050 Regional Transportation Plan

Lessons Learned from Peer Regions
December 2009

EXECUTIVE SUMMARY

Prepared by:
PARSONS BRINCKERHOFF
EXECUTIVE SUMMARY

With the preparation of the 2050 Regional Transportation Plan (RTP), the San Diego Association of Governments (SANDAG) is seeking a new and innovative vision for transit that will result in a more significant role for transit in addressing the region’s mobility, land use, and sustainability goals. To help guide development of a new transit strategy, a review has been conducted of other regions that have successful transit systems, relatively high levels of transit use, and unique transit services or facilities. These areas offer examples of how transit has been applied successfully, and provide a point of reference or a standard from which comparisons can be made.

Three regions that might be considered “benchmark” cities for San Diego were researched in some detail. These cities are:

- Portland, Oregon
- Sydney, Australia
- Vancouver BC, Canada

Seven additional “comparison cities” are highlighted because they have characteristics similar to San Diego or provide examples of unique transit applications that have helped raise the profile of transit in their regions. These cities are:

- Brisbane, Australia
- Bordeaux, France
- Denver, Colorado
- Los Angeles, California
- Melbourne, Australia
- Minneapolis, Minnesota
- Seattle, Washington

Appendix A contains comparative data for U.S. cities to help provide a point of reference for San Diego.

Overarching Themes and Considerations for San Diego

Several overarching themes emerged from the benchmark and comparison cities evaluation, many of which may be appropriate for consideration as SANDAG develops the 2050 Transit Strategy. The overarching themes found as part of the case study review are presented on the left side of the following table and their potential applicability to San Diego is presented on the right.
### Overarching Theme

#### The “success” of transit did not happen overnight.

Successful transit has been an evolutionary process in case study regions during which certain strategies were used until their usefulness was outlived, and then the strategies were modified or new strategies were implemented.

### Considerations for San Diego

San Diego embarked on an innovative new transit strategy in the early 1980s with the opening of the region’s (and nation’s) first urban rail transit line since WWII from downtown San Diego to the International Border. Over the next 25 years, the region expanded the rail network to provide a backbone transit infrastructure and service network, to one that now includes 75 miles of light rail (San Diego Trolley and Sprinter) and 40 miles of commuter rail (Coaster). Between 1975 and 2005, transit ridership increased 150 percent while regional population increased approximately 75 percent. As the original regional rail program nears completion (the 11-mile Mid-Coast corridor between Old Town and University City is the only remaining rail extension in the Regional Transportation Plan), the regional transit strategy has shifted to a multi-modal, shared right-of-way approach (transit on managed lanes and arterial streets). Looking to the experiences of the case study regions, San Diego may need to develop a new “dramatic strategy” for transit for the next 30-40 years – one that combines past, present, and future strategies to recapture the transit momentum experienced in the 1980s. The new strategy will need to include a stronger connection between transit investment and land use policies to achieve SANDAG’s vision for a larger transit mode share in the urban core, and key corridors and communities.

### Transit success depends on regional plans and visions that guide the integration of land use and transportation.

Many regional plans create a hierarchy of centers focused around transit that provide good design, sufficient density, and a land use mix that supports non-auto access to transit. Success is also dependent on a number of agencies working collaboratively to achieve the success of the regional plans and visions.

### Considerations for San Diego

SANDAG’s Regional Comprehensive Plan and Smart Growth strategy have established a hierarchy of centers that are designed to be supported by transit, as well as policies for integrating land use and transportation. Development of a new regional transit strategy should draw heavily on the policies and goals in the Regional Comprehensive Plan for both the region and specific corridors/communities. To achieve success, agencies, transit providers, and stakeholders must work together towards agreed upon transit and land-use goals.
### Overarching Theme | Considerations for San Diego
---|---
**Regions use a variety of tools to achieve transit success.** | SANDAG and the region already have a variety of policy tools to support transit as defined in the Regional Comprehensive Plan and Smart Growth strategy. Additional policies and tools found in the peer regions/cities that promote and support existing and future transit services for consideration by SANDAG include: improvements to the pedestrian environment, urban growth boundaries, cooperative agreements between public agencies and private developers, tax incentives to foster transit oriented development, parking maximums or limitations, and legislation requiring commute trip reductions by major employers.

Regions used a variety of policy, regulatory, and financial tools that contributed to the success of transit in these regions. Tools were modified or new tools added when they were no longer effective for encouraging ridership or investment along transit corridors.

**Regions generally experienced a shift in policy and investment toward transit over the past few decades.** | The San Diego region is also experiencing similar pressures to contain sprawl, protect the environment, promote livable communities, and maintain and improve the quality of life. Through the Regional Comprehensive Plan, the San Diego region has made the policy connection between investments in transit and achieving these goals. Looking toward the future, new transit policies and strategies designed to increase transit mode share will need to understand the effects of regional highway investments and policies on the potential success of the transit investments and system.

Regions moved toward transit as a tool for improving mobility and sustainability in response to public pressures related to sprawl, the environment, livable communities, and quality of life issues. These regions also made significant investments in permanent transit infrastructure, which not only improved transit, but also helped generate awareness and understanding of the transit system and spur transit-oriented development.

**Local bus networks are essential for successful transit systems to provide efficient connections and access to the backbone system.** | San Diego's existing transit network leans toward hub-and-spoke structure with feeder buses connecting to rail based transit centers. However, many trips rely solely on bus transit. A new transit strategy will need to build off the existing rail transit investment, while also considering how best to serve key travel markets (origins/destinations, work trips, etc.) that may not be well served by existing bus/rail connections. The strategy will also need to define the role of local and feeder bus service in relation to the major transit infrastructure investments.

To efficiently support higher frequency transit stations, feeder services are essential components of the transit system and, depending on the local geography, are often structured along grids or hub-and-spoke networks.
<table>
<thead>
<tr>
<th>Overarching Theme</th>
<th>Considerations for San Diego</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parking requirements in transit-supportive communities are reduced.</strong></td>
<td>Abundant and inexpensive parking have proven to be key deterrents to transit use. A new transit strategy for the San Diego region should evaluate how parking policies (location, availability, and cost), particularly in the city center and urban core, impact transit use.</td>
</tr>
<tr>
<td>Most transit successful regions have coordinated parking policy with land use and transit policy. Parking strategies often differ between central and outlying areas.</td>
<td></td>
</tr>
<tr>
<td><strong>Successful transit systems include a variety of transit modes.</strong></td>
<td>All regions include a combination of transit facility and service applications to create their transit networks and systems.</td>
</tr>
<tr>
<td>Cities and regions with successful transit have systems that include combinations of transit modes applied for the particular conditions, objectives and circumstances (i.e., heavy rail, commuter rail, light rail, bus rapid transit, rapid bus, local bus, streetcar, shuttles, electric bus, etc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Unique applications of transit have occurred in the central cities.</strong></td>
<td>Even cities with similar transit histories and land use characteristics as San Diego have invested heavily in innovative transit facilities and services in their central cities (transit malls, streetcars, underground bus terminals, fare free zones). These investments have proven highly successful in generating transit ridership, supporting the regional transit network, achieving land use objectives, increasing transit mode share, and contributing to the vitality of their downtown core. Many of these strategies may have applicability to downtown San Diego and other key activity centers.</td>
</tr>
<tr>
<td>While all of the studied regions have a wide range of transit modes that provide area- and location-appropriate transit, these cities have also incorporated special applications of transit infrastructure, services, and policies in their downtowns in ways that raise the profile of transit, promote transit use, and support higher density environments.</td>
<td></td>
</tr>
</tbody>
</table>
Major Travel Corridors and Areas for Use in Identifying Initial Mode Share Goals

- Major Travel Corridor
- Major Employment Area
- High Activity Area
## Urban Area Transit Strategy

### Proposed Transit Mode Share Goal Ranges for Identified Corridors and Areas and Supporting Data

#### Peak-Period, Home-to-Work Trips

<table>
<thead>
<tr>
<th>Identified Corridors/Areas</th>
<th>Baseline Data</th>
<th>Supporting Data</th>
<th>Proposed Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008 Existing Transit</td>
<td>2030 RTP With 2050 Land Uses</td>
<td>25% Increase Over 2030 RTP</td>
</tr>
<tr>
<td>Major Employment Areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downtown San Diego</td>
<td>24%</td>
<td>25%</td>
<td>31%</td>
</tr>
<tr>
<td>University City</td>
<td>3%</td>
<td>13%</td>
<td>16%</td>
</tr>
<tr>
<td>Sorrento Mesa</td>
<td>2%</td>
<td>11%</td>
<td>14%</td>
</tr>
<tr>
<td>Kearny Mesa</td>
<td>3%</td>
<td>11%</td>
<td>14%</td>
</tr>
<tr>
<td>Otay Mesa/Otay Ranch</td>
<td>3%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Palomar Airport</td>
<td>2%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>High Activity Areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Core</td>
<td>12%</td>
<td>16%</td>
<td>20%</td>
</tr>
<tr>
<td>Oceanside/Escondido Corridor</td>
<td>3%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Other Urbanized Areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North I-15 Corridor</td>
<td>1%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>North Central Coastal Area</td>
<td>2%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Central Coastal Area</td>
<td>5%</td>
<td>10%</td>
<td>13%</td>
</tr>
<tr>
<td>Coastal South Bay</td>
<td>8%</td>
<td>11%</td>
<td>14%</td>
</tr>
<tr>
<td>East County/El Cajon</td>
<td>4%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>East County/Santee</td>
<td>3%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Urban Area Transit Strategy Study Area</td>
<td>5%</td>
<td>9%</td>
<td>11%</td>
</tr>
</tbody>
</table>

1 Values represent peak period home-to-work trip transit mode-share for destination districts.

2 Values reflect projected mode share of either the currently adopted 2030 Reasonably Expected RTP or the 2030 Unconstrained RTP, whichever is higher, combined with 2050 land uses.
Transit Mode Share

Values represent peak period home-to-work transit mode share for destination districts.
Values represent peak period home-to-work transit mode share for destination districts.

2030 RTP
Transit Mode Share (with 2050 Land Uses)
2050 Proposed Transit Mode Share Goal Ranges

Values represent peak period home-to-work transit mode share for destination districts.
**Urban Area Transit Strategy - Initial Performance of Transit Network Alternatives**

Key:  ⚫ Most Effective  • Middle  ● Least Effective  □ No Significant Change

### A. Mode Share

<table>
<thead>
<tr>
<th>Mode Share Measures</th>
<th>2008 Existing</th>
<th>Baseline¹</th>
<th>Transit Propensity</th>
<th>Commuter Point-to-Point</th>
<th>Many Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. Peak-Period Transit Mode Share as Applied to the Identified Corridors/Areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not yet available.</td>
</tr>
<tr>
<td>A2. All-Day Transit Mode Share as Applied to the Identified Corridors/Areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3. Change in Peak Period Urban Area Transit Mode Share</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### B. Transit Ridership

<table>
<thead>
<tr>
<th>Ridership Measures</th>
<th>2008 Existing</th>
<th>Baseline</th>
<th>Transit Propensity</th>
<th>Commuter Point-to-Point</th>
<th>Many Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1. Change in Transit Person Trips (Regional)</td>
<td>202,000</td>
<td>401,000</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>B2. Change in Transit Passenger Miles (Regional)</td>
<td>1,593,000</td>
<td>5,197,000</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>B3. Change in Transit Peak-Period Person Trips (Regional)</td>
<td>79,000</td>
<td>178,000</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>B4. Change in Mode of Access to Transit (Non-Motorized and Auto)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk/Bike to Transit</td>
<td>85.4%</td>
<td>89.8%</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Auto (drove and driven) to Transit</td>
<td>14.6%</td>
<td>10.2%</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

### C. Cost-Effectiveness

<table>
<thead>
<tr>
<th>Cost-Effectiveness Measures</th>
<th>2008 Existing</th>
<th>Baseline</th>
<th>Transit Propensity</th>
<th>Commuter Point-to-Point</th>
<th>Many Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1. Rough Order of Magnitude (ROM) Capital Cost Estimate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2. Cost-Effectiveness of Network (Region)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3. Operating Subsidy Required (Region)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C4. Total Transit System Capital Cost vs. SANDAG Revenue-Constrained Funding Scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C5. Ability to Phase Major System Components/Elements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### D. Efficient Transportation Network

<table>
<thead>
<tr>
<th>Efficiency Measures</th>
<th>2008 Existing</th>
<th>Baseline</th>
<th>Transit Propensity</th>
<th>Commuter Point-to-Point</th>
<th>Many Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit System Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1. Passenger Miles to Transit Seat Mile Ratio</td>
<td>36%</td>
<td>47%</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Regional Transportation System Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2. Change in Auto Vehicle Miles Traveled (VMT) per capita</td>
<td>26.9</td>
<td>26.9</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>D3. Change in Auto Vehicle Hours Traveled (VHT) per capita</td>
<td>0.7</td>
<td>0.8</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>D4. Change in Auto Vehicle Trips per capita</td>
<td>3.6</td>
<td>3.5</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

¹Baseline scenario consists of an overlay between the highway and transit networks included in the 2030 RTP and the land use assumptions included in the 2050 Regional Growth Forecast.
### E. Sustainability

<table>
<thead>
<tr>
<th>Sustainability Measures</th>
<th>2008 Existing</th>
<th>Baseline</th>
<th>Transit Propensity</th>
<th>Commuter Point-to-Point</th>
<th>Many Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenhouse Gas Reduction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1. Estimated Change in GHG (tentative)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2. Peak-Period Non-Motorized Mode Share in Urban Area</td>
<td>3.7%</td>
<td>3.3%</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>E3. All-Day Non-Motorized Mode Share in Urban Area</td>
<td>3.4%</td>
<td>3.0%</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>E4. Compatibility with Regional Bike Plan (mi. of bike fac. within 1/2 mile of major station)</td>
<td>73</td>
<td>146</td>
<td>☜</td>
<td>☞</td>
<td>☞</td>
</tr>
<tr>
<td>Land-Use/Transportation Connection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E5a. % of Jobs within 1/2 Mile of Major Transit Stations</td>
<td>21.1%</td>
<td>38.9%</td>
<td>☐</td>
<td>☞</td>
<td>☞</td>
</tr>
<tr>
<td>E5b. % of Jobs within 1/4 Mile of Major Transit Stations</td>
<td>10.7%</td>
<td>21.3%</td>
<td>☐</td>
<td>☞</td>
<td>☞</td>
</tr>
<tr>
<td>E6a. % of Housing Units within 1/2 Mile of Major Transit Stations</td>
<td>9.4%</td>
<td>31.2%</td>
<td>☐</td>
<td>☞</td>
<td>☞</td>
</tr>
<tr>
<td>E6b. % of Housing Units w/in 1/2 Mile of Major Transit Stations with 10 Minute or Better Service</td>
<td>0.0%</td>
<td>23.4%</td>
<td>☐</td>
<td>☞</td>
<td>☞</td>
</tr>
<tr>
<td>E6c. % of Housing Units w/in 1/2 Mile of Major Transit Stations with 15 Minute or Better Service</td>
<td>7.3%</td>
<td>30.6%</td>
<td>☜</td>
<td>☞</td>
<td>☞</td>
</tr>
<tr>
<td>E7. Compatibility with current Regional Activity Centers (Hospitals, Universities/Colleges, Shopping Malls, and Tourist Attractions within 1/2 Mile of Major Transit Stations)</td>
<td>17</td>
<td>40</td>
<td>☜</td>
<td>☞</td>
<td>☞</td>
</tr>
</tbody>
</table>

### F. Social Equity/Environmental Justice

<table>
<thead>
<tr>
<th>Social Equity/Environmental Justice Measures</th>
<th>2008 Existing</th>
<th>Baseline</th>
<th>Transit Propensity</th>
<th>Commuter Point-to-Point</th>
<th>Many Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title VI Requirements¹</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>F1a. % Minority Populations within 1/2 Mile of Major Transit Stations (% Improvement)</td>
<td>11.2%</td>
<td>34.4%</td>
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<td>F1b. % Non-Minority Populations within 1/2 Mile of Major Transit Stations (% Improvement)</td>
<td>7.0%</td>
<td>20.2%</td>
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<td>F1c. % Low-Income Households within 1/2 Mile of Major Transit Stations (% Improvement)</td>
<td>13.2%</td>
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<td>F1d. % Non-Low-Income Households within 1/2 Mile of Major Transit Stations (% Improvement)</td>
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<td>Other Meaningful Social Equity/Environmental Justice Measures</td>
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<td>F2a. % of 75+ Population within 1/4 Mile of Major Transit Stations</td>
<td>3.0%</td>
<td>12.7%</td>
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<tr>
<td>F2b. % of 75+ Population within 1/4 Mile of All Stations</td>
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<td>58.7%</td>
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<td>F3. % Zero-Car Households within 1/2 Mile of Major Transit Stations (2000 census data)</td>
<td>16.7%</td>
<td>43.9%</td>
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¹ Title VI requires analysis of the burdens of regional transportation system investments on low-income and minority populations. Measures in this category evaluate the comparative percent improvement between low-income and non-low-income populations and minority and non-minority populations.

Key: A "1" indicates disparate impact and a "2" indicates no disparate impact.
### G. Time-Competitiveness

<table>
<thead>
<tr>
<th>Time Competitiveness Measures</th>
<th>2008 Existing</th>
<th>Baseline</th>
<th>Transit Propensity</th>
<th>Commuter Point to-Point</th>
<th>Many Centers</th>
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<td><strong>G1. Oceanside - Downtown San Diego Travel Times (in Minutes)</strong></td>
<td></td>
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<td><strong>G3. El Cajon - Downtown San Diego Travel Times (in Minutes)</strong></td>
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<td><strong>G6. San Ysidro - Downtown San Diego Travel Times (in Minutes)</strong></td>
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<td><strong>G7. El Cajon - Sorrento Valley Travel Times (in Minutes)</strong></td>
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2050 REGIONAL TRANSPORTATION PLAN: DEVELOPMENT OF THE INITIAL UNCONSTRAINED TRANSPORTATION NETWORK

Introduction

During April and May, staff presented the Urban Area Transit Strategy alternative transit networks to the Transportation and Regional Planning Committees, various SANDAG working groups, and at the 2050 Regional Transportation Plan (RTP) public workshops for public input. The networks also were reviewed by an outside Peer Review Panel. Based on feedback received so far, staff has assembled initial recommendations for a preferred 2050 transit network based on the initial three alternatives evaluated as part of the Urban Area Transit Strategy. This transit network, highway improvements, and other management strategies form the basis for the initial 2050 Unconstrained Transportation Network.

Board members are asked to discuss and provide feedback on the initial Unconstrained Transportation Network. Recommendations for a preferred Unconstrained Transportation Network will be presented at the July 2010 Board meeting for further discussion and use in the development of the Draft 2050 RTP.

2050 RTP Transportation Network Scenarios

In developing the 2050 RTP, the Unconstrained Transportation Network represents the region’s vision for reasonable transit, highway, and arterial improvements and operations to meet travel demand in 2050. Defining the Unconstrained Network is an important step in developing an updated RTP, because it establishes the broadest multimodal network from which revenue constrained network scenarios will be developed.

Once the Unconstrained Network is defined, staff will prioritize all of the future projects in this network, using the updated transportation project evaluation criteria (see Agenda Item No. 4). Based on revenue projections, various Revenue Constrained transportation network scenarios will be developed using this prioritized project list and other factors. The Revenue Constrained network scenarios will attempt to build and operate as much of the Unconstrained Network as possible, given revenue availability and flexibility, and project priorities. These scenarios will be evaluated using performance measures leading to the eventual selection of a preferred Revenue Constrained Network by the Board of Directors.

As previously discussed with the Board, Senate Bill 375 (Steinberg, 2008) (SB 375) requires that the 2050 RTP include a Sustainable Communities Strategy (SCS) as a new element, in addition to the traditional policy, action, and financial elements. The 2010 Regional Transportation Plan Guidelines adopted by the California Transportation Commission on April 7, 2010, establish that the RTP must...
be an “internally consistent” document (i.e., all four elements of the RTP must be consistent with one another). As a result, transportation investments and the forecasted development pattern in the SCS should be complementary and not contradictory.

Federal regulations require that the RTP be financially constrained and include a financial plan that demonstrates how the adopted transportation plan can be implemented [Title 23 CFR Part 450.322(f) (10)]. The financial plan must demonstrate that projects included in the RTP can be implemented using committed, available, or reasonably available revenue sources (Title 23 CFR Part 450.104). Therefore, to achieve consistency among all RTP elements, the SCS must be developed to match the financially (or revenue) constrained plan. The 2050 RTP Environmental Impact Report (EIR) will analyze the Revenue Constrained plan as the Proposed Project. Project alternatives also will be analyzed in the EIR.

Discussion

Initial Recommendations for a 2050 Unconstrained Transit Network

The Urban Area Transit Strategy will serve as the basis for development of the regional transit network to be included in the 2050 RTP. Through the planning process, staff has developed and begun testing three transit network alternatives with a focus on the urban areas of the San Diego region with the ultimate goal of incorporating one of the networks (or a combination or variation of the networks) into the 2050 RTP Unconstrained Network. The Urban Area is illustrated in Attachment 1.

As discussed in Agenda Item No. 3A, the transit alternatives under study were grouped into three themes: Transit Propensity” (expanding transit in the most urbanized areas); “Commuter Point-to-Point” (emphasizing quick access to work); and “Many Centers” (connecting local smart growth areas and activity centers).

Based on feedback from the 2050 RTP public workshops, the Peer Review Panel, the performance analysis, and the public, staff recommends combining the best overall transit system strategies contained in all three alternatives as the focus for developing and testing a preferred RTP unconstrained transit network. This strategy focuses on developing a strong link between transit and transit-supportive land use patterns, a link that will ensure that future investments made in transit are maximized in terms of cost-effectiveness. Based on this approach, staff recommends developing a Hybrid strategy based on the following key points:

- Improve the current transit network in communities that already have strong transit/land use integration (e.g., Mid-City, coastal South Bay communities, etc.). Improvements would focus on establishing 10-minute, all-day frequencies on most local routes, developing Rapid Bus services along major arterial corridors, and adding new light rail service to better serve high-demand corridors. Streetcar and/or other shuttle/circulator services also would help improve intra-community circulation within smart growth centers (e.g., downtown San Diego, downtown Escondido, downtown El Cajon, etc.). This strategy would incorporate much of Transit Propensity alternative.

- Expand high-frequency local and Rapid Bus services into the largest-scale smart-growth areas that are emerging or planned in the near-term as suggested by the Many Centers alternative. These concentrations of future transit-friendly land uses help justify significant investments in transit infrastructure and services.
• Interconnect the existing, most highly-urbanized areas and future smart growth centers to major employment areas with a system of high-speed, high-frequency rail and Bus Rapid Transit lines that will facilitate easy and convenient access across the region. Using findings from the evaluation of the Commuter Point-to-Point alternative, the addition of selected peak commuter bus services that offer one-seat rides/competitive travel would facilitate access to key regional employment centers.

• Emphasize improvements to the pedestrian environment in and around rail and bus station areas to maximize convenient and safe walking access to transit, and also create interconnections between transit and the Regional Bike Plan as a means to facilitate access to transit stations from areas outside a walking distance and create new last-mile solutions.

These actions, taken together, could serve as a good starting point for the overall strategy for developing the long-range vision for the transit plan that will ultimately be incorporated into the 2050 RTP. The Transportation and Regional Planning Committees are discussing the proposed “Hybrid” approach at their joint meeting on June 4, 2010, and any comments made will be provided verbally at the June 11 Board Policy meeting. A draft list of transit projects for the 2050 Hybrid Unconstrained Transit Network is included as Attachment 2a. (Attachment 2b provides definitions of transit services and facilities for the Urban Area Transit Strategy for reference purposes.)

**Initial Recommendations for a 2050 Unconstrained Highway Network**

Similarly to the process being proposed for the transit network, SANDAG and Caltrans staffs are analyzing potential modifications to the 2030 RTP Unconstrained highway network. These modifications are based on supporting proposed transit investments in key corridors and communities while providing an adequate level of service for the overall transportation system. It is important to note that the 2030 RTP Unconstrained highway network includes an extensive Managed Lanes system that provides tremendous flexibility in serving transit and high occupancy vehicles (HOVs) by maximizing the available rights-of-way in several of the region’s major highway corridors. The goal in reviewing the highway network is to build upon this existing plan by integrating the revised transit network into it, thereby creating the most efficient and balanced transportation system.

Potential modifications include additional operational improvements to relieve bottlenecks, refinements of the HOV and Managed Lane network to support transit services, and adjustments to general purpose lane widening beyond what is included in the 2030 Reasonably Expected RTP for corridors that are projected to operate at acceptable levels of service. A map of the initial 2050 Unconstrained Highway Network is included as Attachment 3.
Next Steps

Based on discussion today, the initial Unconstrained Transportation Network will be presented to the working groups for discussion and feedback. Recommendations for a preferred Unconstrained Transportation Network will be presented at the July 2010 Board meeting for further discussion and use in the development of the Draft 2050 RTP.

GARY L. GALLEGOS
Executive Director

Attachments: 1. Study Area for Urban Area Transit Strategy
               2a. Initial List of Transit Projects for the 2050 Hybrid Unconstrained Transit Network
               2b. Definitions of Transit Services and Facilities for Urban Area Transit Strategy
               3. Map of Initial 2050 Unconstrained Highway Network

Key Staff Contacts: Carolina Gregor, (619) 699-1989, cgr@sandag.org
                   Dave Schumacher, (619) 699-6906, dsc@sandag.org
                   Heather Werdick, (619) 699-6967, hwe@sandag.org

Funds are budgeted in Work Elements #81003 and 31005
Initial List of Transit Projects for the 2050 Hybrid Unconstrained Transit Network

An initial list of transit projects to be included in the 2050 Hybrid Unconstrained Transit Network is proposed below. (Definitions of transit services are included in Attachment 2b as a reference.) This initial list builds upon transit services currently in operation today and on planned transit services currently included in the 2030 Reasonably Expected Regional Transportation Plan (RTP).

Based on results of upcoming model runs to test the performance of these transit projects, staff will propose modifications to the mix of projects and adjustments to the levels of service in order to maximize the cost-effectiveness for the unconstrained transit network that will eventually be incorporated into the 2050 Regional Transportation Plan.

Ultimately, the selected transit network will be accompanied by a series of policy recommendations that may enhance the performance of the networks. The policy recommendations may address issues such as urban design, parking, street connectivity, bike and pedestrian access, transit awareness and education, last mile solutions, etc. During the planning process, staff will conduct a series of sensitivity tests that may provide supplemental information on the effectiveness of any potential policies that could be considered in the planning process.

Local Bus Services

Within the Urban Area Transit Strategy study area, service frequencies on most existing local bus services would be increased to 10 minutes or better throughout the day to serve short-distance trip-making and provide connections to regional Rapid Bus, Bus Rapid Transit, and Rail services. Additional local bus services within the study area would include:

- Solana Beach-Carmel Valley-University City
- Carmel Valley-Pacific Highlands Ranch-Sabre Springs
- Mira Mesa-Scripps Ranch North-South Poway Industrial Park

Outside the study area, a basic level of local bus service (30-60 minute service throughout most of the day) would be provided to connect key communities to the urban areas, including:

- Fallbrook
- Valley Center
- Ramona
- Alpine
- Tribal nations

Rapid Bus Services

A network of limited-stop Rapid Bus services would operate in key travel corridors as overlay services to local bus services to serve medium-distance trip-making, including:

- Oceanside-University City via Coast Highway corridor
- Oceanside-Vista via Mission Avenue corridor
- Camp Pendleton-Mira Costa College-Plaza Camino Real
Escondido-South Escondido
Carlsbad-San Marcos via Palomar Airport Road corridor
Old Town-Pacific Beach-La Jolla-University City
Mission Valley-University City via Genesee Avenue corridor
Ocean Beach-Old Town-Mid-City-La Mesa
Point Loma-Old Town-Linda Vista-Kearny Mesa
SDSU-Downtown via Adams Ave/First Avenue corridors
North Park-South Park-Golden Hill-Downtown
Downtown-Coronado
Downtown-Southeastern communities-Spring Valley
SDSU-Mid-City-Lemon Grove-Spring Valley
SDSU-Mid-City-Southeastern communities-National City
Chula Vista-Southwestern College-Otay Ranch
Imperial Beach-Otay-Otay Mesa

**Bus Rapid Transit Services**

All day bus rapid transit services would operate in key freeway/transit guideway corridors to serve long-distance regional tripmaking, including:

- Escondido-North I-15 communities, Kearny Mesa, Mission Valley, Downtown
- Otay Mesa-Otay Ranch-Chula Vista-National City-Downtown
- San Ysidro-Chula Vista-National City-Downtown-Old Town-University City

Peak-period commuter bus services would operate in key freeway/transitway corridors to provide point-to-point connections/one-seat ride service between key residential areas and regional employment centers, including:

- Escondido and north I-15 communities to Downtown
- Oceanside-Carlsbad-Encinitas to Sorrento Mesa
- Otay Ranch-Chula Vista to University City/Sorrento Mesa
- Southeastern San Diego communities-Mid-City to University City/Sorrento Mesa
- El Cajon-Santee to Kearny Mesa/University City/Sorrento Mesa
- Santee-El Cajon-Spring Valley to Eastern Urban Center/Otay Mesa
- Inland South Bay-Southeastern San Diego communities/Mid-City to Escondido/Palomar Airport Road corridor

**Commuter and Light Rail Services**

Double tracking of the COASTER would allow 15 minute peak/60 minute off-peak bi-directional service, while double tracking the Sprinter corridor would allow 10 minute all day service, along with express/limited stop service between Oceanside and Escondido.

A commuter rail overlay service on the proposed California High Speed Rail system would facilitate commuter travel needs between the Temecula-Escondido I-15 corridor and south county job centers.
Additional light rail services would operate in the following corridors:

- University City-Mira Mesa via Mira Mesa Boulevard
- University City-Kearny Mesa-Mission Valley-Mid-City-Southeastern San Diego communities-National City-Chula Vista via I-805 and I-15
- Downtown-SDSU via Park Blvd/El Cajon Boulevard
- Pacific Beach-Kearny Mesa-Mission Valley-SDSU-El Cajon via Balboa Avenue/Green Line

**Streetcar/Shuttle-Circulator Services**

Several streetcar and/or bus shuttle/circulator services would operate in key community center areas to facilitate both intra-area tripmaking and first-last mile connections to regional transit services.

- Downtown areas in San Diego, Oceanside, Escondido, El Cajon, National City, Chula Vista
- Community centers in University City/Sorrento Mesa, Kearny Mesa, Mission Valley, Hillcrest/North Park, Eastern Urban Center (Chula Vista)
# Definitions of Transit Services and Facilities
## For Urban Area Transit Strategy

## High-Speed Rail:

- **France’s TGV**

- **Spain’s AVE**

- **California High-Speed Rail**

  Designed for very high-speed long-distance intercity trips with long station spacing and dedicated grade-separated lines. Examples include the Shinkansen in Japan, the TGV in France, and the AVE in Spain. California High-Speed Rail (HSR) is currently being planned from Sacramento to San Diego.

  - Vehicles are steel wheel on steel track electrically-powered bidirectional train sets.
  - Top Speed: 220 miles per hour (mph), but 150 mph maximum expected from San Diego to Escondido and 200 mph maximum from Escondido to Riverside.
  - Level boarding.
  - Passenger Capacity: Not yet determined in CA. Examples from around the world range from approximately 300 to 1,300 per train but most single level trains have about 400-500.
  - Operates on dedicated high speed track with no at-grade crossings.
  - California HSR system will be over 600 miles.

## Commuter Rail:

- **San Diego Coaster**

- **Southern California MetroLink**

  Designed for higher-speed, longer-distance regional trips with stations spacing every four to five miles on average. Examples include the San Diego COASTER, Dallas/Fort Worth Trinity Railway Express, and Southern California Metrolink.

  - Commuter rail lines use diesel or electric locomotives (diesel are more common and are used in Southern California).
  - Typical speed: 80 mph.
  - Typically low floor.
  - Supported by Park and Ride lots.
  - Typical passenger capacity: 130 seats per car operating with 3-8 car trains (typically no standees).
  - Operates on a dedicated right-of-way separate from other vehicles.
  - Typical length of line: 25-100 miles.
**Light Rail Transit (LRT):**

<table>
<thead>
<tr>
<th>Image</th>
<th>Description</th>
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</table>
| ![San Diego Trolley](image) | Designed for medium-distance trips with station spacing about every mile on average. Examples include the San Diego Trolley, the San Diego SPRINTER, Portland MAX, Minneapolis Hiawatha Line, and Houston MetroRail.  
- Electric or diesel-powered rail vehicles.  
- Typical speed: corridor speed limit, generally not exceeding 55 mph.  
- Designed for high-capacity corridors.  
- Integrates well with street traffic, signals, and pedestrians.  
- Operates on a dedicated guideway within separate right-of-way or on-street.  
- Typical passenger capacity: 60-140 seated plus standees (per car), with 1-4 cars.  
- Typical length of line: 6-25 miles.  
- Typically low floor. |
| ![San Diego Sprinter](image) |  |

**Streetcar/Shuttle-Circulator:**

<table>
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<th>Image</th>
<th>Description</th>
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</table>
| ![Portland Modern Streetcar](image) | Designed for short-distance trips with station spacing every few blocks or every quarter-mile on average. Streetcar examples include Portland Modern Streetcar, Seattle Streetcar, and San Francisco Historic Streetcar. Shuttle-circulators include MTS Shuttle, University City SuperLoop.  
- Typical speed: speeds up to the speed limit of the street they operate on, generally averaging 12 mph (with stops).  
- Designed for dense urban areas, such as downtown areas.  
- Integrates well with street traffic, signals, and pedestrians.  
- Streetcars operate either in mixed-traffic with automobiles or on a dedicated right-of-way.  
- Typical passenger capacity for streetcars: up to 100 seated and standees per car (vehicles generally provide few seats due to short distance nature of trips). Operate as single vehicles.  
- Typical passenger capacity for shuttles-circulators: up to 20-25 seated, depending upon vehicle size.  
- Typical length of line: 2-6 miles. |
| ![San Francisco Historic Streetcar](image) |  |
| ![MTS Shuttle](image) |  |
Bus Rapid Transit (BRT):

Designed for longer-distance, higher-speed, regional trip-making on a dedicated bus guideway or freeway Managed Lanes/High-Occupancy Vehicle (HOV) facilities. All-day, all-stop trunk BRT services can be complemented with peak-period commuter express services designed to provide very limited stop connections to major employment centers. Examples include San Diego Interstate 15 BRT, Los Angeles Orange Line, Eugene, Oregon EmX, and the Brisbane South-East Busway.

- Diesel or CNG/alternative fuels standard.
- Typical speed: corridor speed limit, typically 40-60 mph on average.
- Supported by Park and Ride lots.
- Designed for high-capacity corridors.
- Low floor design.
- Operates on dedicated guideway and sometimes in mixed-traffic with automobiles.
- Typical passenger capacity: 50-60 seated plus standees on arterial routes, 50-80 seated on freeway routes (per bus).
- Typical length of line: 8-15 miles on arterial segments, 10-30 miles on freeway segments.
- Typical station spacing: 0.5-1 mile on arterial segments, 4-5 miles on freeway segments.

Continued on next page...
### Rapid Bus:

Provides higher-speed alternatives to local bus services in high volume arterial corridors and utilizes a range of lower-capital cost signal priority treatments, short segments of transit-only lanes, and limited station stops to achieve faster travel times. Rapid Bus services can be upgraded to BRT over time through implementation of dedicated transit lanes to bypass congested arterial segments. Examples include Los Angeles Metro Rapid and Boston Washington Street Silver Line.

- Diesel or CNG/alternative fuels standard.
- Typical speed: speeds up to the speed limit of the street they operate on, averaging about 25 mph (with stops).
- Low floor design.
- Designed for high-capacity corridors.
- Integrates well with street traffic, signals, and pedestrians.
- Typical passenger capacity: 40 seated plus standees (per bus).
- Typical length of line: 8-15 miles.
- Typical station spacing: 0.5-1 mile.

### High-Frequency Local Bus:

Facilitates mid-to-short-distance trip-making within local communities, with closer station spacing. Local bus services serve as the backbone of the transit system and provide the primary access into local communities where fixed-route services are warranted.

- Typically standard and single articulated buses.
- Typical speed: speeds up to the speed limit of the street they operate on, averaging 12 mph (with stops).
- Low-floor design.
- Integrates well with street traffic, signals, and pedestrians.
- Operates in mixed-traffic with automobiles, but can benefit from transit-signal priority and queue jump lanes.
- Typical passenger capacity: 37-57 seated plus standees (per bus).
- Typical length of line: ranges from under 5 miles up to 25 miles.
- Typical station spacing: 1-4 blocks.
This presentation will be an overview of research and findings from a recent study on GHG Emissions generated from idling vehicles at San Diego-Baja California Border Crossings.

Attachment: 1. GHG Emissions Due to Vehicle Delays at the San Diego-Baja California Border Crossings

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Greenhouse Gas Emissions Due to Vehicle Delays at the San Diego-Baja California Border Crossings

ABSTRACT

Rising levels of atmospheric greenhouse gases (GHGs) are an increasing public health concern in the context of global climate change. Higher global temperatures linked to GHGs are projected to increase air pollution, vector born diseases and heat related deaths. More frequent and severe weather events such as fires, flooding and droughts will threaten food security, shelter, and fresh water resources in the medium and long term. Fuel combustion of on-road vehicles is one of the major sources of GHG emissions in urban environments. The three international land ports between San Diego County, California and Baja California, Mexico include two of the busiest passenger and commercial vehicle crossings in the world, yet they were not included in the San Diego County GHG inventory of 2006. This study estimates GHG emissions due to northbound vehicle delays at the three San Diego County–Baja California border crossings (located in San Ysidro, Otay Mesa, and Tecate) in fiscal year (FY) 2009. Carbon dioxide (CO₂), nitrous oxide (N₂O) and methane (CH₄) emissions were quantified and expressed collectively as CO₂ equivalents (CO₂Eq). Estimations were based on emission rates derived from EPA’s latest mobile vehicle emission simulator model, MOVES2010.

Using this approach, FY 2009 emissions were approximately 80,000 metric tons (MT) of CO₂Eq for all three border crossings combined, comprising 0.5% of total on-road transportation emissions in San Diego County based on the latest 2006 inventory. Of the three border crossings, the San Ysidro Port of Entry contributed the most GHG emissions (68% of total), Otay Mesa contributed significantly less (30% of total), and Tecate the least (2% of total). Heavy-duty diesel trucks at the Otay Mesa commercial crossing contributed the most on a per vehicle basis (15.3 kg CO₂Eq/crossing), and vehicles using the SENTRI lanes contributed the least overall (1.1 kg CO₂Eq/crossing). Of the total 80,000 MT GHG emissions, 45% was due to pure idling, meaning the vehicle was completely stopped. Thus 45% of the emissions could be eliminated if idling were eliminated.

Limitations of this study include lack of specific data to describe the age and type of border vehicles, conflicting commercial truck delay data, and no source of information for southbound vehicle numbers or delays. Southbound crossings are not included in this study. Northbound vehicle volumes in 2009 were significantly lower than in previous years due to an economic recession and escalated violence in Mexico that decreased tourism to and from Tijuana. Due to these limitations and the period of analysis, the final results are an underestimate of total border GHG emissions.

Possible approaches to reducing GHG emissions for the border region include increasing SENTRI participation, decreasing border delay times, and creating a border crossing process that allows drivers to turn off their engines while waiting in line. Optimistic future projections incorporate these scenarios and represent potential target goals for 2030 GHG reduction strategies.