TRANSPORTATION COMMITTEE
AGENDA

Friday, July 31, 2009
9 a.m. to 12 noon
SANDAG Board Room
401 B Street, 7th Floor
San Diego

AGENDA HIGHLIGHTS

• TransNet ENVIRONMENTAL MITIGATION PROGRAM: STATUS REPORT
• PRELIMINARY DRAFT REGIONAL ENERGY STRATEGY UPDATE
• REGIONAL CLIMATE ACTION PLAN PROGRESS REPORT

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San Diego Association of Governments - 401 B Street, Suite 800, San Diego, CA 92101-4231
(619) 699-1900 - Fax (619) 699-1905 - www.sandag.org
Welcome to SANDAG. Members of the public may speak to the Transportation Committee on any item at the time 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/Member Comments. Speakers are limited to three minutes. The Transportation Committee may take action on any item appearing on the agenda.

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<table>
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<th>ITEM #</th>
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Members of the public will have the opportunity to address the Transportation Committee on any issue within the jurisdiction of the Committee that is not on this agenda. Speakers are limited to three minutes each and shall reserve time by completing a “Request to Speak” form and giving it to the Clerk prior to speaking. Committee members also may provide information and announcements under this agenda item.

**CONSENT (3 through 7)**

<table>
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As part of the development of the 2050 RTP, the Executive Director, with concurrence from Board Chair Holt-Pfeiler, will establish an Ad Hoc Technical Working Group (TWG) to review and update the transportation project evaluation criteria and performance measures for the 2050 Regional Transportation Plan. One or two volunteers from the various existing transportation and planning technical groups would join transportation agency staff on the working group. The Transportation Project Evaluation Criteria Ad Hoc Technical Working Group will begin meeting in September 2009, and conclude its activities by summer 2010.

Section 5310 of SAFETEA-LU provides federal funds for social service agencies to purchase vehicles and related equipment that are used to transport seniors and persons with disabilities. These funds are available through a statewide competition. The Transportation Committee is asked to concur with the scores for the 17 eligible projects awarded by the Local Review Committee for the FY 2008-2009 federal 49 U.S.C. 5310 program funding, and find that: (1) the applications are in conformance with the Coordinated Plan, and (2) the requirements of 49 U.S.C. 5310 have been met by all applicants recommended for funding.

The Transportation Committee is asked to approve the reappointment of six members to the Social Services Transportation Advisory Council for three-year terms.
+6. **SPRINTER PROJECT STATUS REPORT (Jim Linthicum)**

This item provides a monthly status report on the SPRINTER rail project, including discussion of implementation and effectiveness of project cost control measures.

+7. **BUS RAPID TRANSIT/RAPID BUS DEVELOPMENT AND IMPLEMENTATION (Dave Schumacher)**

At the March 20, 2009, Transportation Committee meeting, additional information was requested on a proposed work effort that would address Bus Rapid Transit/Rapid Bus development and implementation.

**CHAIR’S REPORT (8)**

8. **STATE ROUTE 76 PROJECT UPDATE (Transportation Committee Chair Jack Dale and Caltrans District 11 Director Pedro Orso-Delgado)**

The Caltrans project team has delivered on a number of key milestones for the next section of the State Route 76 project from Melrose Drive to South Mission Road. The project has been developed using a design sequencing process and the recent certification of the right-of-way on a tremendously aggressive schedule is the latest in a series of actions that will lead to the advertisement of the project this fall in order to begin construction by the end of this year. Several members of the project team will be present in order to recognize their efforts on this key Early Action Program project.

**REPORTS (9 through 14)**

+9. **FEASIBILITY STUDY TO EXTEND PROPOSED HIGH-SPEED TRAIN SYSTEM TO INTERNATIONAL BORDER (Linda Culp)**

Since February 2009, SANDAG has been studying the feasibility of extending the state’s proposed high-speed train (HST) system from its current terminus in downtown San Diego to the International Border and specifically to Tijuana International Airport. Along with engineering and environmental work currently underway on the main Los Angeles to San Diego via Inland Empire HST corridor, this analysis is a key component of SANDAG’s Regional Air-Rail Network Study and the Airport Multimodal Accessibility Plan as required by Senate Bill 10 (2007). In addition to studying a potential link to an intercity station on the U.S. side near the Tijuana International Airport, the study also will discuss the potential to operate a high-speed commuter rail service along the same tracks between the International Border and southwest Riverside County. To date, potential south county corridors and commuter rail station locations have been identified and evaluation criteria have been developed. A stakeholders working group has reviewed the work to date and additional targeted public meetings in the south county area have been completed. Additional public outreach is planned before the study’s scheduled completion in September 2009. The Transportation Committee is asked to provide input on the proposed project evaluation criteria to be used in evaluating alternative alignments for feasibility study of the Downtown/Lindbergh Field to International Border HST segment.
+10. REGIONAL PLANNING STAKEHOLDERS WORKING GROUP MEMBERSHIP RECOMMENDATION (Matt Hall, Vice Chair)

At its May 22, 2009, meeting, the Board of Directors approved the establishment of the Regional Stakeholders Working Group (SWG) to provide input on the 2050 Regional Transportation Plan and other related initiatives. The attached report provides an overview of the selection process and the recommended membership slate. The Transportation Committee is asked to recommend that the Board of Directors approve the slate of members and alternates indicated in Tables 1 and 2 to serve as at-large citizen representatives on the SWG.

+11. TransNet ENVIRONMENTAL MITIGATION PROGRAM: STATUS REPORT (Keith Greer)

The TransNet Environmental Mitigation Program (EMP) Status Report outlines the status, successes, and challenges of implementing the TransNet EMP under the Memorandum of Agreement signed in March 2008 by the Board of Directors. This report has been presented to the Independent Taxpayer Oversight Committee and is being presented to the Regional Planning Committee, Transportation Committee, and Board of Directors for information.

+12. TransNet EMP FIVE-YEAR FUNDING STRATEGY UPDATE, FY 2010 FUNDING ALLOCATION, AND FY 2010 LAND MANAGEMENT GRANT CRITERIA (Keith Greer)

The Transportation Committee is asked to recommend that the Board of Directors: (1) approve the updated Five-Year Conceptual Funding Strategic Plan, the proposed management and monitoring activities and budget for FY 2010 totaling $4 million, and, subject to Board Policy No. 017, authorize staff to solicit proposals and enter into contracts or amend existing contracts accordingly; and (2) adopt the modifications to the submittal and evaluation criteria for land management grants for FY 2010.

+13. PRELIMINARY DRAFT REGIONAL ENERGY STRATEGY UPDATE (Susan Freedman)

SANDAG is updating its Regional Energy Strategy (RES) as part of its partnership with the California Energy Commission (Energy Commission). The RES Update includes information on transportation fuels and transportation planning. Staff will present an overview of the preliminary draft report and will be seeking acceptance from the Regional Planning Committee to distribute the draft report to the public at its meeting later today. A final draft is expected to be completed in September 2009.
14. REGIONAL CLIMATE ACTION PLAN PROGRESS REPORT (Andrew Martin)  DISCUSSION

SANDAG is developing a Regional Climate Action Plan (RCAP) as part of its partnership with the Energy Commission. Staff will present an overview of the draft guiding principles, policy measures and performance monitoring measures and seek input from the Committee. A final draft is expected to be completed by December 2009 or January 2010. The Transportation Committee is asked to discuss and provide input on the development of the Regional Climate Action Plan.

15. UPCOMING MEETINGS  INFORMATION

The Transportation Committee meetings, originally scheduled for Friday, August 7, and Friday, August 21, 2009, have been cancelled. The next meeting of the Transportation Committee is scheduled for Friday, September 18, 2009, at 9 a.m.

16. ADJOURNMENT

+next to an agenda item indicates an attachment
TRANSPORTATION COMMITTEE DISCUSSION AND ACTIONS
MEETING OF JULY 17, 2009

The meeting of the Transportation Committee was called to order by Chair Jack Dale (East County) at 9:07 a.m. See the attached attendance sheet for Transportation Committee member attendance.

1. APPROVAL OF MEETING MINUTES

Action: Upon a motion by Councilmember Anthony Young (City of San Diego) and a second by Councilmember Judy Ritter (North County Inland), the Transportation Committee approved the minutes from the June 19, 2009, meeting.

2. PUBLIC COMMENTS/COM MUNICATIONS/MEMBER COM MENTS

Chuck Lungerhausen, a member of the public submitted written comments which he read into the record regarding transit operations.

Clive Richard, a member of the public spoke regarding potential consolidation of the two transit operators in the region.

William Sheets, a member of the public spoke regarding safety and security on the transit system buses and trolley.

CONSENT (3)

3. CALIFORNIA STATEWIDE HIGH-SPEED PASSENGER RAIL SYSTEM QUARTERLY UPDATE (INFORMATION)

The California High-Speed Rail Authority (CHSRA) is the state agency responsible for planning, constructing, and operating a high-speed train system serving California's major metropolitan areas. The proposed system stretches over 800 miles and would connect San Diego, Los Angeles, the Central Valley, San Francisco, and Sacramento using a state-of-the-art, electrified system capable of speeds in excess of 200 miles per hour. SANDAG continues to monitor the work on the CHSRA. This report is the regular quarterly update to the Transportation Committee.

Action: Upon a motion by Charlene Zettel (San Diego County Regional Airport Authority [SDCRAA]) and a second by Councilmember Ritter, the Transportation Committee accepted Consent Item 3.
REPORTS (4 through 10)

4. 2008 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM: AMENDMENT NO. 3 (APPROVE)

At its meeting on July 25, 2008, the Board of Directors adopted the 2008 Regional Transportation Improvement Program (RTIP), the multi-year program of major transportation projects in the San Diego region. SANDAG processes amendments to the RTIP on a quarterly basis based on requests from member agencies.

Action: Upon a motion by Councilmember Ritter and a second by Vice Chair Matt Hall (North County Coastal), the Transportation Committee adopted Resolution No. 2010-01, approving Amendment No. 13 to the 2008 RTIP.

5. AMERICAN RECOVERY AND REINVESTMENT ACT: TIGER PROGRAM SUBMITTALS (RECOMMEND)

The American Recovery and Reinvestment Act of 2009 included a $1.5 billion Supplemental Discretionary Grant program for Capital Investments in Surface Transportation Infrastructure. The Department of Transportation is calling these Supplementary Discretionary Grants “TIGER Discretionary Grants” (Transportation Investment Generating Economic Recovery). The U.S. Department of Transportation has published guidance for the TIGER Discretionary Grant program, with applications due by September 15, 2009. This item summarizes the federal program and includes a list of proposed regional project submittals.

Action: Upon a motion by Councilmember Young and a second by Chairman Bob Campbell (North County Transit District [NCTD]), the Transportation Committee recommended that the Board of Directors approve the list of proposed regional project submittals for the TIGER Discretionary Grant program and authorize the Executive Director to provide support letters for other local agency projects that are consistent with SANDAG policies and programs.

6. SAN DIEGO INTERSTATE 5 CORRIDOR SYSTEM MANAGEMENT PLAN - LOSSAN RAIL CORRIDOR PRIORITIZATION ANALYSIS AND FEDERAL RAIL STIMULUS FUNDS (RECOMMEND)

In June 2009, SANDAG, NCTD, Amtrak, Burlington Northern Santa Fe Railway, and Caltrans, completed a detailed evaluation of 40 individual rail projects along the San Diego portion of the Los Angeles-San Diego-San Luis Obispo (LOSSAN) Rail Corridor. These projects include double tracking, bridge replacements, and station improvements. Evaluation criteria were developed and detailed rail modeling simulations were completed in order to determine project rankings. In August 2009, project applications are due to the Federal Railroad Administration for consideration for a share of the $8 billion identified for high-speed / intercity rail projects under the American Recovery and Reinvestment Act. The prioritized list of rail projects is being used to determine which projects are considered for both local and federal stimulus funds.

Action: Upon a motion by Chairman Campbell and a second by Councilmember Young, the Transportation Committee recommended that the Board of Directors accept the LOSSAN Rail Corridor Prioritization Analysis for the purpose of submitting rail projects to the Federal Railroad Administration for federal stimulus fund consideration as identified in Attachment 2.
7. PROPOSED ADDITION OF DESIGN PROJECTS TO THE TransNet CAPITAL IMPROVEMENT PROGRAM (RECOMMEND)

With the recent successful competition for various federal and state transportation funds through programs such as the federal American Recovery and Reinvestment Act and the Proposition 1B state bonds, much of the TransNet project design work that was made ready for the competition has been depleted. Therefore a proposal has been developed to continue forward on the design work for a series of transit, rail and highway projects throughout the region in order to be prepared for future competition for transportation funds.

Commissioner John Chalker, California Transportation Commission (CTC) spoke in support of the item.

Clark Fernon, representing the local Architecture and Engineering industry spoke in support of the item.

Michael Palacios, representing Parsons Brinkerhoff spoke in support of the item.

**Action:** Upon a motion by Ms. Zettel and a second by Supervisor Ron Roberts (County of San Diego), the Transportation Committee recommended that the Board of Directors approve programming TransNet funds totaling $70.4 million as shown in Attachment 1 for the design of phased improvements on: Coastal Rail (LOSSAN), I-5 North Coast, and South Bay Bus Rapid Transit (BRT). In addition, the Transportation Committee recommended that the Executive Director be authorized to amend the Master Agreement with Caltrans as necessary to enable Caltrans to assist with the highway design components related to South Bay BRT. The current Master Agreement allows Caltrans to assist with the design effort for I-5 North Coast.

Vice Chair Hall announced to the public that SANDAG has developed a public survey regarding what the public would like SANDAG to provide and requested the public to complete the survey.

8. MID-COAST CORRIDOR TRANSIT PROJECT WORKING GROUP RECOMMENDATION (RECOMMEND)

The recommended slate of participants from the selection committee for the Mid-Coast Corridor Transit Project Working Group was presented.

JoAnne Golden, San Diego County Taxpayers Association (SDCTPA) spoke in opposition to the individual chosen as the representative for the SDCTPA.

**Action:** Upon a motion by Chairman Campbell and a second by Vice Chair Hall, the Transportation Committee recommended that the Board of Directors approve the selected candidates to serve on the Mid-Coast Corridor Transit Project Working Group.
9. UNIVERSITY TOWNE CENTRE (UTC) TRANSIT CENTER/SuperLoop PROJECT FUNDING EXCHANGE (RECOMMEND)

Based on project readiness for construction, the SuperLoop project was identified as an appropriate project for the exchange of the Federal Transit Administration federal grant funds earmarked for the UTC Transit Station.

**Action:** Upon a motion by Supervisor Roberts, and a second by Councilmember Ritter, the Transportation Committee recommended that the Board of Directors direct staff to take the necessary programming actions to exchange $5.7 million in Section 5309 New Starts funds, approved for use by the UTC Transit Center Project, with TransNet funds programmed for the SuperLoop Project. The Transportation Committee also recommended that the Board of Directors direct the Executive Director to initiate all required actions to negotiate and execute an agreement between SANDAG and the developer in support of implementation of the UTC Transit Center Project.

10. DRAFT REGIONAL ALTERNATIVE FUELS, VEHICLES, AND INFRASTRUCTURE REPORT (DISCUSSION)

As part of its California Energy Commission partnership, SANDAG is developing a regional assessment of alternative fuels, vehicles and infrastructure. Staff presented an overview of the report, which includes vehicle information for government fleet applications, sample ordinances and procurement policies, funding opportunities to accelerate deployment of alternative fuel vehicles, and recommended areas that refueling infrastructure could be sited. The draft report is out for public comment and will be considered by the Board of Directors in September 2009.

The Transportation Committee directed staff to include information regarding local companies that are working to encourage use of alternative fuels and vehicles in the report that will be considered by the Board of Directors.

**Action:** This item was presented for discussion.

11. UPCOMING MEETINGS

The next meeting of the Transportation Committee is scheduled for Friday, July 31, 2009, at 9 a.m.

12. ADJOURNMENT

Chair Dale adjourned the meeting at 10:32 a.m.

Attachment: Attendance Sheet
### CONFIRMED ATTENDANCE
#### SANDAG TRANSPORTATION COMMITTEE MEETING
**JULY 17, 2009**

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<td>SCTCA</td>
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2050 REGIONAL TRANSPORTATION PLAN (RTP): FORMATION OF AN
AD HOC TECHNICAL WORKING GROUP TO PROVIDE INPUT ON
TRANSPORTATION PROJECT EVALUATION CRITERIA AND RTP
PERFORMANCE MEASURES

Introduction

Transportation project evaluation criteria have been utilized in past RTPs to evaluate and prioritize
transportation projects for funding scenarios. SANDAG also utilizes plan performance measures to
evaluate and compare regional networks of transportation projects.

Discussion

As part of the development of the 2050 RTP, the Executive Director, with concurrence from Board
Chair Holt-Pfeiler, will establish an Ad Hoc Technical Working Group (TWG). This Ad Hoc TWG will
provide input on transportation project evaluation criteria and plan performance measures, which
will support the goals and objectives for the 2050 RTP to be established by the Board of Directors.

The Ad Hoc TWG will be made up of technical staff from existing SANDAG working groups as well
as staff from partner agencies such as the San Diego County Regional Airport Authority, Caltrans,
Metropolitan Transit System, North County Transit District, and the Port of San Diego. The Ad Hoc
TWG will begin meeting in fall 2009 and is expected to conclude its activities by summer 2010.

BOB LEITER
Director of Land Use and Transportation Planning

Key Staff Contact: Rachel Kennedy, (619) 699-1929, rke@sandag.org
San Diego Association of Governments

TRANSPORTATION COMMITTEE

July 31, 2009

AGENDA ITEM NO.: 4

Action Requested: APPROVE

RECOMMENDATIONS REGARDING FEDERAL SECTION 5310
PROGRAM APPLICATIONS

File Number 3320100

Introduction

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) provides federal funding through Title 49 United States Code Section 5310 (49 U.S.C. 5310) for social service agencies to purchase vehicles and related equipment that are used to transport elderly persons and persons with disabilities. The federal grant funds are distributed to the states, which then accept applications from nonprofit agencies and public agencies. Awards are made based on the scores received from local and state review of the applications. This year, approximately $12.6 million will be available statewide.

Recommendation

The Transportation Committee is asked to concur with the scores for the 17 eligible projects awarded by the Local Review Committee for the FY 2008-2009 federal 49 U.S.C. 5310 program funding, and find that: (1) the applications are in conformance with the Coordinated Plan, and (2) the requirements of 49 U.S.C. 5310 have been met by all applicants recommended for funding.

Discussion

As the Regional Transportation Planning Agency for the San Diego region, SANDAG is responsible for the local scoring of the applications received for the region. SANDAG has designated its Social Services Transportation Advisory Council (SSTAC) to act as the Local Review Committee for the federal Section 5310 review process. At the May 18, 2009, meeting, the SSTAC selected members to serve on the Local Review Committee for review of applications for FY 2008-2009 Section 5310 funding. The Local Review Committee completed the review of 17 project applications from six applicant agencies. Fifteen applications are for vehicles, and two applications are for related equipment (see Attachment 1).

The applications were scored according to the state’s required criteria (Attachment 2), which reflect the requirements imposed by 49 U.S.C. 5310. SSTAC approved the Local Review Committee scores at its meeting on July 20, 2009, and recommended that SANDAG endorse the scores for eligible projects as presented.

In addition to conducting the local review, SANDAG is required to assure the state that the applications are in conformance with the adopted FY 2008-2011 Coordinated Public Transit-Human Services Transportation Plan (Coordinated Plan) and will be added to the Regional Transportation Improvement Program (RTIP). All projects, if funded, would help meet the strategies set forth in the Coordinated Plan for the provision of transportation services throughout the region for persons unable to use fixed route public transit and will be added to the RTIP.
Next Steps

The next step will be to forward the applications and SANDAG rankings to Caltrans, where it will score and rank all the applications statewide. The projects then are funded starting with the highest ranking project, and then moving down the ranking list until all the money is allocated.

BOB LEITER
Director of Land Use and Transportation Planning

Attachments: 1. SSTAC Local Review Committee Recommendations  
2. State Criteria for 5310 Program Scoring

Key Staff Contact: Danielle Kochman, (619) 699-1921, dko@sandag.org
Section 5310 Grant Applications
FY 2008-2009
Local Review Committee Recommendations

Following are the scores for the applications in the FY 2008-2009 Section 5310 grant program recommended by the Local Review Committee. This federally funded program provides vehicles and other equipment for nonprofit and qualified public agencies to transport senior citizens and persons with disabilities. Seventeen applications were received from five nonprofit agencies and one city in the San Diego region. At its July 20, 2009, meeting, the Social Services Transportation Advisory Council recommended that the Transportation Committee approve the following scores for submittal to Caltrans for its consideration in scoring and ranking projects statewide.

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<td>Sharp HealthCare Foundation</td>
<td>Type IV Minivan</td>
<td>SE</td>
<td>93</td>
<td>$48,000</td>
</tr>
<tr>
<td>The City Link Foundation</td>
<td>Type III Bus</td>
<td>R</td>
<td>96</td>
<td>$71,500</td>
</tr>
<tr>
<td>The City Link Foundation</td>
<td>Type III Bus</td>
<td>R</td>
<td>91</td>
<td>$71,500</td>
</tr>
<tr>
<td>The City Link Foundation</td>
<td>Type III Bus</td>
<td>R</td>
<td>96</td>
<td>$71,500</td>
</tr>
<tr>
<td>The City Link Foundation</td>
<td>Type III Bus</td>
<td>R</td>
<td>96</td>
<td>$71,500</td>
</tr>
<tr>
<td>The City Link Foundation</td>
<td>Type III Bus</td>
<td>R</td>
<td>96</td>
<td>$71,500</td>
</tr>
<tr>
<td>The City Link Foundation</td>
<td>Maintenance Equipment</td>
<td>OE</td>
<td>91</td>
<td>$17,657</td>
</tr>
</tbody>
</table>

(R = Replacement, SE = Service Expansion, OE = Other Equipment)

Federal funds requested: $1,074,497
Local matching funds (11.47%): 268,624 (provided by applicant agency)
Total fund requests: $1,343,121
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
<th>Maximum Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section I</td>
<td>Ability of Applicant</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>Section II</td>
<td>Coordination Planning</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Coordinated Plan Requirements (12 pts)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coordination - Use of Vehicles/Equipment (6 points)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Section III</td>
<td>Transportation Service</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Replacement</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Service Expansion</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Equipment</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Section IV</td>
<td>Service Effectiveness</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Project Scoring Form</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum Total Per Requested Project</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Scored by: (RTPA Name and Phone Number)

Agency submitting Application:

Signature of Person Scoring and Verified Eligibility of Applicant
Quantitative Scoring & Project Rating  
(See Application Part III – Pg. 15-18)  
Evidence of an applicant’s experience and history of providing efficient and effective transit services.

<table>
<thead>
<tr>
<th>Score</th>
<th>1a. Applicant has experience providing existing specialized transportation services for elderly or individuals with disabilities for:</th>
</tr>
</thead>
</table>
|       | More than 5 years = 4 ____________  
          3 to 5 years = 3 ____________  
          1 to < 3 years = 2 ____________  
          Less than 1 year = 0 ____________  

| Score | 1b. Applicant has experience in providing social services (non-transportation) for elderly or individuals with disabilities:  
|-------|-----------------------------------------------------------------------------------------------------------------------------------|
|       | Applicant demonstrates support from the local RTPA or CTSA (attach letter) = 2 ____________  
          And applicant has provided social services for  
          More than 3 years = 2 ____________  
          1 to 3 years = 1 ____________  
          Less than 1 year = 0 ____________  

Scoring criteria for the following questions:  
0 = Does not address question  
1 = Addresses question without attaching relevant documentation.  
2 = Addresses question completely and attaches relevant documentation

| Score | 2. Driver training program:  
|-------|-----------------------------------------------------------------------------------------------------------------------------------|
|       | New and continuing driver training, including classroom and road testing = 2 ____________  
          Sensitivity Training, Emergency Preparedness, First Aid, and CPR = 2 ____________  

| Score | 3. Dispatching Plan:  
|-------|-----------------------------------------------------------------------------------------------------------------------------------|
|       | Description of dispatching plan with ongoing training = 2 ____________  

| Score | 4. Maintenance plan including the following:  
|-------|-----------------------------------------------------------------------------------------------------------------------------------|
|       | Daily Pre- and post- trip inspection description with inspection forms = 2 ____________  
          Preventative and routine maintenance description, with maintenance schedule and forms = 2 ____________  
          Contingency plans for when equipment is not available for service = 2 ____________  

| Score | 5. California Highway Patrol (CHP) Inspections  
|-------|-----------------------------------------------------------------------------------------------------------------------------------|
|       | Inclusion of satisfactory CHP or Caltrans inspection or documentation that such an inspection is not required = 2 ____________  

| Score | Annual Budget/Fund Sources:  
|-------|-----------------------------------------------------------------------------------------------------------------------------------|
|       | 6. Agency describes other funding received or why other funding is not available = 2 ____________  
          7. Qualified audit for agency included with no instances of non-compliance = 2 ____________  

| Score | Emergency Operations and Response Planning:  
|-------|-----------------------------------------------------------------------------------------------------------------------------------|
|       | 8. Emergency planning and drill activities, and county coordination. = 2 ____________  
          9. Identified available accessible vehicles (including capacity) to the county for use in emergency evacuations. = 2 ____________  

| Score | Proposed Budget for Transportation Program:  
|-------|-----------------------------------------------------------------------------------------------------------------------------------|
|       | 10. All sources of estimated income are identified for proposed project. = 2 ____________  
          11. Budget for applicant agency includes prior, current, and budget year. = 2 ____________  
          12. Appropriate funding source for local match is identified. = 2 ____________  

Total Points Maximum 32
### Quantitative Scoring & Project Rating

**SECTION – III**

0 – Does not address question and/or does not include Coordinated Plan section or page number  
3 – Addresses question & indicated Coordinated Plan section and/or page number

#### COORDINATED PLAN REQUIREMENTS  Maximum 12 points (3 points per question)

<table>
<thead>
<tr>
<th>Element 1: An assessment of available services that identifies current transportation providers (public, private, and non-profit).</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Generally describes available non-profit, public transit or Paratransit, including fixed route, dial-a-ride, ADA complementary Paratransit services as contained in the Coordinated Plan by section and/or page number.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element 2: An assessment of transportation needs for individuals with disabilities, older adult. This assessment can be based on the experiences and perceptions of the planning partners or on more sophisticated data collection efforts, and gaps in service.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Describes transportation needs of individuals with disabilities or elderly individuals to be served by the proposed project as contained in the Coordinated Plan by section and/or page number.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element 3: Strategies, activities, and/or projects to address the identified gaps between current services and needs, as well as opportunities to achieve efficiencies in service delivery.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Identifies coordination strategies activities and/or efficiencies by name. Accurately describes how this project addresses strategies, activities and/or efficiencies. Includes section and/or page number of Coordinated Plan.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element 4: Priorities for implementation based on resources (from multiple program sources), time, and feasibility for implementing specific strategies and/or activities identified.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Identifies the Coordinated Plan’s implementation priorities. Accurately describes how this project addresses them. Includes section and/or page number of Coordinated Plan.</td>
</tr>
</tbody>
</table>

**Total Planning Score Maximum 12**

#### COORDINATION – USE OF VEHICLES/EQUIPMENT  Maximum 6 points (3 points each)

(See Application Part III – Pg. 21)

<table>
<thead>
<tr>
<th>1. Clearly describes how vehicles, equipment or services in agency’s existing fleet are used to provide coordinated service for another agency’s clients or how these vehicles are shared with another agency(s).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2. Clearly describes plan for coordinating use of requested vehicle(s) or equipment. (1 point per type of coordination or sharing of resources, up to 3 points.) Examples:</th>
</tr>
</thead>
</table>
| • Shared use of vehicles  
| • Dispatching or scheduling  
| • Maintenance  
| • Back up transportation  
| • Staff training programs  
| • Joint procurement of services and supplies from funding sources other than Section 5310  
| • Active participation in local social service transportation planning process  
| • Coordination of client trip(s) with other transportation agencies  
| • Other – please describe |

<table>
<thead>
<tr>
<th>OR</th>
</tr>
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<tbody>
<tr>
<td>3. Clearly identifies attempts the agency has made to coordinate. Explains why coordinating isn’t possible. Provides supporting documentation letter from CTSA or RTPA confirming that no opportunities for coordination currently exist for requested equipment.</td>
</tr>
</tbody>
</table>

Revised 3/27/09  
Page 3
**Quantitative Scoring & Project Rating**

**SECTION – III**

Total Coordination of Vehicles Score Maximum 6

(See Application Part III – Pg. 22 Existing Services)

**Existing Transportation Services**

**REPLACEMENT** – Vehicles to be replaced that are currently in Active Service.

**VEHICLE USEFUL LIFE CRITERIA**

<table>
<thead>
<tr>
<th>TYPE OF VEHICLE</th>
<th>EXISTING VEHICLE MILES AND AGE</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minivan, Modified Van</strong></td>
<td>175,000 to 200,000 or 8 years</td>
<td>...... 20</td>
</tr>
<tr>
<td></td>
<td>150,000 to 174,999 or 7 years</td>
<td>...... 15</td>
</tr>
<tr>
<td></td>
<td>125,000 to 149,999 or 6 years</td>
<td>...... 10</td>
</tr>
<tr>
<td></td>
<td>100,000 to 124,999 or 5 years</td>
<td>...... 5</td>
</tr>
<tr>
<td></td>
<td>Less than 100,000 miles or 4 years old not eligible</td>
<td>...... 0</td>
</tr>
<tr>
<td><strong>Bus Type I, IA, IB, II, III</strong></td>
<td>225,000 - 250,000 or 9 years</td>
<td>...... 20</td>
</tr>
<tr>
<td></td>
<td>200,000 – 224,999 or 8 years</td>
<td>...... 15</td>
</tr>
<tr>
<td></td>
<td>175,000 – 199,999 or 7 years</td>
<td>...... 10</td>
</tr>
<tr>
<td></td>
<td>150,000 – 174,999 or 6 years</td>
<td>...... 5</td>
</tr>
<tr>
<td></td>
<td>Less than 150,000 or 5 years not eligible</td>
<td>...... 0</td>
</tr>
<tr>
<td><strong>Bus Type VII</strong></td>
<td>275,000 – 300,000 or 11 years</td>
<td>...... 20</td>
</tr>
<tr>
<td></td>
<td>250,000 – 274,999 or 10 years</td>
<td>...... 15</td>
</tr>
<tr>
<td></td>
<td>225,000 – 249,999 or 9 years</td>
<td>...... 10</td>
</tr>
<tr>
<td></td>
<td>200,000 – 224,999 or 8 years</td>
<td>...... 5</td>
</tr>
<tr>
<td></td>
<td>Less than 200,000 or 7 years not eligible</td>
<td>...... 0</td>
</tr>
<tr>
<td><strong>Bus Type VIII</strong></td>
<td>425,000 – 449,999 or 14 years</td>
<td>...... 20</td>
</tr>
<tr>
<td></td>
<td>400,000 – 424,999 or 13 years</td>
<td>...... 15</td>
</tr>
<tr>
<td></td>
<td>375,000 – 399,999 or 12 years</td>
<td>...... 10</td>
</tr>
<tr>
<td></td>
<td>350,000 – 374,999 or 11 years</td>
<td>...... 5</td>
</tr>
<tr>
<td></td>
<td>Less than 350,000 or 10 years not eligible</td>
<td>...... 0</td>
</tr>
</tbody>
</table>

**Replacement:** Determination that an applicant’s vehicle needs to be replaced in order to continue its existing transportation services. For each new vehicle requested a vehicle currently in active service will be removed and sold or placed into backup service. Sedans and SUV’s are no longer eligible as replacement vehicles.

**Active Service:** Vehicle is providing service throughout the agency’s normal days and hours of operation.

**Excessive Maintenance:** Vehicle does not meet minimum useful life but needs to be replaced due to excessive maintenance. Requests must have prior approval from Branch Chief of the Elderly and Disabled Specialized Transit Program.

**Use the chart below to score each replacement vehicle.**

<table>
<thead>
<tr>
<th>Type of Vehicle</th>
<th>VIN - last 5 numbers</th>
<th>Disposition: Sell or Backup</th>
<th>Mileage</th>
<th>Age</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

*If requesting new system (base station and mobile radios) score under Other Equipment.*
Quantitative Scoring & Project Rating  
(See Application Part III – Pg. 23 Proposed Services)

NEW OR SERVICE EXPANSION – Determination that requested additional equipment would be fully utilized (days and hours, passenger trips, service area) including usage of vehicle by another agency through a coordination plan.

Use the chart below to score each new or service expansion vehicle. 
*Round to the nearest whole number.*

<table>
<thead>
<tr>
<th>Score</th>
<th>Projected service hours per week to be provided with requested vehicle will increase total existing service hours by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 38  = 7 points</td>
<td>27 to 29 = 3</td>
</tr>
<tr>
<td>36 to 38 = 6</td>
<td>24 to 26 = 2</td>
</tr>
<tr>
<td>33 to 35 = 5</td>
<td>20 to 23 = 1</td>
</tr>
<tr>
<td>30 to 32 = 4</td>
<td>&lt; 20 hours = 0 points</td>
</tr>
</tbody>
</table>

AND Projected number of daily one-way **Passenger Trips** divided by Proposed total vehicle service hours:

<table>
<thead>
<tr>
<th>Score</th>
<th>&gt; 7 per service hour= 7 points</th>
<th>4 = 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 = 6</td>
<td>3 = 2</td>
<td></td>
</tr>
<tr>
<td>6 = 5</td>
<td>2 = 1</td>
<td></td>
</tr>
<tr>
<td>5 = 4</td>
<td>&lt; 2 per service hour = 0 points</td>
<td></td>
</tr>
</tbody>
</table>

AND Projected number of miles for proposed vehicle per day is:

<table>
<thead>
<tr>
<th>Score</th>
<th>&gt; 105 miles per vehicle= 6 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>91 to 105 = 5</td>
<td>46 to 60 = 2</td>
</tr>
<tr>
<td>76 to 90 = 4</td>
<td>30 to 45 = 1</td>
</tr>
<tr>
<td>61 to 75 = 3</td>
<td>&lt; 30 miles per vehicle = 0 points</td>
</tr>
</tbody>
</table>

Maximum 20 Points

<table>
<thead>
<tr>
<th>Proposed New or SE Vehicle</th>
<th>Total Score Each Vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
OTHER EQUIPMENT - Determination that ancillary equipment will provide critical support to the applicant’s transportation program.

Use the chart below to score each equipment request.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Equipment will coordinate fleet of <strong>10 or more</strong> vehicles (app. page 22 or 23)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td></td>
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<tr>
<td></td>
<td>8</td>
<td></td>
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<tr>
<td></td>
<td>7</td>
<td></td>
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<tr>
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<td>6</td>
<td></td>
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<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Less than 3 vehicles</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2. Applicant is currently using manual system for scheduling, vehicle tracking, etc. and/or has no dispatch communication equipment. (Application page 14)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3. Applicant needs to replace inadequate equipment to improve efficiency. (Application page 14)</td>
<td>More than 5 years</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>3 to 5 years</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Less than 3 years</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total Points</td>
<td></td>
</tr>
</tbody>
</table>

**Other Equipment:** - Computer system, Software, Maintenance equipment, Communication system or other.

Describe and Score each request

<table>
<thead>
<tr>
<th>Equipment Requested</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Maximum Points 20
Determination that existing fleet is fully utilized (days and hours, passenger trips and service area) including usage of vehicle(s) by another agency through a coordination plan.

Round to the nearest whole number.

<table>
<thead>
<tr>
<th><strong>Existing transportation provider:</strong> Total service hours per week divided by number of vehicles (excluding vehicles in back up service):</th>
<th><strong>OR</strong></th>
<th><strong>SCORE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 36 hours per week = 10</td>
<td>27 to 28 = 5</td>
<td></td>
</tr>
<tr>
<td>35 to 36 = 9</td>
<td>25 to 26 = 4</td>
<td></td>
</tr>
<tr>
<td>33 to 34 = 8</td>
<td>23 to 24 = 3</td>
<td></td>
</tr>
<tr>
<td>31 to 32 = 7</td>
<td>20 to 22 = 2</td>
<td></td>
</tr>
<tr>
<td>29 to 30 = 6</td>
<td>Less than 20 hours per week = 0</td>
<td></td>
</tr>
</tbody>
</table>

**AND**

<table>
<thead>
<tr>
<th><strong>Existing transportation provider:</strong> Sum of the total one-way passenger trips per day divided by total service hours per day (excluding backup service):</th>
<th><strong>OR</strong></th>
<th><strong>SCORE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 8 passengers per service hour = 10</td>
<td>3 to 4 = 4</td>
<td></td>
</tr>
<tr>
<td>7 to 8 = 8</td>
<td>1 to 2 = 2</td>
<td></td>
</tr>
<tr>
<td>5 to 6 = 6</td>
<td>Less than 1 passenger per service hour = 0</td>
<td></td>
</tr>
</tbody>
</table>

**AND**

<table>
<thead>
<tr>
<th><strong>Existing transportation provider:</strong> Total miles per day divided by number of vehicles:</th>
<th><strong>OR</strong></th>
<th><strong>SCORE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 102 miles per vehicle = 10</td>
<td>55 to 62 = 4</td>
<td></td>
</tr>
<tr>
<td>95 to 102 = 9</td>
<td>47 to 54 = 3</td>
<td></td>
</tr>
<tr>
<td>87 to 94 = 8</td>
<td>39 to 46 = 2</td>
<td></td>
</tr>
<tr>
<td>79 to 86 = 7</td>
<td>Over 30 to 38 = 1</td>
<td></td>
</tr>
<tr>
<td>71 to 78 = 6</td>
<td>Less than 30 miles per vehicle = 0</td>
<td></td>
</tr>
<tr>
<td>63 to 70 = 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Additional Points Possible -Total cannot exceed 30 points**

<table>
<thead>
<tr>
<th><strong>Existing transportation provider:</strong> Current wheelchair/lift users as a percentage of current total users:</th>
<th><strong>OR</strong></th>
<th><strong>SCORE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 65% = 10</td>
<td>41 to 45% = 5</td>
<td></td>
</tr>
<tr>
<td>61 to 65% = 9</td>
<td>36 to 40% = 4</td>
<td></td>
</tr>
<tr>
<td>56 to 60% = 8</td>
<td>31 to 35% = 3</td>
<td></td>
</tr>
<tr>
<td>51 to 55% = 7</td>
<td>26 to 30% = 2</td>
<td></td>
</tr>
<tr>
<td>46 to 50% = 6</td>
<td>20 to 25% = 1</td>
<td></td>
</tr>
<tr>
<td>Less than 20% = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Score**

Maximum 30
Project Rating Worksheet

Agency: __________________________ RTPA: __________________________

<table>
<thead>
<tr>
<th>Project Request</th>
<th>If Replacement Vehicle - VIN</th>
<th>Sect 1 (Max 32pts)</th>
<th>Sect II (Max 18pts)</th>
<th>Sect III (Max 20pts)</th>
<th>Sect IV (Max 30pts)</th>
<th>Total (Max 100pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
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<td>3</td>
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SOCIAL SERVICES TRANSPORTATION ADVISORY COUNCIL
MEMBERSHIP REAPPOINTMENT

Introduction
The California Public Utilities Code (PUC) Section 99238 requires that a Social Services Transportation Advisory Council (SSTAC) be created and maintained in each county. SANDAG formally created SSTAC in 2006, and in 2008 acted to merge SSTAC with the SANDAG Transit Accessibility Advisory Committee. When the two committees were merged, a new combined membership roster was created. The PUC requires one-third of the members of SSTAC be appointed each year. This report recommends reappointing each of the members whose term expires this year for an additional three-year term.

Recommendation
The Transportation Committee is asked to approve the reappointment of six members to the Social Services Transportation Advisory Council for three-year terms.

Discussion
Based on PUC requirements, the initial appointments to the new SSTAC were set up such that one-third of the members were appointed for a one-year term, one-third for a two-year term, and one-third for a three-year term. After these initial appointments, the term for reappointing members is three years. Of the 18 members that are appointed to SSTAC, six members’ terms will expire on August 1, 2009. SANDAG staff is recommended the reappointment of the six SSTAC members whose terms are expiring. These members have exhibited an interest in promoting social service transportation, advocating for improving the accessibility of the transit system, and a commitment to attending the regular meetings.

The following table shows the recommended reappointments:

<table>
<thead>
<tr>
<th>Member</th>
<th>Category</th>
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</thead>
<tbody>
<tr>
<td>David Jackson</td>
<td>Citizen Member</td>
</tr>
<tr>
<td>Floyd Willis</td>
<td>Two representatives of Social Service Providers for Seniors</td>
</tr>
<tr>
<td>Anthony Ferguson</td>
<td>Two Representatives of Social Service Providers for Persons with Disabilities</td>
</tr>
<tr>
<td>Mac McGee</td>
<td>One Representative of Social Service Providers for Persons of Limited Means</td>
</tr>
<tr>
<td>Brent Boyd</td>
<td>Two Representatives from Each of the Transit Operators</td>
</tr>
<tr>
<td>Alane Haynes</td>
<td>Two Representatives from Each of the Transit Operators</td>
</tr>
</tbody>
</table>

The table in Attachment 1 details the membership and terms of each SSTAC members if the recommended reappointments are approved.

BOB LEITER
Director of Land Use and Transportation Planning

Key Staff Contact: Danielle Kochman, (619) 699-1921, dko@sandag.org

Attachment: 1. SSTAC Membership and Terms Including Proposed Reappointments
Social Services Transportation Advisory Council Membership and Terms Including Proposed Reappointments

<table>
<thead>
<tr>
<th>Member</th>
<th>Term Expiration Date</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizen Members (Senior and Disabled Transit Users) - 4 Voting Members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mimi Galandt</td>
<td>July 31, 2010</td>
<td>County of San Diego, Aging and Independence Services</td>
</tr>
<tr>
<td>Sharlene Ornelas</td>
<td>July 31, 2011</td>
<td>Adult Protective Services</td>
</tr>
<tr>
<td>Clive Richard</td>
<td>July 31, 2010</td>
<td>Deaf Community Services</td>
</tr>
<tr>
<td>Chuck Lungerhausen</td>
<td>July 31, 2011</td>
<td>San Diego Regional Center</td>
</tr>
<tr>
<td>David Jackson</td>
<td>July 31, 2012*</td>
<td>All Congregations Together</td>
</tr>
<tr>
<td>Harriet Weinstock</td>
<td>July 31, 2010</td>
<td>North County Transit District (NCTD) Fixed Route</td>
</tr>
<tr>
<td>Jackson Alexander</td>
<td>July 31, 2011</td>
<td>NCTD Paratransit</td>
</tr>
</tbody>
</table>

* These members are proposed for reappointment; expiration dates are for the new term assuming approval by the Transportation Committee at its July 31, 2009, meeting.
SPRINTER PROJECT STATUS REPORT

Introduction

The North County Transit District (NCTD) SPRINTER Rail Project converted an existing 22-mile freight rail corridor into a Diesel Multiple Unit (DMU) transit system connecting Oceanside, Vista, unincorporated County areas, San Marcos, and Escondido. The SPRINTER is a TransNet-funded project to increase east-west mobility in the State Route (SR) 78 corridor. In response to requests from NCTD and the Federal Transit Administration (FTA), SANDAG staff is currently providing support and oversight services for the project and has been asked by the Board of Directors to report on its progress monthly to the Transportation Committee.

Discussion

All major work is complete; however, small contracts will continue to be let to clean up minor work items along the corridor. A project contingency is available for this and therefore no impact to project budget is expected. The construction office has been closed and the construction management consultant demobilized. Minor work to close out the project is being performed by SPRINTER staff.

A settlement agreement was signed on June 19, 2009, resolving all outstanding construction issues on the Mainline project. The agreement addresses the final quantities of work, the cost of change orders, and the settlement of all potential claims and disputes. This eliminates the biggest risk to project budget.

The estimate at completion (EAC) for the entire project remains $479.3 million. A new EAC will be developed after final costs for work done for others and the owner-controlled insurance is calculated and the final cost of the project design is resolved. The project budget set by the NCTD Board and included in the Amended Recovery Plan for the FTA is $484.1 million, giving NCTD an additional $4.8 million of capacity between budget and EAC.

The SPRINTER has been recognized with 10 major awards including a national award by the American Public Works Association.

JACK BODA
Director of Mobility Management and Project Implementation

Key Staff Contact: Jim Linthicum, (619) 699-1970, jlin@sandag.org
BUS RAPID TRANSIT/RAPID BUS DEVELOPMENT AND IMPLEMENTATION

Introduction

At the March 20, 2009, Transportation Committee meeting, additional information was requested on a proposed work effort that would address Bus Rapid Transit/Rapid Bus (BRT/RB) development and implementation. The purpose of this work is to improve the project development process for the TransNet Early Action Bus Rapid Transit/Rapid Bus (BRT/RB) projects, including Escondido Rapid Bus, SuperLoop, Mid-City Rapid Bus, Interstate 15 Bus Rapid Transit, and South Bay Bus Rapid Transit. In addition, the guidelines and design standards developed through this process also will be used in developing future BRT and RB projects.

This report clarifies the work tasks for development of these BRT/RB system features and how the work will be funded.

Discussion

Background

Project development work for the TransNet BRT/RB projects listed above began as independent projects rather than as a system of services. It soon became apparent that there were common design issues among all the projects that were better addressed together rather than individually. The first step in a systems approach to BRT/RB project development required the development of service and facility guidelines. These guidelines address the kinds of BRT/RB services provided (e.g., service frequencies, span of service) and BRT/RB project facilities (e.g., station design, fare collection, passenger information). These guidelines will ensure that system planning issues are dealt with in a comprehensive and cost-effective fashion rather than having each project handling the same set of issues separately. By having consistency and standardization between projects, our customers will understand that each BRT/RB project is part of an overall regional system of BRT/RB services designed to facilitate high-speed travel. Both Metropolitan Transit System (MTS) and North County Transit District (NCTD) staffs have been active participants in the development of these guidelines.

FY 2010 Work Effort

Once the service and facility guidelines are completed over the next two months, the next steps are to use the guidelines in the development of each BRT/RB project. The guidelines also will provide an ongoing benchmark as individual BRT/RB projects move through the environmental, preliminary engineering, and final design phases leading up to construction/implementation. In addition, as part of BRT/RB project development, a number of “system” features will be developed that benefit each of the individual projects. These work tasks include:
• Development of a number of new technology features: transit signal priority hardware and software aimed at improved travel times/reliability, digital message signs to provide real-time passenger information, and fare collection devices for maximizing off-board fare collection.

• Coordination on vehicle specifications and acquisition.

• Planning and implementation of vehicle maintenance, storage facilities, and downtown station and layover facilities.

• Refinement of operating plans.

• Service and station branding/advertising.

• Development of station maintenance standards and agreements.

Work on these efforts is already underway, and is being done in close partnership with MTS and NCTD. The FY 2010 estimated cost for this work is $480,000, which will include reimbursing transit agencies and local jurisdictions for their staff time spent on specific project development tasks, as appropriate. Consistent with past practice, the costs for this systems development work will be allocated on a pro-rated basis to each BRT/RBTCIP project and accomplished within existing budgets.

BOB LEITER
Director of Land Use and Transportation Planning

Key Staff Contact: Dave Schumacher, (619) 699-6906, dsc@sandag.org
FEASIBILITY STUDY TO EXTEND PROPOSED HIGH-SPEED TRAIN SYSTEM TO INTERNATIONAL BORDER

File Number 3101200

Introduction

Since 1993, the State of California has authorized the study of an intercity, high-speed train (HST) system that will connect the state’s metropolitan areas, including San Diego. The California High-Speed Rail Authority (CHSRA) is the statewide agency charged with the planning and construction of this system.

SANDAG continues to work cooperatively with the CHSRA to advance San Diego’s HST corridor. The Southern California Association of Governments (SCAG), San Diego County Regional Airport Authority (SDCRAA), Riverside County Transportation Commission (RCTC), and San Bernardino Associated Governments (SANBAG), in addition to SANDAG and the CHSRA, have approved a Memorandum of Understanding to formalize this cooperative working relationship to advance the Los Angeles to San Diego via Inland Empire HST corridor. Together, these agencies make up the Southern California High-Speed Rail Inland Corridor Group (SoCal ICG).

Since November, the SoCal ICG has been conducting a feasibility study of the Los Angeles to San Diego via Inland Empire HST corridor. The San Diego County Technical Working Group (TWG) provides review and comment on this effort and similar groups meet in Los Angeles, San Bernardino, and Riverside Counties. The feasibility study is scheduled to conclude in September, and it is the SoCal ICG’s intent to begin the project-level environmental process at that time. A detailed schedule has been developed that will result in a final project-level environmental document in 2013.

In addition to the Los Angeles to San Diego HST corridor work, SANDAG is funding a study for the CHSRA team to complete a feasibility study of extending the high-speed corridor from the current terminus at the Lindbergh Field Intermodal Transportation Center (ITC) to the International Border and Tijuana International Airport (TIJ). This is one component of the SANDAG Regional Air-Rail Network Study, which will serve as Phase 1 of the Airport Multimodal Accessibility Plan, required by SB 10 (2007), to be completed in FY 2010. The study also is looking at the possibility of running high-speed commuter rail service along the entire San Diego County HST alignment.

Recommendation

The Transportation Committee is asked to provide input on the proposed project evaluation criteria to be used in evaluating alternative alignments for feasibility study of the Downtown/Lindbergh Field to International Border HST segment as reflected in Table 2.
Discussion

Feasibility Study to Extend Proposed High-Speed Train System to International Border and High-Speed Commuter Rail Overlay Analysis

The feasibility of extending the state’s proposed high-speed intercity train service from downtown San Diego to the International Border has two components:

- Assess the feasibility of extending intercity service of the California HST system to the border, with one additional intercity stop at a crossborder location on the U.S. side with direct access to TIJ.

- Assess the feasibility of operating a high-speed commuter rail service that would share track with intercity trains. As a result, additional station locations that are potential candidates for a high-speed commuter rail service have been identified.

Stakeholder Input

The San Diego TWG has held three meetings to date to review progress on both the main HST corridor and the extension to the Border. In addition, SANDAG has held meetings with staff and representatives from a number of south county organizations to gain public input:

- BNSF Railway
- Caltrans, District 11 Corridor Directors and Executive Staff
- Centre City Development Corporation
- City of Chula Vista
- City of Escondido Planning and Public Works Departments
- City of San Diego Field Review, Planning Department, Traffic Engineers
- City of San Diego/Stone Creek Master Plan/HG Fenton’s Carroll Canyon Master Plan
- Crossborder Terminal Group
- General Services Administration
- McMillan (Otay Ranch)
- Metropolitan Transit System
- National City Chamber of Commerce Staff and Economic Development Committee
- Otay Mesa Chamber of Commerce
- Point Loma Community Planning Group Forum
- San Diego County Regional Airport Authority
- San Diego Institute of Transportation Engineers
- San Diego Port District
- San Ysidro Chamber of Commerce
- SANDAG Mid-Coast Corridor Staff and Consultants
- South County Economic Development Council
- South Bay Expressway

Potential Corridors and Stations

Based on input from the TWG and south county stakeholders, along with the technical analysis by the consultant team, potential alignments and station locations have been identified. Initially, three main north-south corridors were evaluated: Interstate 5, Interstate 805, and State Route 125. Potential high-speed commuter rail stations also have been identified along each proposed
alignment. Once near the border, two east-west alternatives have been identified along the International Border to provide access from the three north-south alignments to TIJ and a potential commuter rail station at the Otay Mesa Port of Entry. One intercity station has been identified on the U.S. side with direct access to TIJ. Additional sites that could serve as high-speed commuter rail stations along each of the potential alignments also were identified. Table 1 lists the proposed alignments and station locations under study, which also are shown graphically in Figure 1.

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Description</th>
<th>Proposed Intercity Stations</th>
<th>Proposed High-Speed Commuter Rail Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-5</td>
<td>From Downtown San Diego, via Interstate 5 South and eastward either via SR 905 or U.S./Mexico Border</td>
<td>Lindbergh Field ITC Tij</td>
<td>Downtown San Diego 8th Street (National City) E / H Street (Chula Vista Iris Ave (San Diego) San Ysidro (San Diego) Otay Mesa POE (County)</td>
</tr>
<tr>
<td>I-805</td>
<td>From Downtown San Diego, via Interstate 5 and 54, south on I-805 and eastward either via SR 905 or U.S./Mexico Border</td>
<td>Lindbergh Field ITC Tij</td>
<td>Downtown San Diego 8th Street (National City) Telegraph Cyn (Chula Vista) Palm Ave (Chula Vista) Otay Mesa POE (County)</td>
</tr>
<tr>
<td>SR-125</td>
<td>From Downtown San Diego, via Interstate 5 and 54, via SR 125 to U.S./Mexico Border</td>
<td>Lindbergh Field ITC Tij</td>
<td>Downtown San Diego 8th Street (National City) Palomar Street (Chula Vista) East Urban Center (Chula Vista) Otay Mesa POE (County)</td>
</tr>
</tbody>
</table>

Evaluation Criteria

In order to evaluate each potential alignment, criteria were drafted that include land use compatibility, environmental factors, and design attributes (Table 2). For example, the proposed I-5 alignment has the shortest distance and travel time to Tijuana International Airport, taking approximately 12 minutes from Lindbergh Field compared to 16 minutes along an I-805 alignment and 19 minutes along an SR-125 alignment. Currently, SANDAG is working on completing the analysis of the remaining criteria.

San Diego Regional Air-Rail Network Study

This analysis is one component of the San Diego Regional Air-Rail Network Study, which will (1) identify high-speed rail connections to Southern California airports that could provide relief to San Diego’s Lindbergh Field; and (2) identify the potential for high-speed rail to relieve short-haul air demand and free up capacity at Lindbergh Field for long-haul and/or international flights. This work will be completed cooperatively between SANDAG, SDCRAA, and the other agencies mentioned above.
SANDAG is conducting the initial phase of the Regional Air-Rail Network Study, using the findings from both the Los Angeles to San Diego via Inland Empire feasibility study and a special study to evaluate the feasibility of extending HST to the International Border and, specifically, TIJ. This effort will serve as Phase 1 of the Airport Multimodal Accessibility Plan, as outlined in Senate Bill 10 (Kehoe). The AMAP will identify ground access improvements, including high-speed rail, at the region’s aviation facilities as outlined in the SDCRAA’s companion study, the Regional Aviation Strategic Plan. Phase 2 of the AMAP will review the feasibility of other modes to these regional aviation facilities and is expected to be completed in FY 2010, in time for inclusion in the 2050 Regional Transportation Plan.

Table 2
PRELIMINARY ALTERNATIVE ALIGNMENTS COMPARISON

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>North-South Corridor</th>
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<tr>
<td></td>
<td>I-5</td>
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<tr>
<td><strong>Design</strong></td>
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<tr>
<td>Journey time to TIJ</td>
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<td>Route length</td>
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<td>Intermodal connections</td>
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<td>Capital costs</td>
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<td><strong>Land Use</strong></td>
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<td>Proximity to Smart Growth Areas</td>
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<td>Compatibility with existing plans</td>
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<td><strong>Constructability</strong></td>
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<td>Potential impact on transportation operations</td>
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<td>Acceptability of existing overcrossings</td>
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<td>Disruption to existing freight railroads</td>
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<td>Disruption to and relocation of utilities</td>
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<td><strong>Community</strong></td>
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<td>Potential community displacements</td>
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<td>Properties with access affected</td>
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<td>Local traffic impacts around stations, along route</td>
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<td>Highway grade separations and closures</td>
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<td><strong>Environmental Resources</strong></td>
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<td>Biological resources</td>
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<td>Cultural resources</td>
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<td>Parklands</td>
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<td>Agricultural lands</td>
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<td><strong>Natural Environment</strong></td>
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<td>Noise and vibration</td>
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<td>Visual/scenic resources</td>
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<td>Geotechnical constraints</td>
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<td>Hazardous materials</td>
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<td><strong>Stakeholder Comments</strong></td>
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Next Steps

Staff has scheduled an additional workshop in the south county area in August/September to review the draft findings. This meeting will be a follow-up to a public meeting held at the South County Economic Development Council offices in June, 2009 and attended by a number of south county organizations.

Staff plans to present the draft feasibility study to the Transportation Committee at its September 18, 2009, meeting. If the draft feasibility offers a preferred corridor to TIJ, the Transportation Committee will be asked to consider a formal comment to the CHSRA to include the border extension in the state’s proposed HST network and therefore include it in the project-specific environmental analysis that will kick off at that time. Currently, the state’s HST network terminates in downtown San Diego and the decision to add a potential extension to the International Border rests with the CHSRA and its federal partner, Federal Railroad Administration.

Staff will continue to coordinate on the I-5 South Coast Study, a study underway by SANDAG, Caltrans, and the City of Chula Vista to identify transportation improvements along the I-5 Corridor. Currently, an HST option is one alternative under evaluation in that study.

As stated earlier in this report, the Regional Air-Rail Network Study and the AMAP will be completed in FY 2010 in time for inclusion in the 2050 RTP.

BOB LEITER
Director of Land Use and Transportation Planning

Attachment: 1. Figure 1 – Downtown San Diego to International Border HST Proposed Corridors

Key Staff Contact: Linda Culp, (619) 699-6957, lcu@sandag.org
Introduction

The Board of Directors approved the establishment of the Regional Planning Stakeholders Working Group (SWG) and approved the SWG Charter in May 2009. The SWG will act in an advisory capacity to both the Regional Planning and Transportation Committees on the development of the 2050 RTP and its components; development and implementation of the SANDAG Public Participation Plan; and preparation for a future Regional Comprehensive Plan update.

The call for SWG membership applications for at-large citizen representatives was issued on June 1, 2009, with a deadline of June 30. More than 70 applications were received and reviewed by a selection committee consisting of members of the Transportation and Regional Planning Committees, the Cities/County Technical Advisory Committee (CTAC), and the Regional Planning Technical Working Group (TWG). The selection committee was chaired by the SANDAG First Vice-Chair.

The selection committee recommended approval of a slate of nineteen members and nine alternates. (The alternates would replace regular members if those members needed to resign over the course of the planning period.) The recommended at-large citizen membership and alternates are shown in Tables 1 and 2.

Discussion

The following outlines the selection process for members of the SWG:

Membership Categories - The SWG provides a unique opportunity for SANDAG to involve citizens with expertise in subject matter areas of regional interest as well as individuals who reflect the demographics of the region, with particular emphasis on communities that are not traditionally involved in regional planning processes. The SWG Charter (Attachment 1) includes two categories of membership: At-Large Citizen Representatives and Community-based Outreach Grant Recipients from Environmental Justice Communities. The recommendation in this report concerns the At-Large membership category only. The Board of Directors delegated authority to SANDAG staff to coordinate the membership selection and grant-making process for the second category.

Selection Committee - A committee was assembled to select the at-large citizen representatives to the SWG. At their meetings of May 1, 2009, the Transportation Committee appointed Councilmembers Matt Hall (City of Carlsbad) and Tony Young (City of San Diego) and the Regional
Planning Committee appointed Councilmember Lesa Heebner (Solana Beach) and Supervisor Pam Slater-Price (County of San Diego) to serve on the selection committee. The CTAC appointed Paul Vo (City of San Marcos) and Maryam Babaki (City of National City) at its meeting of June 4, 2009, and on May 14, 2009, the TWG appointed Gary Halbert (City of Chula Vista) and Bill Chopyk (City of La Mesa). The selection committee was chaired by SANDAG First Vice-Chair, Councilmember Jerome Stocks (City of Encinitas).

**Recruitment Announcements** - Advertisements and articles announcing the call for SWG membership applications were placed in the San Diego Union-Tribune, North County Times, La Prensa, and Asian Journal. A full page article was published in Spanish in El Latino. A press release was distributed to all regional and local media, e-mail notification was distributed to SANDAG e-mail lists, notices and a featured project were posted on the SANDAG Web site, and an item was featured in rEgion, the monthly SANDAG electronic newsletter.

**Selection Criteria** - The selection committee reviewed the membership applications and selected candidates based upon balancing the group by geography and interests, maximizing the number of groups the member is associated with, skills and abilities, experience with regional planning issues, and a demonstrated commitment to serve on the working group for approximately two years.

**Replacement Process** - Should at-large members drop out of the SWG for whatever reason, the selection committee also selected alternates by subregion. Alternates will be appointed by subregion alphabetically. Should the alternate list be exhausted, the selection committee will reconvene to review the remaining pool of applicants.

**Recommended Membership**

The selection committee recommended the following individuals to serve as at-large members and alternates on the SWG.

| RECOMMENDED REGIONAL PLANNING STAKEHOLDERS WORKING GROUP AT-LARGE CITIZEN MEMBERSHIP SLATE |
| Table 1 |

<table>
<thead>
<tr>
<th>City of San Diego</th>
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<tbody>
<tr>
<td>o Cary Lowe</td>
<td>o Barry Schulz</td>
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<tr>
<td>o Elyse Lowe</td>
<td>o Sandor Shapery</td>
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<tr>
<td>o Eddie Price*</td>
<td>o Andrea Skorepa*</td>
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<tr>
<td>o Stephan Russell</td>
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<tr>
<td>County of San Diego</td>
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<tr>
<td>o Michael Fitts</td>
<td>o Barbara Warner</td>
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<tr>
<td>o Oliver Smith</td>
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<tr>
<td>North County Coastal</td>
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<tr>
<td>o Holly S. McGoldrick</td>
<td>o Ervin Poka, Jr.</td>
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<tr>
<td>North County Inland</td>
<td></td>
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<tr>
<td>o Garry Knight</td>
<td>o Margarettte Morgan</td>
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<tr>
<td>East County</td>
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<tr>
<td>o Todd Galarneau</td>
<td>o Dennis Wahl</td>
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<tr>
<td>South County</td>
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<tr>
<td>o David Krogh</td>
<td>o Ditas Yamane*</td>
</tr>
<tr>
<td>o Ken Mitchell</td>
<td></td>
</tr>
<tr>
<td>* Affiliated with a minority organization with countywide constituent base</td>
<td></td>
</tr>
</tbody>
</table>
The selection committee recommended the following individuals as alternates to replace at-large members as needed.

**RECOMMENDED ALTERNATES**

Table 2

<table>
<thead>
<tr>
<th>City of San Diego</th>
<th>County of San Diego</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Daniel Allen</td>
<td>o Dennis Martinek</td>
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<tr>
<td>o Michael Boyle</td>
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<tr>
<td>o Nico Calavita</td>
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<tr>
<td>North County Coastal</td>
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<td>o Dennis Ridz</td>
<td>o Robert K. Leonard</td>
</tr>
<tr>
<td>East County</td>
<td>South County</td>
</tr>
<tr>
<td>o Lynda Brophy</td>
<td>o Tracey Rivera</td>
</tr>
</tbody>
</table>

**Next Steps**

If recommended by the Regional Planning and Transportation Committees, the Board of Directors will be asked to approve the SWG slate at its meeting on September 11, 2009. Staff was delegated the authority to proceed with the grant program for the Community-based Outreach members from the environmental justice community. The results of that process will be included in the staff report for the September 11 Board of Directors meeting. Following Board approval, the first meeting of the SWG would be held on Wednesday, September 16, 2009, from 4 to 6 p.m. at the Caltrans offices on Taylor Street in Old Town.

**BOB LEITER**
Director of Land Use and Transportation Planning

Attachment: 1. Regional Planning Stakeholders Working Group Charter

Key Staff Contact: Jane Clough-Riquelme, (619) 699-1909, jcl@sandag.org
Charter for Regional Planning Stakeholders Working Group

PURPOSE
The purpose of the Regional Planning Stakeholders Working Group (SWG) is to provide ongoing public input into key activities associated with developing the 2050 Regional Transportation Plan (RTP) and its key components, including its goals and objectives; a Sustainable Communities Strategy (SCS) required by Senate Bill 375 (2008); and laying the foundation for the next Regional Comprehensive Plan (RCP) update.

LINE OF REPORTING
Depending on the activity or element being considered, the SWG will act in an advisory capacity to either or both the Regional Planning Committee and/or Transportation Committee on specific 2050 RTP, SCS, and RCP elements. The Regional Planning and Transportation Committees in turn report to the SANDAG Board of Directors, which will make final decisions on the 2050 RTP, SCS, and RCP.

RESPONSIBILITIES
The SWG will review and provide input that staff will use to develop and adopt the 2050 RTP, as well as lay the foundation for the next RCP update. These activities may include, but are not limited to, the development of the 2050 Regional Growth Forecast, Sustainable Communities Strategy (SCS), Regional Housing Needs Assessment (RHNA), Urban Core Transit Strategy, and the RTP/SCS Public Participation Plan. The SWG also will assist with associated public outreach and help inform and encourage diverse, inclusive and active, public participation in achieving the SWG’s Purpose.

MEMBERSHIP
The SWG will have up to 25 members. Sixteen to 18 SWG members will be “at-large” members selected based on their individual qualifications as a citizen representative or their role as a community leader, and not as an organization’s designated representative. Of the 16 to 18 individual “at-large” members, up to four members will have experience with various minority organizations with countywide constituent bases (e.g., Chicano Federation of San Diego County, Council of Native American Organizations of San Diego County, San Diego Alliance for Asian Pacific Islanders, etc.). Five to seven members will be “community-based network” members that represent community-based organizations that will have been awarded a SCS/RTP Community-Based Environmental Justice Outreach Mini-Grant and will have executed a Mini-Grant Agreement.

If an at-large SWG member misses three meetings in a row or four meetings over the course of one year, s/he will be replaced. Community-based SWG members may formally designate up to two alternates in writing. If a Community-based SWG member misses three meetings in a row or four meetings over the course of one year without representation by one of his/her alternates, s/he will be replaced. Replacement at-large members will be selected from the approved waiting list created by the SWG Membership Selection Committee. Replacement “community-based network” members will be selected from the Community Based Outreach Mini-Grant finalists who were not previously awarded a grant.
MEETING TIME AND LOCATION
The SWG will meet on a monthly basis. Meetings will typically be held on the third Tuesday of the month from 4 to 6 p.m. at the Caltrans District 11 offices on Taylor Street in San Diego.

WORKING GROUP LEADERSHIP
The Chair of the SWG will be a member of, and will be appointed by, the SANDAG Board of Directors. The Chair will be a nonvoting member who will manage meetings and facilitate discussions amongst the membership. The SWG will elect two vice-chairs by a majority vote. One vice-chair will serve as an advisory member to the Regional Planning Committee while the other will serve as an advisory member to the Transportation Committee when invited by the applicable committee chair due to an RTP-related item being placed on the agenda.

DURATION OF EXISTENCE
The SWG will complete its work with the adoption of the 2050 RTP (anticipated in summer 2011).

BROWN ACT AND CONFLICT OF INTEREST
Consistent with Government Code Section 54952(b), the SWG is subject to the Ralph M. Brown Act. Input from the SWG will undergo intervening analysis by staff, the Regional Planning Committee, the Transportation Committee, and other committees and working groups. Therefore members of the SWG will not be required to submit Statements of Economic Interest (Form 700).
TransNet ENVIRONMENTAL MITIGATION PROGRAM: STATUS REPORT  File Number 1200201

Introduction

The TransNet Extension Ordinance and Expenditure Plan, approved by voters in November 2004, includes an Environmental Mitigation Program (EMP), which is a funding allocation category for the cost to “create a reliable approach for funding required mitigation for future transportation improvements thereby reducing costs and accelerating project delivery (TransNet Extension Ordinance Section D).” The EMP established two funds: (1) the Transportation Mitigation Fund for direct mitigation, management, and monitoring for transportation related impacts; and (2) the Regional Habitat Conservation Fund for efforts related to regional land acquisition, management and monitoring for implementation of the regional habitat conservation plans.

On February 22, 2008, the Board of Directors authorized a Memorandum of Agreement (MOA) with Caltrans, the California Department of Fish and Game, and the United States Fish and Wildlife Service to establish the process to implement the goals of the TransNet EMP. The MOA, executed on March 19, 2008, memorialized a Plan of Finance (POF) strategy of $440 million over the ten years for the Transportation Mitigation Fund and $40 million for the Regional Habitat Conservation Fund.

The MOA states, “Starting in 2010, and then once every two years thereafter, SANDAG will develop a report card to analyze the status and progress of the MOA implementing the goals of the TransNet EMP for presentation to the SANDAG Board as part of the update to the Regional Transportation Improvement Program (RTIP).” The intent of this report is to provide a brief update on the progress of the EMP since inception as an interim yardstick to measure progress until the 2010 report.

Discussion

Attachment 1 summarizes the progress of the Transportation Mitigation Fund. Since January 2008, nine properties have been acquired focused on the mitigation for State Route 76, Interstate 5, and advanced mitigation for other Regional Transportation Plan (RTP) projects and local streets and roads. A total of 697 acres have been acquired and corresponding letters that these lands can be used as mitigation for project-related impacts have been obtained. Two of the properties acquired under the EMP already have received subsequent federal permits showing that the process of advance acquisition of mitigation is working as envisioned. The focus for acquisitions has been to satisfy the biological mitigation needs of the SANDAG Early Action Projects as identified by the Board of Directors in the RTP. SANDAG, through its acquisition agent, Caltrans, is underway with over a dozen additional appraisals for future acquisitions of key parcels approved by the wildlife agencies across western San Diego County. It is expected that within one year, staff will have identified all of the biological mitigation for the TransNet Early Action Projects, and will be in the process of securing the opportunities accordingly.
Attachment 2 summarizes the progress of the Regional Habitat Conservation Fund. Since FY 2006, 30 land management grants have been awarded throughout the western San Diego region to help implement the San Diego region land manager’s efforts under regional habitat conservation plans to preserve and enhance habitat and endangered species. The grants have been awarded through a competitive program, which has resulted in a wide range of applicants, from large agencies to small nonprofit organizations, across a large geographic area. In addition, 12 multi-year projects for regional biological monitoring and management have been funded to establish the existing conditions of species and habitat within the regional preserve system. These contracts includes the succession of plants and animals resulting from the 2003 and 2007 wildfires, the status and distribution of the California gnatcatcher, the conditions and monitoring of the habitat within the preserve, and the establishment of monitoring protocols and the status of rare plants.

A final effort under the Regional Habitat Conservation Fund is the development of a regional entity to coordinate among land managers and biological monitoring efforts to maximize efficiency and reduce the cost of maintaining and monitoring these preserve systems. This includes using a scientific framework to review the data on land management and biological monitoring, combined with an assessment of the cost and effectiveness of actions to produce a strategic approach on how to best utilize limited funding.

Challenges

The TransNet EMP is a unique approach that is being discussed as framework for other parts of California and the United States. While staff has overcome many hurdles in its implementation, several challenges still exist.

Securing opportunities for wetlands remains a challenge. As shown on Attachment 2, there remains a large need for securing opportunities for coastal and freshwater wetlands. Wetland mitigation is significantly more challenging to secure due to the federal and state regulations to create new wetlands to achieve a “no-net-loss” of wetland acreage. These stringent requirements, combined with the desire of the regulatory agencies to have the mitigation occur within the same watershed as the impact, limit opportunities. SANDAG and Caltrans staff have employed a three-pronged approach to identifying and securing more lands for wetland mitigation. This includes focused efforts to target properties by staff, use of a consultant to model and validate opportunities unknown to staff, and a request for proposals to private and public land owners. These efforts are showing results and it is expected over the next year the amount of lands identified and secured for wetland mitigation will significantly increase towards the estimated need of the transportation projects.

Both the public and SANDAG leadership have requested a transparent, up-to-date system to depict the status of the EMP and to be able to track expenditures. Building off the existing TransNet Dashboard concept, staff has been working with a consultant to create an EMP Dashboard that will enable online access to the status of efforts under both the Transportation Mitigation Fund and the Regional Habitat Conservation Fund. The EMP Dashboard is expected to be completed in four to six months.

Finally, the question of how much saving has accrued under the EMP since the start of its implementation has been raised. Cost saving is measured by determining the ability for the early acquisition of mitigation land to be completed within the estimated budget. Land acquisition under the EMP has only occurred since January 2008. Many properties need to have restoration and management cost determined, as well as to obtain various permits. The TransNet EMP MOA
provides for a 10-year evaluation period with reporting every two years to establish opportunities for review. For the nine properties acquired to date, the total acquisition cost was $7.3 million (17.2% lower than the $2002 acquisition budget). This reflects the downturn in the real estate market. A complete picture of cost savings cannot be determined with such limited data; however, SANDAG will continue to monitor the budgets.

**Next Steps**

This report is intended to be a status update of the program. In June 2010, a more detailed report will be provided to the Transportation Committee for its consideration. This report was presented to the Independent Tax Oversight Committee and the EMP Working Group, and will be presented to the Regional Planning Committee on July 31, 2009, and the Board of Directors at its meeting this September.

BOB LEITER  
Director of Land Use and Transportation Planning

Attachments: 1. CIP Project Number: 1200200 Biological Mitigation Fund  
2. CIP Project Number: 1200300 Regional Habitat Conservation Fund

Key Staff Contact: Keith Greer, (619) 699-7390, kgr@sandag.org
CIP Project Number: 1200200 Biological Mitigation Fund

**Purpose:** Environmental Mitigation Program (EMP), Biological Mitigation Fund. To secure mitigation for projects in the Regional Transportation Plan and local streets and roads pursuant to the TransNet Extension Ordinance and the subsequent TransNet Implementation Memorandum of Agreement.

TransNet Environmental Mitigation Program
Mitigation Costs as of July 2009

- **Acquisition:** $35,008,633
- **Restoration:** $770,000
- **Management:** $870,000

As of July 2009, 697.5 acres of land have been acquired for mitigation under the TransNet EMP for regional and local transportation projects. The focus has been on properties for the TransNet Early Action projects, including State Route 76 expansion and the Interstate 5 corridor. Several properties will require the future restoration of habitat. The identification and acquisition of wetland mitigation opportunities is a significant challenge which staff actively is working to resolve.

Estimated Remaining Mitigation Needs:
Regional Transportation Plan Projects as of July 2009

- Coastal Wetlands (4.1 ac): 220.9 acres
- Freshwater Wetlands (83.4 ac): 411.6 acres
- Uplands (526.2 ac): 988.0 acres

An additional 83.8 acres of uplands acquired for local streets not included in chart.

**Status:**

As of July 2009, 697.5 acres of land have been acquired for mitigation under the TransNet EMP for regional and local transportation projects. The focus has been on properties for the TransNet Early Action projects, including State Route 76 expansion and the Interstate 5 corridor. Several properties will require the future restoration of habitat. The identification and acquisition of wetland mitigation opportunities is a significant challenge which staff actively is working to resolve.
**Purpose:** Environmental Mitigation Program, Regional Habitat Conservation Fund. In December 2006 and again in March 2008, the SANDAG Board of Directors authorized funding pursuant to the TransNet Extension Ordinance to maintain and enhance the habitat values of the regional conservation preserve system pursuant to a five-year funding strategy.

**Status:** Currently SANDAG has granted 30 projects for land management activities, and has funded twelve other regional management and monitoring projects ranging from post wildfire recovery to status monitoring of endangered species. In 2009, an effort to coordinate all the land management and monitoring activities started to achieve better efficiency of and effectiveness of efforts across the region.
Introduction

The TransNet Extension Ordinance and Expenditure Plan, approved by the voters in November 2004, include the Environmental Mitigation Program (EMP) which provides funding to mitigate habitat impacts from regional and local transportation projects, and provides funding for regional land management and biological monitoring. The EMP is a unique component of the TransNet Extension Ordinance in that it goes beyond traditional mitigation for transportation projects by including a funding allocation for habitat acquisition, management, and monitoring activities to help implement the regional habitat conservation plans. This funding allocation is tied to mitigation requirements and the environmental clearance approval process for projects outlined in the Regional Transportation Plan.

The purpose of this report is to recommend an update to the approved five-year EMP funding strategy, the allocation of FY 2010 funding, and modifications to land management grant criteria for FY 2010.

Discussion

Five-Year Funding Strategy and FY 2010 Allocations

On December 15, 2006, the Board of Directors approved a conceptual five-year funding strategy for the TransNet EMP Regional Conservation Fund for regional management and monitoring efforts. On September 26, 2008, the Board updated the five-year funding strategy. This conceptual funding strategy was designed to chart a course for the funding of land management and monitoring activities under the EMP. Annual allocations to implement this strategy are reviewed annually by the Board and approved accordingly.

Recommendation

The Transportation Committee is asked to recommend that the Board of Directors: (1) approve the updated Five-Year Conceptual Funding Strategic Plan, the proposed management and monitoring activities and budget for FY 2010 totaling $4 million, and, subject to Board Policy No. 017, authorize staff to solicit proposals and enter into contracts or amend existing contracts accordingly; and (2) adopt the modifications to the submittal and evaluation criteria for land management grants for FY 2010 as reflected in Attachment 2.
The EMP Working Group has reviewed the existing five-year funding strategy and has proposed minor changes as shown in Attachment 1 to address the current needs of regional management and monitoring. The only new activity proposed is the standardization of management plans around the region to provide for more consistency among plans and to increase the efficiency and cost-effectiveness of their implementation. The activities included in the five-year strategy can be reviewed at www.sandag.org/2009EMP. These activities have previously been discussed by the Policy Committees and approved by the Board of Directors during the previous adoption of the five-year funding strategy. The proposed funding levels are consistent with the TransNet EMP Memorandum of Agreement adopted on February 22, 2008, and the TransNet Extension Ordinance. Table 1 summarizes the recommended distribution of those funds for FY 2010 and the recommended approach for implementation of the proposed activities consistent with Board Policy No. 017 (Delegation of Authority).

TransNet EMP FY 2010 Land Management Grant Criteria

During the Fiscal Year 2009 grant review process, the EMP Working Group was asked by the Regional Planning Committee to review and possibly modify the FY 2009 land management grant criteria, to consider urban habitat management where people can see the benefits of their investment. The EMP Working Group reviewed the existing eligibility and evaluation criteria, and the need to consider urban habitat management during its July 14, 2009, meeting.

The EMP Working Group found that as a whole the eligible activities and the criteria for evaluation were still valid to address the management needs of the region. To assist in the review of grant applications the Working Group is recommending that additional information be provided on the allocation of the requested funding and any proposed matching funds, and to indicate how the matching funds are to be secured by the applicant.

Grant projects in urban areas that promote habitat management are eligible projects under the proposed grant guidelines. To promote greater awareness and exposure of land management activities to the public, the EMP Working Group is recommending that all applicants provide the following information which will be used when evaluating the proposed land management grants:

1. Estimated population that would directly benefit from the project (e.g., people living in the immediate vicinity of the project, recreational users of the project, etc.);
2. Number and proposed volunteer hours proposed on project;
3. Use of signage and interpretation features to educate public on purpose of project and the funding source(s) used; and
4. An access plan for public use, if applicable.

These additions would enable future evaluation panels the opportunity to better rate the grant’s ability to provide outreach to the public both in urban and non-urban areas.

The EMP Working Group also is recommending that SANDAG create standardized signage that will denote the use of TransNet funds to fund the grant project. SANDAG should send out a press release after any approval by the Board of Directors on grant projects, and the applicants should be required to send out a press release once the project has been completed.
Finally, SANDAG staff is proposing to make the application easier to complete by developing a “fill-in-the-blank” form that will either be online or sent out with the “call-for-projects.” This will allow standardization in the grant applications making it easier for applicants, evaluators and staff.

The revised grant criteria proposed for FY 2010 is shown in Attachment 2.

**Next Steps**

The recommendations of the Transportation Committee will be forwarded in September to the Board of Directors for consideration along with the recommendations from the Regional Planning Committee. If approved by the Board, staff will implement the proposed activities for FY 2010 and follow the updated criteria for land management grant during the FY 2010 call for grant projects. The EMPWG unanimously supported the approval of the guidelines on July 14, 2009.

BOB LEITER  
Director of Land Use and Transportation Planning

Attachments: 1. Updated Conceptual Five-Year Funding Strategy  
2. Project Submission Form for Consideration for TransNet Environmental Mitigation Program (EMP) Funding for Land Management (FY 2010 Funding Only)

Key Staff Contact: Keith Greer, (619) 699-7390, kgr@sandag.org
Table 1
Summary of Recommended FY 2010 Funding Allocation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Funding Allocated Prior Years FY 06-09</th>
<th>Proposed Funding FY 2010</th>
<th>Recommended Approach</th>
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Note: Some activities will require implementation over multiple years.

1 Funds encumbered in FY 2009 are available for this activity in FY 2010.
# Conceptual Five-Year Funding Strategy

*Updated 2009*

Changes shown in italic

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| **REGIONAL MANAGEMENT** |           |          |          |          |          |          |
| 10 Conserved Lands Database Development | $125,000  | $0       | $0       | $0       | $0       | $0       |
| 11 Land Management Implementation | $5,280,000 | $2,085,000 | $1,640,000 | $1,645,000 | $2,040,000 | $1,540,000 |
| 12 Invasive Species Mapping | $250,000  | $0       | $0       | $0       | $0       | $0       |
| 13 Updated Vegetation Mapping | $300,000  | $300,000 | $0       | $0       | $0       | $0       |
| 14 Enforcement | $220,000  | $150,000 | $0       | $0       | $0       | $0       |
| 15 Preserve level management plan standardization | $0       | $225,000 | $0       | $0       | $0       | $0       |
| **Subtotal Regional Management** | $6,175,000 | $2,760,000 | $1,640,000 | $1,645,000 | $2,040,000 | $1,540,000 |

| **REGIONAL MONITORING** |           |          |          |          |          |          |
| 16 Post Fire Monitoring | $1,725,000 | $0       | $325,000 | $325,000 | $325,000 | $325,000 |
| 17 Vegetation Monitoring | $295,000  | $0       | $0       | $0       | $165,000 | $165,000 |
| 18 Rare and Endemic Plant Monitoring | $300,000  | $0       | $0       | $295,000 | $0       | $0       |
| 19 California Snatchatcher Monitoring | $740,000  | $0       | $445,000 | $0       | $0       | $500,000 |
| California Coastal Cactus Wren Monitoring & Recovery | $300,000  | $150,000 | $150,000 | $150,000 | $150,000 | $150,000 |
| 21 Burrowing Owl Monitoring | $145,000  | $150,000 | $0       | $0       | $0       | $0       |
| 22 Rare Butterfly Monitoring | $170,000  | $60,000  | $120,000 | $120,000 | $0       | $0       |
| Wildlife Corridor and Linkages Monitoring (including genetic studies) | $100,000  | $200,000 | $100,000 | $100,000 | $100,000 | $100,000 |
| 24 Other Species Monitoring (e.g. priority 2 species) | $0       | $140,000 | $0       | $145,000 | $0       | $0       |
| **Subtotal Regional Monitoring** | $3,775,000 | $700,000 | $1,140,000 | $1,135,000 | $740,000 | $1,240,000 |

**TOTAL FUNDING STRATEGY** | $11,000,000 | $4,000,000 | $4,000,000 | $4,000,000 | $4,000,000 | $4,000,000 |

Note: Some activities will require implementation over multiple years.

1 Funds encumbered in FY09 are available in FY 2010
ENVIRONMENTAL MITIGATION PROGRAM (EMP)
FY 2010 LAND MANAGEMENT GRANTS -
PROGRAM OVERVIEW AND INSTRUCTIONS

Program Description

The TransNet Extension Ordinance and Expenditure Plan, as approved by the voters on November 2, 2004, includes an Environmental Mitigation Program (EMP). The EMP is a funding allocation category for the costs to mitigate habitat impacts for regional transportation projects. The EMP is a unique component of the TransNet Extension in that it goes beyond traditional mitigation for transportation projects by including a funding allocation for habitat acquisition, management, and monitoring activities as needed to help implement regional habitat conservation plans.

On September, 2009, the SANDAG Board of Directors approved land management and monitoring activities and a budget for FY 2010. The Board of Directors approved $2.085 million for land management projects related to (1) Invasive Control, (2) Fire Recovery, (3) Habitat Restoration, and (4) Access Control/Management and Garbage Removal.

Eligible Activities

SANDAG has allocated $2.085 million to address invasive species control, recovery and protection of resources damaged by the recent wildland fires, restoration of degraded habitat areas, and management to preclude unintended damage caused by recreation use. This is especially critical due to the potential for the establishment of invasive species in areas burned by the 2007 wildland fires, and the need for recovery and protection of areas until they naturally recover from the burns. It is envisioned that the $2.085 million would be part of a multi-year strategic approach to: (1) control key exotic species, (2) promote fire recovery, (3) provide habitat restoration, and (4) provide access control/management and garbage removal in the regional preserve system. The proposed activities could include active land management efforts that include one or more of the following activities:

1. **Invasive Control** – Projects that reduce existing or emerging invasive species that threaten endangered and/or other sensitive species.

2. **Fire Recovery** – Projects that promote natural recovery of post-burn areas such as erosion control features (e.g., silt fences), fiber rolls or straw wattles, straw or wood chip mulching, hydro-seeding and hydro-mulching, the strategic identification of potential target areas for restoration efforts, and sources of plant materials for current and future restoration activities.

3. **Habitat Restoration** – Projects that engage in active habitat restoration on post-burn and other degraded habitat lands to promote recovery of native vegetation communities and/or threatened, endangered, and other sensitive species habitat.

4. **Access Control/Management and Garbage Removal** – Projects that control access to managed trails and enforce legal use of the open space areas to allow these areas to recover as soon as possible to their pre-burn conditions. This includes signage (both interpretive and cautionary), education, patrolling public use, and law enforcement. In addition, efforts to remove garbage in existing preserve systems to allow habitat areas to recover also would be eligible activities.
Land management activities will be determined based on the needs of each property within the preserve. Projects that are not ready to start within 12 months of submission of the application to SANDAG would not be eligible for this funding cycle. A resolution from the applicant authorizing the grant application and committing to the proposed level of matching funds will be required or the proposed grant project will be dropped from consideration. Projects not started within 12 months of submission of the application will also lose funding.

**How Much Funding Is Available?**

On September 25, 2009, the Board of Directors approved $2,085,000 for FY 2010 land management activities. Additional funding may be available in FY 2011 pending approval by the Board of Directors.

**Process for Allocating the Funds**

SANDAG will accept project proposals from land managers in San Diego County that will benefit regional conservation planning under the Natural Communities Conservation Planning Program. The applicant must own the land, or be designated to manage the land by the land owner by contract or other written form of legal documentation. The land must be conserved as open space for natural resources. Representatives of the land owner and land manager must be identified on the application form and be authorized in writing to enter into a contract agreement with SANDAG.

Applicants must complete a project submission form that will be posted on the SANDAG website and/or mailed with the Call for Projects. The form will provide uniformed applications length and format when submitted to SANDAG.

All project proposals will be reviewed for eligibility, ranked, and prioritized using the criteria listed below. A list of recommended projects will be submitted for consideration to the EMP Working Group and the Regional Planning Committee (RPC), and the projects are subject to approval by the Board of Directors.

Successful applicants will then be eligible to enter into a contract with SANDAG for grant funding. Successful applicants would be required to submit quarterly reports on their progress and a final summary report of the project’s contribution to promote habitat conservation in the region along with the final invoice.

**Who Will Score The Projects?**

An evaluation committee will be made up of EMP Working Group members and/or other qualified individuals who do not have an affiliation with any of the proposed projects. The committee will include people with knowledge of the regional preserve system and land management.

**Proposed Schedule**

**October 15, 2009** – A call for projects is provided to EMP Working Group members and other interested stakeholders. A call for projects also will be posted on the SANDAG Web site.

**January 15, 2009** – Applications are due to SANDAG.
**February 2009** - The evaluation committee will review and rank projects following the criteria in Attachments 3 and 4, and forward the proposals to the EMP Working Group for consideration.

**April 2009** - The Environmental Mitigation Program Working Group will be providing a recommendation to Regional Planning Committee who will be asked to recommend a list of land management projects. The list of projects will be subject to approval by the Board of Directors.
PROJECT SUBMISSION FORM
For Consideration for TransNet Environmental Mitigation Program (EMP) Funding for Land Management (FY 20010 Funding Only)

General Information on the Property (Click on the fields below to begin typing. Please use as much space as is needed. Attach to front of Proposal).

Applicant Name:

Address:

Name of Property:

General Location:

Jurisdiction:

Total Acres:

Acres Requiring Management:

Owner(s) of Property:

Land Manager(s) of Property (include name(s), years of experience managing habitat lands, existing land management responsibilities, and references):

** If the applicant is not the landowner, please submit a letter or right-of-entry permit from the land owner granting permission to perform the land management duties as outlined in the application. Failure to provide the letter or right-of-entry permit will lead to disqualification of the application.
**Funding Needs**

1. How much money is being requested for this funding cycle? $

<table>
<thead>
<tr>
<th>Budget Item</th>
<th>Requested Funding Amount</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-personnel Expenses</td>
<td>$</td>
<td>Includes all equipment and supplies.</td>
</tr>
<tr>
<td>Personnel Expenses Staff</td>
<td>$</td>
<td>Includes all staff time for work on the project</td>
</tr>
<tr>
<td>Consultant Expenses</td>
<td>$</td>
<td>Includes all cost for consultant services</td>
</tr>
<tr>
<td>Administrative Expenses</td>
<td>$</td>
<td>All cost to administer the contract</td>
</tr>
<tr>
<td>Overhead</td>
<td>$</td>
<td>All indirect charges for overhead on the project</td>
</tr>
</tbody>
</table>

2. Are there matching funds available? □ Yes or □ No
   If yes, please provide the source of funds and dollar amount: $
   If yes, how are the matching funds assured?

<table>
<thead>
<tr>
<th>Budget Item</th>
<th>Proposed Matching Funding</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-personnel Expenses</td>
<td>$</td>
<td>Includes all equipment and supplies.</td>
</tr>
<tr>
<td>Personnel Expenses Staff</td>
<td>$</td>
<td>Includes all staff time for work on the project</td>
</tr>
<tr>
<td>Consultant Expenses</td>
<td>$</td>
<td>Includes all cost for consultant services</td>
</tr>
<tr>
<td>Administrative Expenses</td>
<td>$</td>
<td>All cost to administer the contract</td>
</tr>
<tr>
<td>Overhead</td>
<td>$</td>
<td>All indirect charges for overhead on the project</td>
</tr>
</tbody>
</table>

3. What management activities will be done on the property? Please list each activity and its associated cost, and an implementation schedule including time frames for each activity (you may reference the project’s scope of work):

4. Are there any federal or state permits required for these activities? □ Yes or □ No
   If so, are there associated costs for these permits? □ Yes or □ No
   If so, are the permit costs included in the request? □ Yes or □ No

**Biological Significance**

1. Does the property support or did it support natural vegetation in a core area? □ Yes or □ No
   If yes, list the habitats contained on the property:

2. Does the property contribute to the Natural Communities Conservation Program regional preserve system? □ Yes or □ No

3. Is the property a linkage or regional wildlife corridor? □ Yes or □ No
4. Are there, or were there, significant populations of covered species or species proposed for coverage by a habitat conservation plan? □ Yes or □ No
   If yes, please list the species:

**Risk**

1. Does the site suffer from natural, human, or domestic animal disturbance (e.g., off-road vehicle use, grazing, fire, flooding, and/or feral cats)? □ Yes or □ No
   If yes, list the type(s) of disturbance:

2. Do exotic, invasive species threaten the preserve? □ Yes or □ No
   If yes, list the species:

3. Is there uncontrolled erosion? Uncontrolled access? □ Yes or □ No
   If yes, identify the source if possible:

4. Is immediate action needed to address a problem, or else the site would degrade further? Would the further degradation potential affect covered species?
   □ Yes or □ No
   If yes, explain:

**Cost-Effectiveness**

1. Does the proposal use efficient and proven methods and/or strategies to address the land management needs that would result in a high likelihood of success and reduce future land management costs? (e.g., control of small outbreak of aggressive exotic species, fencing to prevent damage to rare plant populations)
   □ Yes or □ No
   If yes, explain:

2. Does the proposal implement a strategic approach which covers large geographic areas (e.g., watershed or subwatershed extent) involving multiple partners and providing multiple benefits (e.g., part of a larger coordinated effort) (i.e., High Economy-of-Scale)? □ Yes or □ No
   If yes, explain:

3. How would the project result in measurable biological success to implement the Natural Communities Conservation Program regional preserve system? What measurable results would be used to determine success of the project? explain:

**Outreach and Public Education**

4. Would the project involve the public outreach/public participation to identify the land management activities being funded and promote awareness of grant funded project? □ Yes or □ No
   If yes, please explain and include the following in your explanation
   a. Estimated number of public to benefit from the project,
   b. Number and proposed volunteer hours proposed on project,
   c. Use of signage and interpretation features to be use to educate public on purpose of project,
PROJECT PROPOSAL (not to exceed 10 pages when combined with (Project Submission Form)

The proposal will include the purpose of the project, the scope of work, timeline, and costs. Applicants must clearly identify their proposed tasks in the scope of work, funding requested for each task (please identify staff hours and cost separately from consultant costs), start and end dates of the tasks, and deliverables. The first page of the proposal needs to include an Executive Summary of the project. Applicants are encouraged to identify phasing in their proposal in case full-funding for the project is not available.

REVIEW OF THE CONSERVED LANDS DATABASE

All proposed projects should be on lands that are conserved for the primary purpose of protecting open space and natural resources. Lands not conserved as open space for natural resources are not eligible for this grant funding.

Applicants should ensure that their property(ies) are in the conserved lands database and are accurately portrayed. This database can be accessed at http://gis.sandag.org/ConservedLand. If your property is not included in the database or is not accurately shown in the database, please contact SANDAG to add, correct, or update the information. SANDAG will use this database (including any revisions by applicants) to determine if the land is conserved as open space and is warranted consideration to receive grant funds. Projects proposed for consideration that are not in the conserved lands database will not be eligible to receive grant funds.
EMP Criteria for Eligible Management Projects (FY 2008 Funding)

Is the project biologically significant?
For example:
- Does it, or did it, support natural vegetation in a core area?
- Is the project important? Does it contribute to the Natural Community Conservation Planning regional preserve system?
- Is it a linkage or regional wildlife corridor?
- Are there, or were there, significant populations of covered species or species proposed for coverage by a habitat conservation plan?

Yes

Is the project area at risk of further degradation if no management is provided?
For example:
- Was the site affected by the 2003 and/or 2007 wildfires and requires land management to recover?
- Does the site suffer from human or domestic animal disturbance (e.g., off-road vehicle use, grazing)?
- Do exotic, invasive species threaten the preserve?
- Uncontrolled erosion? Uncontrolled access?

No

STOP PROJECT INELIGIBLE

Yes

Is funding necessary to complete the project as verified by the Wildlife Agency?

Yes

ELIGIBLE PROJECT: Prioritization of eligible projects. Factors for consideration:
- Sites that support rare vegetation types, narrow endemics, or cover species at risk of extirpation (e.g., Tier 1 habitats, vernal pools, cactus wren).
- Critical linkage parcels or regional wildlife corridor.
- Success of management activities is likely with clear measurable positive results (e.g., Arundo removal at the top of a watershed will receive higher priority than a site in the middle).
- Lack of management on the site may affect continued coverage of species.
- Dedicated staff (agency, jurisdiction, non-governmental organization) willing to assume long-term management.
- Percentage of matching contributions available to complete the project.
- Urgent action is needed to address a problem, or else the area would degrade further.
- Projects that propose to implement a strategic approach which covers large geographic areas involving multiple partners and multiple benefits (e.g., watershed approach for exotic species removal).
- Projects that promote public awareness of grant activity through public outreach and participation.
**Project Eligibility Evaluation and Ranking**

Note: Do not fill out this section. This section is to be used by the project evaluation committee. The total scores for all the submitted projects will be converted to a rank value for each of the evaluation members.

Name of Property: __________________________________________________________

Name of Reviewer: __________________________________________________________

<table>
<thead>
<tr>
<th>Project Evaluation Criteria</th>
<th>Point Range</th>
<th>Weight</th>
<th>Maximum Score Possible</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of management on site may affect coverage of species.</td>
<td>0-5</td>
<td>5</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Site supports rare vegetation types, populations of narrow endemics or species at risk of extinction (e.g., Tier 1 habitat, vernal pools, cactus wren).</td>
<td>0-5</td>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Critical linkage parcels or in regional wildlife corridor.</td>
<td>0-5</td>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Long term success of management activities is likely with clear measurable positive results which will reduce future land management costs. High Cost-Effectiveness</td>
<td>0-5</td>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Urgent action is needed to address a problem or else the site would degrade further.</td>
<td>0-5</td>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Dedicated staff (agency, jurisdiction, non-government organization) willing to assume long-term management.</td>
<td>0-5</td>
<td>3</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Project part of a larger strategic effort which covers a large area with multiple partners and multiple benefits? High Economy-of-Scale.</td>
<td>0-5</td>
<td>3</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Sufficient matching funds available to complete the project.</td>
<td>0-5</td>
<td>2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Project promotes public awareness of sustainable land management through public outreach and participation.</td>
<td>0-5</td>
<td>2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>155</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PRELIMINARY DRAFT REGIONAL ENERGY STRATEGY UPDATE

Introduction

Last updated in 2003, the adopted Regional Energy Strategy (RES) serves as the energy policy blueprint for the San Diego region, with a primary focus on electricity and natural gas supply and demand issues including resource choices and energy efficiency. With the emergence of climate change as an urgent global challenge and significant energy policy changes in California, an update to the RES was initiated last summer and funded in part through a partnership with the California Energy Commission. Since then, the Energy Working Group has been overseeing development of the draft at its monthly meetings. Regular status reports on the RES update have been provided to the Regional Planning Committee.

Discussion

The Preliminary Draft RES Update is a policy document intended to support regional and local decision-making related to energy issues. It assesses regional need for various energy resources and infrastructure and can inform decision-making in the San Diego region. It does not make recommendations on specific energy projects (e.g., power plants or transmission lines). The Preliminary Draft RES Update serves as an energy roadmap that lays out a path for the region and provides direction and guidance to local energy planning, legislative priorities, and public outreach. As a starting point, the Preliminary Draft RES Update establishes guiding principles to form a regional vision for 2030. It also identifies twelve regional energy goals with objectives, policies and actions that can benefit the region. The topic areas are:

- energy efficiency
- renewable energy
- distributed generation
- energy and water
- smart grid
- peak demand
- natural gas
- transportation fuels
- land use and transportation planning
- energy and borders
- clean energy economy
- energy and climate change

Progress on the Preliminary Draft RES Update has been discussed by the Board of Directors, Regional Planning Committee, Regional Planning Technical Working Group, and Borders Committee. SANDAG adopted its first regional energy plan in 1979. Subsequent regional energy plans were adopted in 1984, 1994, and 2003.
Pending direction from the Regional Planning Committee, staff would distribute the draft document to seek comment from stakeholders and the general public. In addition, a public workshop is planned at the California Center for Sustainable Energy, the region’s nonprofit energy center on August 4, 2009, from 5:15 to 7:45 p.m. Staff will return to the Transportation Committee and Regional Planning Committee in the fall to seek further input and discuss any changes to the document based on the public review process. A final strategy will be presented to the Regional Planning Committee and Board of Directors for consideration beginning in October 2009.

BOB LEITER
Director of Land Use and Transportation Planning

Attachment: 1. Preliminary Draft Regional Energy Strategy Update

Key Staff Contact: Susan Freedman, (619) 699-7387, sfr@sandag.org
PRELIMINARY DRAFT

REGIONAL ENERGY STRATEGY UPDATE

This document is a preliminary draft of the Regional Energy Strategy (RES) Update. The final draft will incorporate comments received in the public review process and include an Executive Summary.

Comments on this document should be provided to Susan Freedman, staff, at sfr@sandag.org by August 21, 2009.

SAN DIEGO ASSOCIATION OF GOVERNMENTS

July 31, 2009
PRELIMINARY DRAFT REGIONAL ENERGY STRATEGY UPDATE

INTRODUCTION

San Diego has a long history of regional energy planning. SANDAG adopted its first regional energy strategy in 1979, with subsequent strategies adopted in 1984, 1994, and 2003. Concurrent with adoption of Regional Energy Strategy 2030 in 2003, the SANDAG Board of Directors established the Regional Energy Working Group to provide input to the SANDAG Regional Planning Committee and Board on coordination and implementation of the 2003 RES.

The 2003 RES focused primarily on electricity and natural gas supply and demand issues, including resource choices and energy efficiency. Serving as the energy policy blueprint for the region, similar to the state’s Integrated Energy Policy Report, the 2003 RES has helped the region develop programs for energy efficiency and renewables, set legislative priorities, make recommendations to state regulatory and policy proceedings and the local utility (SDG&E), obtain funding, and implement SANDAG’s Sustainable Region Program.

THE NEED FOR AN UPDATE

Since adoption of the 2003 RES, significant energy policy changes have occurred from the state to the international level. SANDAG’s decision to prepare the RES Update is based on the major policy changes related to global climate change and California’s preferred loading order.

Global Climate Change

Global climate change has emerged as the defining challenge of the 21st century, with the Intergovernmental Panel on Climate Change (IPCC) reporting that greenhouse gas (GHG) emissions from human activities have begun to destabilize the Earth’s climate. The Intergovernmental Panel on Climate Change is the leading international scientific body for the assessment of climate change, established by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO) to provide the world with a clear scientific view on the current state of climate change and its potential environmental and socio-economic consequences. The changing climate threatens the public health, economy, and environment of the San Diego region, California, and the entire world. Projected adverse climate change impacts to the San Diego region include hotter temperatures, sea level rise, water shortages, more frequent and intense wildfires, increased risks to public health, loss of native plant and animal species, and increased demand for electricity.

California has responded to the challenge of climate change in many ways, including passage of the California Global Warming Solutions Act of 2006 (Assembly Bill 32, Statutes of 2006). Among other things, this legislation establishes the 1990 emissions level as the statewide limit for 2020; an approximately 15 percent reduction from the current level. Moreover, Executive Order S-3-05 establishes a long-term climate goal for the state of reducing emissions an additional 80 percent below the 1990 level by 2050. The types of energy sources, and how much they are used, are the primary contributors to climate change in the San Diego region. As shown in Table 1, 91 percent of all GHG emissions are related to energy.

<table>
<thead>
<tr>
<th>Intergovernmental Panel on Climate Change Category</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>91%</td>
</tr>
<tr>
<td>Industrial (non-fuel)</td>
<td>5%</td>
</tr>
<tr>
<td>Waste</td>
<td>2%</td>
</tr>
<tr>
<td>Agriculture, Forestry, Land Use</td>
<td>2%</td>
</tr>
</tbody>
</table>

*Source: Energy Policy Initiatives Center, University of San Diego, 2008.*

Although many activities consume energy, most of the region’s energy consumption and related GHG emissions is due to the movement of people and goods in the on-road transportation sector, electricity generation that provides power to homes and businesses, and natural gas for end uses like space heating and cooking. As shown in Figure 1, nearly half of the region’s 34.5 million metric tons of carbon dioxide equivalent (MMTCO2e) emissions (47 percent) are the result of transportation fuel consumption (i.e., passenger cars, light-duty trucks, heavy-duty
vehicles), with the vast majority of transportation fuel-related emissions (89 percent) generated by personal transportation in automobiles (i.e., passenger cars and light-duty trucks).

**Figure 1: Summary of Greenhouse Gas Emissions by End-Use Category**

![Diagram showing greenhouse gas emissions by end-use category]

The level of GHG emissions from on-road transportation is due to the region’s near total dependence on petroleum-based gasoline and diesel fuel, average vehicle efficiency, and levels of driving. On-road transportation also comprises a significant proportion of GHG emissions statewide. In response, the state has enacted several transportation-related laws calling for petroleum reduction, development of low-carbon and alternative fuels, increased vehicle efficiency, and improved land use and transportation planning. Due to concern for climate protection and in line with the state’s policy framework, the RES Update focuses on reducing GHG emissions from transportation fuel consumption by transitioning the region away from petroleum-based fuels and reducing automobile dependence through improved land use and transportation planning.

**Table 2: Electricity Resource Mix**

<table>
<thead>
<tr>
<th>Resource</th>
<th>CA</th>
<th>SDG&amp;E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>16%</td>
<td>18%</td>
</tr>
<tr>
<td>Large Hydro (&gt;30 MW)</td>
<td>19%</td>
<td>10%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>41%</td>
<td>49%</td>
</tr>
<tr>
<td>Nuclear</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>Renewables</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Total Mix:</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Sources of Renewables**

<table>
<thead>
<tr>
<th>Resource</th>
<th>CA</th>
<th>SDG&amp;E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomass</td>
<td>19%</td>
<td>38%</td>
</tr>
<tr>
<td>Geothermal</td>
<td>43%</td>
<td>25%</td>
</tr>
<tr>
<td>Small Hydro (&lt;30 MW)</td>
<td>19%</td>
<td>6%</td>
</tr>
<tr>
<td>Solar</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Wind</td>
<td>17%</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Total Renewables</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>


Electricity and natural gas-end uses account for about one-third (33 percent) of GHG emissions in the region. The level of GHG emissions from electricity generation and natural gas end-uses is explained by the region’s reliance on natural gas and out-of-state coal for about two-thirds (67 percent) of the electricity mix, and total amount of energy demand, including peak demand. Older and relatively inefficient natural gas power plants, buildings, and end-use equipment also contribute to the level of emissions from electricity and natural gas. Resources comprising the electricity mix for the State of California and SDG&E are provided in Table 2.

Although many of the goals and actions identified in the RES Update will have beneficial impacts on the region’s GHG emissions, energy and climate change are not synonymous issues. As a result, SANDAG is also preparing a Regional Climate Action Plan to accompany the RES Update. These highly related plans will complement each other, with cross references provided where applicable.

**The Preferred Loading Order**

After adoption of the 2003 RES, California adopted a preferred loading order to meet increasing demand for electricity. The loading order consists of decreasing electricity demand by increasing energy efficiency and demand response, and meeting new generation needs first with renewable and distributed generation resources, and
second with clean fossil-fueled generation. Regional implementation of the loading order is a major focus of the RES Update.

**Figure 2: The Preferred Loading Order**

Among the loading order preferred resources, “energy efficiency” includes programs that require buildings and appliances to be constructed in a manner that uses less energy, provide incentives for purchasing energy efficient equipment, and provide information and education to encourage people to save energy. “Demand response” includes new rate designs, which provide customers lower electricity prices during most hours in exchange for higher prices during the peak hours when supply reserves are small and electricity typically costs more, and programs that provide incentives for on-peak load reductions. “Renewable resources” include forms of electricity generation that naturally replenish themselves, including energy from wind, solar, small hydroelectric, geothermal, and biomass. “Distributed generation” is electricity that is produced by the customer or utility who will use some or all of it locally. Examples include small fuel cells, rooftop photovoltaic solar systems, or cogeneration systems that simultaneously produce electricity and heat or steam for on-site use.

**BENEFITS OF A REGIONAL ENERGY STRATEGY**

The Regional Energy Strategy establishes a framework to guide a long-term energy strategy for the region. Benefits of developing a regional energy plan include:

- Identifying region-specific energy issues, such as increasing the diversity of energy supply in the region or reducing energy intensity of water and wastewater processes;
- Identifying commonly held principles or unique aspects about the region that may differ from those of state policymakers and utility planners;
- Prioritizing regional energy issues, guiding future actions and decisions in the region;
- Establishing a mechanism to implement regional goals;
- Representing shared regional interests at appropriate proceedings such as a utility’s long-term procurement plan or state regulatory and legislative activities;
- Helping local governments represent their interests in the energy arena and increase energy-efficiency; and
- Realizing the co-benefits of energy policies such as improved air quality, public health, job creation, and financial savings.

**THE REGIONAL ENERGY STRATEGY UPDATE**

The RES Update is a policy document written for regional and local decision-makers – an audience that can influence and implement changes in the region that impact our energy use. The RES Update does not make recommendations on specific energy projects (e.g. power plants or transmission lines); it does assess regional need for various kinds of energy resources and infrastructure. The RES Update also does not replace San Diego Gas and Electric’s long term procurement plan, which the utility is required to develop for the California Public Utilities Commission. SDG&E’s plan is written within constraints regulated by the CPUC and focuses on providing adequate supply for the next ten years. The RES Update provides a vision out to 2030 that can inform decisions made by SDG&E and the CPUC for the procurement plan.
2030 Vision

By formulating a regional energy vision, establishing goals and policies to manifest that vision, and representing the vision in legislative, regulatory, and market-based planning activities, a regional energy plan can guide energy supply and demand choices influenced by regional and local governments. A regional energy plan not only can influence local choices but also provide a regional perspective to state and federal efforts. Stakeholder and public involvement have been integral to development of the Regional Energy Strategy vision for 2030:

**REGIONAL ENERGY STRATEGY VISION FOR 2030:**

- Energy Needs Are Met Sustainably
- Lower Greenhouse Gas Emissions
- High Levels of Education and Consensus
- A Robust Clean Energy Sector
- Improved Social Equity and Environmental Justice
- Electricity Resources are Cost-Effective and Sustainable
- A Modernized Electricity Grid
- Existing Buildings are Highly Efficient
- Energy Efficiency Promotes Lower Renewable Energy System Costs
- New Buildings Achieve Zero Net Energy Status
- Communities are Designed to Lower Energy Consumption
- Infrastructure is Widely Deployed to Support Alternative Fuels and Vehicles

**Connection to the Regional Comprehensive Plan**

SANDAG’s Regional Comprehensive Plan (RCP) integrates the array of local and regional plans in land use, transportation and supporting infrastructure that maintain the region’s quality of life. The RCP creates a regional vision and provides a broad context in which local and regional decisions can be made that foster a healthy environment, a vibrant economy, and a high quality of life for all residents.

**Regional Comprehensive Plan Vision:**

*To preserve and enhance the San Diego region’s unique features – its vibrant and culturally-diverse communities, its beaches, deserts, mountains, lagoons, bluffs, and canyons, and its international setting – and promote sustainability, economic prosperity, and an outstanding quality of life for everyone.*

The vision balances regional population, housing, and employment growth with habitat preservation, agriculture, open space, energy and other infrastructure needs. The intent of the vision is to move San Diego toward a sustainable future with more choices and opportunities for all residents. The vision looks beyond our borders and considers the planning and growth underway in Imperial, Orange, and Riverside Counties as well as in Baja California, Mexico. The Regional Energy Strategy, its vision, guiding principles and goals, all fit within the larger regional vision adopted in the Regional Comprehensive Plan.
Goals and Recommended Actions

The following sections of the RES Update put forth goals and recommended actions in twelve topics areas to implement the regional vision. Online technical chapters will provide further detail for each topic area and be available on the SANDAG website.

<table>
<thead>
<tr>
<th>REGIONAL ENERGY STRATEGY UPDATE TOPIC AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Energy Efficiency and Conservation</td>
</tr>
<tr>
<td>2. Renewable Energy</td>
</tr>
<tr>
<td>3. Distributed Generation</td>
</tr>
<tr>
<td>4. Energy and Water</td>
</tr>
<tr>
<td>5. Peak Demand</td>
</tr>
<tr>
<td>6. The Smart Grid</td>
</tr>
<tr>
<td>7. Natural Gas</td>
</tr>
<tr>
<td>8. Transportation Fuels</td>
</tr>
<tr>
<td>9. Land Use and Transportation Planning</td>
</tr>
<tr>
<td>10. Border Energy</td>
</tr>
<tr>
<td>11. Clean Energy Economy</td>
</tr>
<tr>
<td>12. Energy and Climate Change</td>
</tr>
</tbody>
</table>
1 - ENERGY EFFICIENCY AND CONSERVATION

Goal: Through conservation and energy efficiency, achieve a 20% reduction in per capita electricity consumption by 2030 in order to keep total regional electricity consumption flat.

<table>
<thead>
<tr>
<th>Measures</th>
<th>2030 Reductions (2007 baseline)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased utility energy efficiency program funding</td>
<td>675 GWh 3.0 %</td>
</tr>
<tr>
<td>Comprehensive residential building retrofit program</td>
<td>1482 GWh 6.7 %</td>
</tr>
<tr>
<td>Comprehensive commercial building retrofit program</td>
<td>572 GWh 2.6 %</td>
</tr>
<tr>
<td>New construction building standards (post-2009 updates)</td>
<td>260 GWh 1.2 %</td>
</tr>
<tr>
<td>Appliance standards (post-2009 updates)</td>
<td>447 GWh 2.0 %</td>
</tr>
<tr>
<td>Total electricity reduction from above Energy Efficiency Measures</td>
<td>3438 GWh 15.6 %</td>
</tr>
<tr>
<td>Reduction in total electricity consumption due to energy efficiency</td>
<td>22 GWh 0.1 %</td>
</tr>
<tr>
<td>Reduction in per capita electricity consumption due to energy efficiency</td>
<td>n/a 22.2 %</td>
</tr>
</tbody>
</table>

Source: California Center for Sustainable Energy, 2009.

The Regional Energy Strategy uses the California Energy Commission’s June 2009 electricity consumption forecast for its targets and analysis. SDG&E also relies on the Energy Commission’s forecast for its resource planning. The chart below depicts regional consumption if current trends continue. The region’s total electricity consumption from 2007 (18,648 GWh) is expected to increase by about 10% in 2020 (to 20,555 GWh) and 21% in 2030 (to 22,647 GWh). This increase is after accounting for an existing level of funding continuing for energy efficiency programs, and reductions from existing efficiency standards for buildings and appliances. The 2009 forecast is actually about 10% lower than what was forecast two years earlier and is attributed primarily to the worsening statewide economy. Even though the forecast is lower, it does not change the region’s need take additional actions to slow and flatten expected growth in total electricity consumption.

As the current trend of total regional electricity consumption continues to grow, per capita consumption is projected to remain flat through 2030. Consumers are using more electronic products and appliances today, but energy-saving measures like conservation and energy efficiency standards have been effective in maintaining per capita consumption. The reason for overall growth is that San Diego County’s population is expected to grow by one million people between now and 2030. Therefore, the region will need to have sufficient energy to accommodate its future growth. The cheapest and most effective way to provide for increased population growth is through energy efficiency and conservation. If efficiency measures above and beyond what already exist today
do not occur, the region’s total electricity consumption will continue to grow and additional electricity sources will need to be financed and built.

California requires utilities to follow a “preferred loading order” when seeking additional electricity supplies. Under this law, utilities must seek new electricity resources first through conservation and energy efficiency, and then demand response programs, followed by renewable energy and clean distributed generation, and finally conventional fossil-fuel based generation. This is depicted in the graphic on the right, which identifies the highest priority and most-used resources at the base of the pyramid and the last choice resources at the top of the pyramid.

Keeping total electricity consumption flat will require increased energy conservation and efficiency efforts. Energy conservation is associated with changes in behavior, such as turning off lights and changing thermostat settings, that decrease the quantity of energy used. Energy efficiency refers to structural changes, such as replacing appliances with more efficient versions, changing incandescent lamps for compact fluorescent (CFL) or light-emitting diode (LED) lamps, or tuning up building systems to improve their energy performance. Efficiency and conservation are necessary and complimentary.

![Figure 4: San Diego County Projected Impacts of Energy Efficiency Measures 2010-2030 (above and beyond business as usual)](image)

Source: California Center for Sustainable Energy, 2009.

Existing residential and commercial buildings use the most electricity in the San Diego region, as depicted in the chart below. Conservation and efficiency targeting existing buildings will provide the greatest electricity savings for the San Diego region. In addition to reducing utility bills, demand on the electricity grid, and associated greenhouse gases; energy efficiency is known to increase comfort and durability of structures and reduce waste and pollution. California energy codes (Title 24) were established in 1982 and are regularly updated as relevant cost-effective improvements become available. Energy codes are enforced by local governments at the time of construction. In general, efficiency upgrades are not required afterward; therefore the improvements included in subsequent energy codes are not captured by existing buildings. Continuing training and education for building officials and building industry workers on Title 24 updates will increase understanding and enforcement of the building energy codes.
Numerous energy efficiency programs exist for homes and businesses, but they generally address singular components of a building. Longer-term and larger energy savings can be achieved through more comprehensive or holistic programs that take an integrated approach to each building, evaluating its specific condition and prioritizing the most attractive measures together in a package. Types of measures can include lighting, insulation, space and water heating, space cooling, ductwork, weatherization, electronics, appliances, swimming pools and spas.

Such a performance-based approach enables the building owner to make a well-informed decision. Program efforts will have the greatest impact, and will achieve greater benefits for the customer and region, when efficiency options are presented to the consumer in a coherent and integrated form, and combined with the proper education.

San Diego regional natural gas consumption is expected to grow to 660 MMTh in 2020 and 730 MMTh in 2030 as shown below. As demand for natural gas continues to grow in the region, coupled with volatile prices, priority must be made to utilizing natural gas in the most energy efficient manner and where applicable and cost-effective, replacing it with a renewable fuel.

Within buildings, lighting usually comprises the largest portion of electricity usage, roughly 20-25% of the total. In homes located in hot climates such as inland San Diego, air conditioning is likely to be the largest single energy user. Central, wall-unit, and so-called “split” air-conditioning systems sold today can use significantly less energy than older systems. “Plug loads” collectively account for around 25% of overall household energy use in California—and more than the refrigerator in most homes. Plug loads are smaller electrical devices or appliances that draw power through an electric outlet, such computers and their peripherals; televisions and entertainment systems; and a wide variety of electronics and rechargeable devices. Further, many electronics and electronic components of appliances use electricity even when the device is not being used; consumers are largely unaware that they are paying higher electricity bills to cover this “phantom” usage, also called “standby” power. Some estimates show standby power to be as much as 10% of a newer home’s electric consumption.

State and federal governments work with manufacturers to establish and strengthen energy standards for appliances and electronics to reduce demand from plug loads. Consumer education about plug loads and efficient appliances in the marketplace can also reduce electricity consumption. State and regional per-capita consumption have been able to remain relatively flat, while many more electronic devices are in homes and buildings, due to technological improvements through standards and consumer action to purchase more energy-efficient products.
To determine how much energy an existing building uses, including the devices plugged into its electrical outlets, an energy audit serves as an essential first step. The audit can identify both energy usage and opportunities where energy can be saved. The “Home Energy Rating System” program, better known as HERS program, is a nationally-recognized system to conduct whole-house energy assessments. HERS raters perform a comprehensive audit for existing homes. Building performance contractors are certified to perform audits for residential and nonresidential buildings as well. There is a significant lack of trained HERS raters in the San Diego region and this void will need to be filled.

An energy audit can discover inefficiencies and provide solutions for increased efficiency. In addition, the audit is an opportune time to assess the potential for installing a distributed generation system, such as rooftop solar photovoltaics (PV) or a fuel cell, along with or after any energy efficiency improvements. This topic is addressed further in the Regional Energy Strategy distributed generation goal.

Once an energy audit is completed and conservation opportunities identified, additional help is needed for building and home owners to cover associated upfront purchase and installation costs. Energy-efficiency financing mechanisms exist but some are new, not well known, not widely used, or only available to certain customers. Mechanisms include utility bill financing, property-assessed financing, energy-efficient mortgages, low interest loans for energy efficiency improvements, rebates, incentives, and federal and state tax credits. A local workforce of trained contractors also is needed to perform the building retrofits necessary to reduce per capita electricity consumption and keep the region’s total electricity consumption flat.

**Recommended Actions:**

- Promote energy efficiency and conservation as the easiest and cheapest methods to reduce energy use and associated greenhouse gas emissions.
- Promote energy conservation within local governments and to the region’s residents, businesses, and schools.
- Support a comprehensive energy efficiency program that targets existing residential and commercial buildings.
- Identify and support financing mechanisms that can enable more building owners to undertake energy audits and retrofits.
- Develop and provide regionally-consistent consumer information on plug loads, air-conditioner replacement, energy audits, and finance measures that all local governments can use online, at events, permit desks, and other outreach mechanisms.
- Prioritize comprehensive energy efficiency measures that use electricity and natural gas more efficiently and target sectors with largest energy-saving potential.
- Support and promote targeted air-conditioning tune up and replacement program.
- Support local workforce training and education on HERS rating and whole-building improvements.
- Support state building and appliance standard improvements that reduce energy consumption.
- Support training and education to building officials and associated building trades on energy codes.
2 - RENEWABLE ENERGY

Goal: Increase renewable energy supply that provides cleaner fuel options big and small.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>San Diego Regional Peak Demand in megawatts</td>
<td>2,695</td>
<td>3,159</td>
<td>4,244</td>
<td>4,205</td>
<td>4,677</td>
<td>5,203</td>
</tr>
<tr>
<td>RES 2030 targets from 2003</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>5.2%</td>
<td>15%</td>
<td>25%</td>
<td>40%</td>
</tr>
<tr>
<td>RES Update Targets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Megawatt equivalents for RES Update Targets</td>
<td>841 MW</td>
<td>1,543 MW</td>
<td>2,341 MW</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The renewable energy targets developed for the 2003 strategy were considered very aggressive at the time. Since then, state laws and policies have called for even more aggressive targets. The RES Update reflects these changes. State law requires each investor owned utility to obtain 20 percent of its electricity supply from renewable resources. California’s adopted Climate Change Scoping Plan (December 2008) calls for California to obtain 33 percent of its electricity from renewable resources by 2020. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08 directing all state agencies to work toward achieving 33 percent by 2020. San Diego Gas and Electric and the lead state energy agencies, the California Energy Commission and California Public Utilities Commission (CPUC) have made commitments to meet the 33 percent target. The RES Update’s 2030 target is increased to 45% to reflect a little more than one percent supply increase each year between 2020 and 2030.

**Statewide Renewables Mix 2006***

![Statewide Renewables Mix 2006](image)

**SDG&E Renewables Mix 2006***

![SDG&E Renewables Mix 2006](image)

*2006 is the most recent year for which data is available.

The more that renewable energy resources become part of our electricity supply, the less greenhouse gas emissions are produced from electricity consumption. A greater renewable energy supply also will have a positive impact on the transportation sector as more “plug-in” electric vehicles are utilized in the region. Electricity as a transportation fuel provides an alternative to petroleum and creates zero emissions at the tailpipe.

Renewable energy resources are energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time, e.g. rooftop solar panels that generate power when the sun is out but not at night and wind farms that generate power depending on when the wind is blowing. Since this “intermittent” supply cannot be produced all day every day, “dispatchable” power supplies, e.g. natural gas, nuclear and geothermal, are relied upon in the San Diego region. These supplies can be called on to operate at full capacity at virtually any time they are needed.

Renewable energy resources include:
- Wind (produced in windy locations usually at wind farms to generate electricity)
- Solar (systems powered by the sun to provide heat or generate electricity including photovoltaic, concentrated solar power, and solar thermal)
- Geothermal (systems using heat from the earth’s surface to provide heat and generate electricity)
- Biogas (captured from landfills and sewage at wastewater treatment plants)
- Biomass (technologies that burn primarily paper, wood, tree trimming and other similar “green” waste as fuel)
- Hydro power (flowing water that drives a turbine to generate electricity)
- Onshore wave power (built along shorelines, systems extract energy in breaking waves)

In order to reach regional and state renewable energy targets, certain permitting barriers must be addressed. Renewable generation facilities must receive a site permit in order to construct a project. The California Energy Commission is responsible for approving permits for thermal power plants 50 megawatts and greater. All other projects must receive a county or city permit. Projects on federal land also must receive permits from the appropriate federal agencies, usually the Bureau of Land Management or the United States Forest Service.

Most renewable facilities in California seek permits from a federal agency since many of the best solar, wind, and geothermal sites are on federal land. In recent years, permitting entities have been inundated with applications for new renewable facilities, causing project delays. In November 2008, Governor Schwarzenegger issued Executive Order S-14-08 to remove red tape surrounding permitting for renewable projects. To streamline the application process, the Energy Commission and Department of Fish and Game have created a “one-stop” permitting process in order to reduce application process times by half.

The CPUC requirement for utilities to acquire renewable energy supply is called the “renewable portfolio standard” (RPS). Not all of the region’s renewable energy resources are counted in the RPS. For example, residential and most commercial rooftop solar PV cannot be counted toward the state RPS requirement. The RES Update promotes renewable energy regardless of its purpose or size; therefore, the Renewable Energy Goal recognizes and accounts for all renewable resources providing electricity for the San Diego region.

Some smaller renewable energy systems (up to 1.5 megawatts) are able to be counted toward the RPS due to a “feed-in-tariff” that the CPUC adopted in February 2008 in response to Assembly Bill 1969. The law was enacted to support deployment of renewable resources specifically on publicly owned water and wastewater treatment facilities. The CPUC established the feed-in tariffs but expanded them to non-water and non-wastewater facilities for only Southern California Edison and PG&E territories. The expansion of this type of tariff to the San Diego region could be another mechanism to incentivize greater deployment of renewable resources. This topic is further addressed in the RES Update Distributed Generation Goal.

 Tradable renewable energy credits (RECs) are an emerging benefit to renewable energy resources. The state currently is establishing a trading program in which owners of the environmental attributes, or REC, can sell this attribute to entities that must reduce their greenhouse gas emissions. In California, a REC represents one megawatt-hour of renewable energy that was generated and delivered by an eligible renewable energy resource.

The CPUC, Energy Commission and other agencies are conducting financial analyses to learn the cost and benefit impacts of meeting the state’s needed 33 percent renewable energy target by 2020. Initial CPUC analysis shows that electricity costs will increase in 2020, regardless of renewable resource requirements. For the analysis, they assessed the cost of procuring all natural gas between now and 2020, which was comparable to the cost of procuring 20 percent renewable resources. The electricity cost to achieve a 33 percent renewable mix is estimated at about 7 percent higher as of June 2009. See Table below. At the printing of this document, analysis was in its preliminary stages.
### Electricity Costs to Increase in 2020, Regardless of Renewable Resource Requirements

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>All-Gas Scenario in 2020</th>
<th>20% RPS Reference Case in 2020</th>
<th>33% RPS Reference Case in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Statewide Electricity Expenditures</td>
<td>$36.8 billion</td>
<td>$49.2 billion</td>
<td>$50.6 billion</td>
<td>$54.2 billion</td>
</tr>
<tr>
<td>Average Statewide Electricity Cost</td>
<td>$0.132 per kWh</td>
<td>$0.154 per kWh</td>
<td>$0.158 per kWh</td>
<td>$0.169 per kWh</td>
</tr>
</tbody>
</table>

Source: CPUC/E3

The all-gas scenario may grow more costly with passage of federal climate change laws. A greater demand for natural gas will occur from states that have been chiefly reliant on coal. The added competition could raise prices (San Diego natural gas prices are impacted by price spikes in the East) and reduce available supply. If this scenario occurs, increasing renewable energy supply may insulate the region from higher-priced finite natural gas resources.

### Historical Average Electricity Prices by Customer Class (in cents per kilowatt-hour)

<table>
<thead>
<tr>
<th>Year</th>
<th>Residential SDG&amp;E</th>
<th>Residential CA</th>
<th>Commercial SDG&amp;E</th>
<th>Commercial CA</th>
<th>Industrial SDG&amp;E</th>
<th>Industrial CA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>10.7</td>
<td>10.4</td>
<td>9.6</td>
<td>10.6</td>
<td>6.6</td>
<td>7.7</td>
</tr>
<tr>
<td>2000</td>
<td>14.1</td>
<td>11.5</td>
<td>14.5</td>
<td>11.5</td>
<td>12.0</td>
<td>7.9</td>
</tr>
<tr>
<td>2007</td>
<td>15.7</td>
<td>12.5</td>
<td>17.4</td>
<td>15.3</td>
<td>13.5</td>
<td>10.9</td>
</tr>
<tr>
<td>2008</td>
<td>15.5</td>
<td>12.7</td>
<td>16.9</td>
<td>15.5</td>
<td>12.7</td>
<td>11.1</td>
</tr>
</tbody>
</table>

Source: Energy Almanac, CEC, 2009

The magnitude infrastructure that is necessary for California to meet the needed renewable energy target for 2020 has never been planned, permitted, procured, developed, and integrated in such a short time horizon. The CPUC identified several measures that must be implemented in the near term if achieving a 33 percent renewable resource supply by 2020 is to be a top priority, including:

- Planning for more transmission and generation than needed to reach just 33 percent;
- Pursuing procurement which is not dependent on new transmission such as distributed solar photovoltaics (PV); and
- Concentrating renewable development in pre-permitted land that would be set aside for a renewable energy park.

The **Renewable Energy Transmission Initiative (RETI)** is a statewide initiative to help identify the transmission projects needed to accommodate state renewable energy goals, support future energy policy, and facilitate transmission corridor designation and transmission and generation siting and permitting. RETI process is open and collaborative so any interested parties can participate. In addition to identifying transmission corridors to reach renewable resources, RETI assesses all competitive renewable energy zones (CREZ) in California, and possibly zones in neighboring states, that can provide significant electricity to California by 2020.

Connecting to the electricity grid to supply clean power to resource load centers like the San Diego region is generally cost prohibitive for a single renewable energy project. Since multiple renewable projects are often located within a renewable resource area, the California Independent System Operator (CAISO) is developing a framework for multiple projects within a transmission constrained renewable resource area to share the costs of connecting to the grid.
Recommended Actions:

- Monitor feed-in-tariff level of participation here and other regions to see if we want to ask the state to open up more in our region.
- In a regionally-consistent manner, assist local governments in the identification and removal of barriers to siting renewable energy installations in San Diego County.
- Assist local governments in identification of potential sites for renewable energy projects that will help the region meet renewable energy targets.
- Promote quality jobs for workers employed in the energy sector through training programs related to local renewable energy industries.
- Support cost-effective transmission access from areas rich in renewable resources to the San Diego region.
- Monitor the Renewable Energy Transmission Initiative (RETI) and consider its recommendations in future regional planning.
3 - DISTRIBUTED GENERATION

Goal: Increase clean distributed generation that provides homes and businesses with reliable options to offset their electricity and natural gas needs with onsite power systems.

<table>
<thead>
<tr>
<th>Technology</th>
<th>2008 Level</th>
<th>2030 Base Targets</th>
<th>2030 Stretch Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biofuels</td>
<td>26 MW</td>
<td>27 MW</td>
<td>31 MW</td>
</tr>
<tr>
<td>Solar photovoltaics</td>
<td>49 MW</td>
<td>844 MW</td>
<td>970 MW</td>
</tr>
<tr>
<td>Combined heat and power</td>
<td>341 MW</td>
<td>398 MW</td>
<td>458 MW</td>
</tr>
<tr>
<td>Other (hydro &amp; steam)</td>
<td>11 MW</td>
<td>11 MW</td>
<td>11 MW</td>
</tr>
<tr>
<td>Total Distributed Generation in the Region</td>
<td>427 MW</td>
<td>1278 MW</td>
<td>1590 MW</td>
</tr>
</tbody>
</table>

**Proportion of Regional Peak Demand**

<table>
<thead>
<tr>
<th>RES 2030 targets from 2003</th>
<th>12% (2010)</th>
<th>30%</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES Update targets</td>
<td>9% (actual)</td>
<td>21%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Source: California Center for Sustainable Energy, 2009

For the RES Update, clean distributed generation is defined as small-scale power generation technologies located close to the load being served, capable of lowering costs, improving reliability, reducing emissions and expanding energy options. Figure 1 depicts various distributed generation systems integrated with the electricity grid. In California, clean power designates a system that is more energy efficient than the most efficient conventional power plant built today, a natural gas combined-cycle gas turbine plant. Combining energy efficiency measures with distributed generation is the best way to reduce a customer’s energy demand, thereby properly sizing the distributed system and generally saving the customer costs of a larger system.

**Figure 1.**

Small-scale is defined as less than 20 megawatts in capacity. In the San Diego region, the primary sources of clean distributed generation are identified in Table 1 above and the pie chart below. The Renewable Energy Goal and to an extent the Distributed Generation Goal address renewable energy systems. Distributed generation, renewable or not, installed primarily for a customer’s use onsite has many similar benefits and barriers regardless of fuel source. Ongoing performance monitoring will distinctly identify all technologies cross-listed in both goals.

Source: California Energy Commission

In the San Diego region, solar photovoltaic (PV) systems have the greatest growth potential. Several regional resources are available that help enable residents to install solar. The City of San Diego partnered with the California Center for Sustainable Energy (CCSE) to develop an [interactive solar mapping tool](#). The Solar Map identifies solar systems installed in the region and can help a resident determine their own rooftop's viability for solar panels. Moreover, CCSE manages the California Solar Initiative incentive program for the region and hosts an annual Solar Energy Week including a Solar Homes Tour and Commercial Solar Sites Tour. In the 2009 Environment California report, [California’s Solar Cities](#), the City of San Diego was ranked the number one solar city in California.
Regional Distributed Generation Targets for 2030 (in megawatts)

In addition to solar options, combined heat and power (CHP) and other clean heat and power technologies, such as those that use waste energy recovery or biofuels, have a variety of commercial and societal benefits for the region. CHP systems provide efficient use of natural gas by recycling otherwise wasted heat and reusing it for additional electricity or heating and cooling. They also can operate on renewable fuels. Technologies include microturbines, internal combustion engines and fuel cells. Fuel cells are most efficient in CHP mode, but do not have to operate this way.

End users that need greater reliability and power quality onsite than what the electric grid can supply, tend to use CHP systems. Biotech firms, data centers, telecommunications, and industrial processes are some of the business types that cannot afford power to be interrupted. CHP can provide premium power onsite, offering end users a higher level of reliability than the electric grid. Additional distributed generation resources include hydro power, steam and wind but they are not anticipated to play a larger role through 2030. The former two have reached their market potential and the latter one plays a role in larger sizes included in the RES Update renewable energy goal. These resources will be monitored and if options for increased use materialize, targets for those resources will be added.

Although the lifecycle costs of distributed generation systems make them a good choice for many end users, the upfront capital costs can be a barrier to their increased penetration. California offers many financial incentives—e.g. the California Solar Initiative, New Solar Homes Program, and Self Generation Incentive Program—to help defray the costs for new and existing buildings. Some local governments and large businesses use third party energy providers that can cover the upfront cost of a system through a long-term contract with the jurisdiction.

Net-metering is an additional financial incentive set up to expand California’s renewable energy markets. Net-metering allows entities with onsite renewable generating potential in excess of what they can use onsite to be compensated for that generation. “Feed-in tariffs” are available for some renewable energy systems and combined heat and power systems. Feed-in tariffs are for distributed generation systems that are used for export to the electric grid rather than offsetting the customer’s load.

Interconnection policies have been another barrier to increased use of distributed generation. California applies a standard practice for interconnecting distributed generation systems to the electric grid (Rule 21). Non-standardized interconnection rules create uncertainty and risk for customers interested in using DG technologies and can make this option cost prohibitive. Rule 21 specifies standard interconnection, operating, and metering requirements for DER generators.

Since there are a variety of distributed generation systems, customers are able to choose the technology that best serves their needs. Distributed generation also benefits the utility by reducing peak demand on the electric grid and benefits businesses by reducing costs associated with peak demand charges. In power constrained areas where outages are common, distributed generation can serve to provide reliable power.
“Advanced energy storage” (AES) is a distributed energy system that is expected to perform an integral role in future increased use of renewable energy and in improving grid reliability. AES is a technology that converts electricity into another form of energy, stores it, and then converts it back into electricity at another time. Storage is beneficial to providing more usable electricity from intermittent resources such as solar and wind. AES also can reduce peak demand and save money by storing electricity for use during periods when grid-based electricity is most expensive.

**Recommended Actions:**

- Explore development of a regional incentive program to further reduce cost to homes and businesses of energy efficiency and distributed generation installations
  - Identify the cost, benefits, and funding sources for a regional program
  - Encourage and support the implementation of financing and loan guarantee programs in addition to the partial rebates and incentives available.
  - Explore opportunities to use energy bonds to increase installations in the region
  - Support bill financing programs
- Lead by example by exploring opportunities to generate electricity at municipal sites, schools, and water pumping stations.
- Identify local barriers and solutions that could be supported throughout the region and applied across jurisdictions to reduce the confusion for builders, contractors, officials, about various distributed generation technologies, applications and financing.
- Support smart grid policy implementation
- Explore opportunities and applications for local governments to demonstrate advanced energy storage with distributed generation technologies.
4 - ENERGY AND WATER

**Goal:** Reduce the embedded energy of water supply and uses.

There is a close relationship between water and energy resources in the San Diego region. Water utilities use large amounts of energy to pump, treat, deliver, and recycle water, while residents and businesses use energy to heat, cool, and use the water. Energy is also used to dispose of wastewater and power the large pumps that move water throughout the state. Power plants use a significant volume of water, primarily for cooling, which can impact local water supplies. Water also provides hydroelectricity for the region, while pumped storage facilities provide commercially viable electricity storage on a large scale.

California’s water systems are highly embedded with energy relative to national averages. The state has major conveyance systems that move water to end users over hundreds of miles and thousands of feet in elevation. The State Water Project (SWP) burns energy by pumping water 2,000 feet over the Tehachapi Mountains -- the highest lift of any water system in the world. The San Diego region is at the farthest -- and therefore most energy intensive -- end of the SWP and Colorado River Aqueduct. The amount of energy used to deliver water from the SWP to residential customers in Southern California is almost one-third the total average household electric use in the region. The San Diego region currently imports more than 80 percent of its water from these distant and energy intensive sources; about 18 percent is supplied from local sources.

<table>
<thead>
<tr>
<th>Water Cycle Segments</th>
<th>Range of Energy Intensity (kilowatt hours/million gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Supply and Conveyance</td>
<td>0</td>
</tr>
<tr>
<td>Treatment</td>
<td>100</td>
</tr>
<tr>
<td>Distribution</td>
<td>700</td>
</tr>
<tr>
<td>Wastewater Collection and Treatment</td>
<td>1,100</td>
</tr>
<tr>
<td>Wastewater Discharge</td>
<td>0</td>
</tr>
<tr>
<td>Recycled Water Treatment and Distribution</td>
<td>400</td>
</tr>
</tbody>
</table>

Source: California Energy Commission, California’s Water-Energy Relationship, final staff report, 2005.

As of 2005, water-related energy use annually consumes 19 percent of the state’s electricity consumption, 30 percent of non-power plant natural gas consumption, and 88 million gallons of diesel fuel. Statewide water-related electricity consumption alone costs at least $2 billion per year. Water demand and associated energy costs will continue to grow if current trends continue. Water and energy demands are growing at roughly the same rate. Water-related electric use is expected to grow at a faster rate because of increasing and more energy-intensive water treatment requirements, conversion of diesel agricultural pumps to electric, increasing long-distance water transfers, and changes in crop patterns that require more energy intensive irrigation methods.

Peak demand for water (and energy required to treat and transport that water) coincides with peak demand for electricity. If not coordinated and managed, water-related electricity demand could affect the reliability of the electric grid during peak load periods. Conversely, reliable and adequate electricity supplies are essential for water and wastewater agencies to meet the needs of their customers.

**Energy and Water in the San Diego Region**

San Diego County Water Authority (CWA) currently supplies about 600,000 acre-feet of water per year (af/year) to water agencies in the region. Supply sources include 470,000 af/year from the Metropolitan Water District (MWD), 83,000 af/year from the SWP, 30,000 af/year from local groundwater supplies, and 18,000 af/year from

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1 An acre-foot is equal to about 325,850 gallons of water, or enough to cover an acre of land to a depth of one foot.
recycled wastewater. The average energy intensity of the water-energy cycle in the San Diego region is 6,900 kilowatt-hours per acre-foot (kWh/af). Based on these figures, total water-related energy consumption to satisfy current water demand is estimated at 4,140,000 megawatt-hours (mWh) per year.

The energy intensities for the five stages of the water life cycle in San Diego region are as follows: (1) sources and conveyance, 2,040 kWh/af; (2) water treatment, 60 kWh/af; (3) distribution, 330 kWh/af; (4) end uses, 3,900 kWh/af; and (5) wastewater treatment, 570 kWh/af. Despite the energy-intensive process of conveying water over long distances to the region, end uses like landscape irrigation and showering are the most energy-intensive stages of the water life cycle, accounting for over half (57 percent) of water-related energy use.

As shown in the table below, the residential sector is responsible for 58 percent of energy consumption related to water end uses. The commercial, industrial and institutional sectors are responsible for an additional 32 percent, while agriculture accounts for 10 percent. The five largest end use consumers of energy are residential landscape irrigation (23 percent), residential toilets and leaks (14 percent), commercial/industrial landscape irrigation (12.1 percent) residential showers, faucets and bathtubs (12 percent), and clothes washers (8 percent). Targeting conservation measures in these largest end use subsectors can reduce the energy intensity of water end uses.

Table 2: Estimated Embedded Energy of Water End Uses in the San Diego Region

<table>
<thead>
<tr>
<th>Water Use Category</th>
<th>Estimated Percent of Total Use in 2010 (8)</th>
<th>Estimated Energy Intensity (kWh/af) (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>58%</td>
<td>0</td>
</tr>
<tr>
<td>Toilets and leaks</td>
<td>14%</td>
<td>0</td>
</tr>
<tr>
<td>Dishwashers</td>
<td>1%</td>
<td>27,200</td>
</tr>
<tr>
<td>Clothes washers</td>
<td>8%</td>
<td>11,650</td>
</tr>
<tr>
<td>Showers, faucets, and bathtubs (1)</td>
<td>12%</td>
<td>6,790</td>
</tr>
<tr>
<td>Landscape irrigation</td>
<td>23%</td>
<td>0</td>
</tr>
<tr>
<td>Commercial, industrial, and institutional</td>
<td>32%</td>
<td>27,200</td>
</tr>
<tr>
<td>Kitchen dishwashers</td>
<td>0.5%</td>
<td>27,200</td>
</tr>
<tr>
<td>Pre-rinse nozzles</td>
<td>0.2%</td>
<td>6,790</td>
</tr>
<tr>
<td>Other kitchen use</td>
<td>1.2%</td>
<td>Not Estimated</td>
</tr>
<tr>
<td>Laundries</td>
<td>6.6%</td>
<td>11,650</td>
</tr>
<tr>
<td>On-site wastewater treatment (2)</td>
<td>5.8%</td>
<td>800</td>
</tr>
<tr>
<td>Water cooled chillers (3)</td>
<td>2.4%</td>
<td>67,700</td>
</tr>
<tr>
<td>Single pass cooling (8)</td>
<td>2.4%</td>
<td>0</td>
</tr>
<tr>
<td>Landscape irrigation</td>
<td>22.1%</td>
<td>0</td>
</tr>
<tr>
<td>Other heated water (4)</td>
<td>0.3%</td>
<td>6,790</td>
</tr>
<tr>
<td>Other unheated water (5)</td>
<td>6.5%</td>
<td>Not Estimated</td>
</tr>
<tr>
<td>Agricultural (6)</td>
<td>10%</td>
<td>Not Estimated</td>
</tr>
<tr>
<td>Totals and weighted average (7)</td>
<td>100%</td>
<td>3,000</td>
</tr>
</tbody>
</table>


Energy Considerations for Meeting Future Water Demand

The population of the San Diego region will grow by approximately one million residents by 2030, increasing the region’s demand for water. CWA estimates that at least an additional 100,000 af/year will be needed in 2020, and demand for water will continue to grow to 2030 and beyond. CWA must save 80,000 acre-feet (af) by 2010, 94,000 af by 2020 and 108,000 af by 2030 to meet the region’s water needs. There are various strategies to meet future water demand, including: conservation; recycling; and desalination. Imported supplies from the SWP and Colorado River will likely be constrained by various factors including enforcement of the Colorado River Compact, environmental restrictions on water from the SWP, and the impacts of climate change such as reduced snowpack levels in the Sierra Nevada. Energy intensity varies by strategy, as shown in Table 3.

Conservation

The Energy Commission identifies water conservation as the far superior water “source” from an energy perspective. Investment in conservation may forestall or avoid larger public investments for drinking water, clean water infrastructure, or power generation facilities, and it will help stretch available public water funds. For example, total energy savings of meeting the next 100,000 af through conservation instead of additional SWP water could be approximately 767 million kWh, enough to provide annual electricity for 118,000 households.
Table 3: Energy Intensity for Satisfying Additional Water Demand

<table>
<thead>
<tr>
<th>Status quo</th>
<th>Source and Conveyance (kWh/af)</th>
<th>Water Treatment (kWh/af)</th>
<th>Distribution (kWh/af)</th>
<th>End Use (kWh/af)</th>
<th>Wastewater Treatment (kWh/af)</th>
<th>Total (kWh/af)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status quo plus scenario³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservation</td>
<td>2,040</td>
<td>60</td>
<td>330</td>
<td>3,900</td>
<td>570</td>
<td>6,900</td>
</tr>
<tr>
<td>Recycling</td>
<td>1,830</td>
<td>50</td>
<td>290</td>
<td>3,400</td>
<td>500</td>
<td>6,020</td>
</tr>
<tr>
<td>Water bag transfer</td>
<td>1,950</td>
<td>60</td>
<td>330</td>
<td>3,900</td>
<td>570</td>
<td>6,610</td>
</tr>
<tr>
<td>Imperial Irrigation District transfer</td>
<td>60</td>
<td>60</td>
<td>330</td>
<td>3,900</td>
<td>570</td>
<td>6,940</td>
</tr>
<tr>
<td>Additional State Water Project</td>
<td>60</td>
<td>50</td>
<td>330</td>
<td>3,900</td>
<td>570</td>
<td>7,100</td>
</tr>
<tr>
<td>Seawater desalination</td>
<td>50</td>
<td>50</td>
<td>330</td>
<td>3,900</td>
<td>570</td>
<td>7,250</td>
</tr>
</tbody>
</table>

Source: California Energy Commission.

Notes: (1) The conservation, recycling, and desalination scenarios assume the additional 100,000 acre-feet of water do not require treatment, reducing the average energy intensity of treatment from 60 to 50 kWh/af delivered to customers. (2) Conserved water does not need to be distributed, reducing the embedded energy of distribution from 330 to 290 kWh/af delivered. (3) Conservation assumes no energy is conserved when water is conserved, but no energy is expended to conserve water either. (4) Wastewater is not generated by conservation or by recycling if recycled water is used for landscape irrigation, reducing energy intensity from 570 to 500 kWh/af delivered. (5) The scenarios are presented for purposes of comparing energy consumption only. They do not necessarily represent feasible or likely scenarios for satisfying future water demand in the San Diego region.

Reclamation

Water recycling (reclamation) is the next best efficient source of additional water supply. Recycled water is the fastest growing source of new supplies in the state. After treatment to stringent health and quality standards, recycled can displace use of fresh water for power plant cooling, industrial processes, landscape irrigation, and groundwater replenishment.

The San Diego region has already made substantial investment in water reclamation. The City of San Diego has constructed two reclamation facilities – North City Water Reclamation Plant (NCWRP) and South Bay Water Reclamation Plant (SBWRP). NCWRP has capacity to produce up to 24 million gallons per day (MGD) of recycled water, but existing beneficial reuse, consisting mostly of irrigation and some industrial purposes, total only about 6 MGD (City of San Diego, Water Reuse Study [2006]). The SBWRP produces from five to six MGD of recycled water that is then disposed through the ocean outfall, without application for domestic or industrial reuse. Thus, although the region has substantial capacity to produce recycled water with adequate quality, actual demand for recycled water has not matched that capacity. However, none of the recycled water is currently used as potable water.

Currently, a substantial portion of the processed reclaimed water is never utilized. Instead, it is pumped back into the general wastewater lines where it is run through treatment processes again at the Point Loma water treatment facility, and disposed of in the Pacific Ocean. This is an inefficient use of water and the energy used for processing and pumping.

Desalination

Desalination is another option to meet future water demand. The process removes salt from brackish water or seawater to create potable fresh water. Brackish water desalination is considerably less energy intensive than seawater desalination. The Energy Commission reports that desalinated brackish water and seawater can relieve drought conditions, replace and restore groundwater, and provide a source of water for river and stream ecosystem restoration. The future demand for additional sources of water and constraints on imported supply require the identification of conservation and efficiency options in all stages of the water-energy cycle, as well as potential sources of local supply. It is important to note that many consideration, are relevant to the selection of water sources to meet future demand in the region. Energy is just one of the considerations. Reliability, cost, and regional control may be other important considerations.
**Producing Energy from Water**

Several opportunities exist to increase energy supplies from water and wastewater utilities, including hydroelectric power in hydroelectric power plants and pumped storage facilities, water storage for peak shifting, in-conduit hydroelectric generation, biogas cogeneration at wastewater treatment plants, and development of local renewable resources on water and wastewater utilities’ extensive watersheds and rights-of-way.

Opportunities for construction of new hydroelectric plants are very limited. Pumped storage projects involve the transfer of water between two reservoirs or tanks at varying elevations to generate electricity. Water can be pumped from the lower to the higher reservoir during off-peak electricity periods, and then released to the lower reservoir during peak electricity periods to spin a turbine or power an electricity generating unit. This is considered a method or storing renewable electricity, particularly intermittent sources such as wind and solar power. In-conduit generation utilizes the flow of water through pipelines, canals, and the like to generate electricity. Although this technology is widely deployed, additional in-conduit projects could help offset the embedded energy of the water system or be sold back to the grid. In-conduit projects could also help contribute to the region’s goals for renewable power generation.

Wastewater treatment plants use anaerobic digestion to clean wastewater, a process that releases biogas (60 to 90 percent methane). Biogas can be captured and used for electricity. The Point Loma Wastewater Treatment Plant in the City of San Diego produces enough biogas to run a 4.5 megawatt (MW) generator, which saves the City millions of dollars in energy costs and produces power for the electrical grid.

There are opportunities at pumping stations to take advantage of downgrade water flow to provide hydroelectric electricity to pumping stations. In addition to hydroelectric power, onsite solar arrays or cogeneration systems at pumping stations can provide energy for water pumping while reducing impact on the electricity grid. Wind and solar photovoltaic facilities are excellent power sources from a water perspective as they do not use water during operation. Distributed energy systems are essentially air-cooled machines requires little to no water for operations. Many water agencies have potential for installation of solar panels on rooftops and structures and other unused or underutilized land within their control. Water agencies can take advantage of renewable energy opportunities to offset their own electricity load and even send power to the grid and contribute to regional goals for the generation of renewable power (e.g., Renewable Portfolio Standard goals). However, existing tariffs and rules constrain full development of self-generation by water and wastewater utilities.

**Recommended Actions:**

- Regional and local governments should collaborate with the San Diego County Water Authority, local water districts and SDG&E on cooperative programs that achieve energy and water savings.
- Support programs and efforts to increase energy conservation and efficiency of water end-uses in the residential and commercial sectors, with priority on the most energy-intensive water end-uses.
- Identify financing mechanisms that end users can utilize to reduce water-related energy consumption, such as those available for energy measures (e.g., on-bill financing [property tax or utility] and low interest loans).
- Consider integration of water-related energy considerations into regional program to incorporate energy efficiency and distributed generation into the existing residential and commercial building stock.
- Promote energy efficiency, demand response and self generation efforts to local governments that own or operate water pumping stations and treatment facilities.
- Assist local governments and other regional agencies in public education and promotion of the water, energy, climate change and environmental benefits of reclaimed water in order to gain public acceptance for domestic uses that help the region meet its goals of water source diversification.
- Promote or identify uses for existing, unused reclaimed water, such as landscape irrigation or power plant cooling.
5 - PEAK DEMAND

Goal: Close the gap between peak and average demand to improve operating efficiency of the electric system.

The RES Update uses the California Energy Commission’s June 2009 peak demand forecast for its targets. SDG&E also relies on the Energy Commission’s forecast for its resource planning. “Peak Demand” is the electric load that corresponds to a maximum level of electric demand, measured in kilowatts (kW), in a specified time period. In contrast, average demand measures the total annual demand averaged over all the hours in the year (8760). The relationship between average and peak demand is called the load factor. This is a measure of how effectively the total capacity of the electrical system is used on average. The higher the load factor, the more effective the electric system is. A load factor of 100%, which is nearly unattainable, would mean the average and peak demand were equal. The current regional load factor is approximately 53%.

Weather and behavior play a role in determining peak demand. On an annual basis, the region generally experiences high peak demand periods on the hottest days of the year and during continuous heat waves, usually in summer. High demand periods are typically driven by air conditioning use. Peak demand is a significant concern for energy planners about 80 to 100 hours each year. During that time, when electricity demand increases significantly, base-load electricity supply has been surpassed and electricity prices are at their highest. Increased demand must be offset by increasing supply or reducing demand. Supplemental power plants called “peaking units” or “peaker plants” can be used to increase supply for these short durations. Demand response programs and other demand-side management measures are another option to alleviate peak demand conditions and potentially postpone the need for additional power plants. Demand response programs shift end-user demand from peak times to lower demand periods of the day, when electricity is cheaper and more abundant. California’s preferred loading order to meet our resource needs places demand response second in priority, only behind conservation and energy-efficiency.

A demand response program provides customers with incentives for reducing load in response to a call for load reduction by the utility. Incentives can be a credit on the utility bill, a dynamic rate or exemption from rolling blackouts. SDG&E manages several types of demand response programs that local governments and SANDAG can take part in or provide education to our employees, businesses and residents about.
In addition to demand response programs, distributed generation systems can reduce peak demand. Rooftop solar, fuel cells and combined heat and power systems all provide end-users with power generated on or near its point of use. Distributed generation technologies can produce electricity during peak times, thus reducing system wide electrical demand. Energy savings from these technologies are included in the RES Update Distributed Generation Goal so they are not included in the peak demand reduction targets here. Development of smart grid technologies, in particular smart meters and advanced metering infrastructure, can help to reduce regional peak demand. The RES Update Smart Grid Goal provides further detail on the attributes and benefits of a smart grid.

Smart meters and advanced metering infrastructure can automate utility billing, optimize electricity resources connected to the grid, and provide energy consumers with greater information on their electricity use. Smart meters collect data on the amount and time of day of electricity consumption. Providing customers with detailed information about their consumption patterns can result in energy and demand reductions. Pilot smart metering projects in the San Diego region and across the state have shown that consumers that were provided information about their energy use and the actual cost of electricity based on the time of use, modified their consumption and reduced peak demand.

In addition to smart meters, smart end-use devices will enable energy consumers to cycle air-conditioning units off and on, set clothes dryers and dishwashers to run at off-peak hours, and manage other energy intensive equipment based on the time of use, the cost and availability of electricity. The electric utility or the customer will be able to remotely enable demand response programs and measures that could reduce some of the need for new electric generation resources.

Smart grid technology also will enable the convergence of the electricity and transportation sectors. Electric vehicles that plug-in to the electric grid for recharging may also be able to provide electricity back to the grid in the near future, once smart grid components are in place. To prevent a fleet of electric vehicles from increasing peak demand, smart charging features could help to even out the increase in electric demand caused by electric vehicles.

**Recommended Actions:**

- In coordination with SDG&E, provide education and outreach on demand response programs available to residents, businesses and institutions
- Support fair and reasonable rate designs and incentives that encourage reductions in peak demand
- Support the rollout of advanced metering infrastructure and communication technologies that enable electric vehicles, distributed generation, and electricity consumption to be accurately monitored by consumers and the utility
- Support the modernization of communications across the electricity grid through implementation of the smart grid for the San Diego region
- Since air-conditioning units are a large proportion of electric load during peak demand times, local governments and SANDAG should support and promote aggressive air conditioning cycling, tune-up and other load reduction programs
6 - THE SMART GRID

Goal: Modernize the electricity grid with smart meters, smart end-use devices, and interactive communication technologies.

The U.S. Department of Energy has found that if the electric grid were just 5 percent more efficient, the energy savings would equate to permanently eliminating the fuel and greenhouse gas emissions from 53 million cars. A smart grid can help the region achieve many of the RES Update Goals. It can better provide reliable power to end users while saving money for both the utility and end user. Smarter communications will improve reliability and reduce outages, as well as enable electric vehicles and distributed generation technologies to be accurately integrated into the electricity grid.

Figure 1

![Image of a smart grid]

Source: U.S. Department of Energy

In 2006, the Energy Policy Initiatives Center of the University of San Diego released the San Diego Smart Grid Study. The regional study included extensive analysis of the technologies, utility and societal costs and benefits as depicted in Tables 1 and 2, as well as scenarios for implementing a smart grid in the San Diego region.

<table>
<thead>
<tr>
<th>Table 1. Summary of San Diego Smart Grid Study Cost-Benefit Analysis Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Annual Benefits</td>
</tr>
<tr>
<td>System Benefits (20 years)</td>
</tr>
<tr>
<td>Societal (Consumer-side) Benefits (20 years)</td>
</tr>
<tr>
<td>Total Capital Cost</td>
</tr>
<tr>
<td>Annual Operating and Maintenance Cost</td>
</tr>
</tbody>
</table>


The integration of smart grid technologies, e.g. smart meters, advanced metering infrastructure, and interactive communications, will help the region to achieve multiple RES Update energy goals. Smart meters and advanced metering infrastructure can automate utility billing, optimize electricity resources connected to the grid, and provide energy consumers with greater information on their electricity use. Smart meters are designed to give consumers access to their previous day’s electricity consumption and electricity cost information via the internet. Pilot smart metering projects in the San Diego region and across the state have shown that consumers that were provided with information about their energy use and the actual cost of electricity based on the time of use, modified their consumption and reduced peak demand.
The smart-grid will reduce the number and duration of power outages. When the power goes out at a home, the smart grid can communicate that outage to the utility when it happens. With the grid in place today, the utility does not know that the power is out at a house or business until the end-user calls the utility to let them know.

<table>
<thead>
<tr>
<th>Benefit Type</th>
<th>Societal Benefits</th>
<th>System Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction in congestion cost</td>
<td>$13.1 million</td>
<td></td>
</tr>
<tr>
<td>Reduced blackout probability</td>
<td>$1.5 million</td>
<td></td>
</tr>
<tr>
<td>Reduction in forced outages/ interruptions</td>
<td>$38.6 million</td>
<td></td>
</tr>
<tr>
<td>Reduction in restoration time and reduced operations and management due to predictive analytics and self healing attribute of the grid</td>
<td>$11.3 million</td>
<td></td>
</tr>
<tr>
<td>Reduction in peak demand</td>
<td>$25.6 million</td>
<td></td>
</tr>
<tr>
<td>Other benefits due to self diagnosing and self healing attribute of the grid</td>
<td>$0.2 million</td>
<td></td>
</tr>
<tr>
<td>Increased integration of distributed generation resources and higher capacity utilization</td>
<td>$14.7 million</td>
<td></td>
</tr>
<tr>
<td>Increased security and tolerance to attacks/ natural disasters</td>
<td>$1.2 million</td>
<td></td>
</tr>
<tr>
<td>Power quality, reliability, and system availability and capacity improvement due to improved power flow</td>
<td>$1.3 million</td>
<td></td>
</tr>
<tr>
<td>Regional job creation and increased GDP</td>
<td>$28.3 million</td>
<td></td>
</tr>
<tr>
<td>Increased capital investment efficiency due to tighter design limits and optimized use of grid assets</td>
<td>$0.2 million</td>
<td></td>
</tr>
<tr>
<td>Tax benefits from asset depreciation, tax credits, and other</td>
<td>$3.1 million</td>
<td></td>
</tr>
<tr>
<td>Environmental benefits gained by increased asset utilization</td>
<td>$2.4 million</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotals</strong></td>
<td><strong>$69.7 million</strong></td>
<td><strong>$71.8 million</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$141.5 million</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Smart Grid Benefits for the San Diego Region

Source: EPIC, 2006

Smart grid’s can be region-wide and at a micro level (micro-grid). For instance, the University of California, San Diego was awarded a Department of Energy grant to create a campus micro-grid combining fuel cells and advanced energy-storage technologies. The project will demonstrate smart grid benefits at a campus scale.

**Recommended Actions:**

- Support education on the regional deployment of the smart grid and smart meters.
- Support regional entities in acquiring state and federal funds to implement components of the smart grid in the San Diego region.
7 - NATURAL GAS

**GOAL:** Reduce total natural gas supply in the electricity sector by replacing inefficient power plants with energy-efficient plants that run on natural gas, biogas, or other reliable, renewable alternative.

Natural gas is the least polluting fossil fuel and the only fossil fuel that California allows to fuel in-state power plants. The majority of natural gas supply in the region is used to generate electricity. Natural gas also is used for space conditioning and water heating for homes and buildings, industrial processes, and increasingly as a transportation fuel. With the exception of electricity supply, how to best utilize natural gas is addressed throughout the RES Update, in particular in the following topic areas: energy efficiency and conservation; renewable energy; distributed generation; peak demand; and transportation fuels.

The San Diego region currently consumes approximately 581 million metric therms (MMTh) of natural gas annually. At present, California imports 87 percent of its natural gas needs from out state, and at the same time in-state production is decreasing. Natural gas markets have proven to be very volatile over the last decade, which has made most forecasts less- or un-reliable. The RES Update looks to historical data, as shown in Figure 1, and several other factors to identify appropriate regional policies.

Federal changes in energy policy will likely impact natural gas markets, creating some uncertainty for California and the San Diego region regarding access to stable, reasonably priced supply. For example, the establishment of federal carbon caps or laws to reduce greenhouse gas emissions will likely cause many states that rely heavily on coal for electricity generation to switch to natural gas to fuel power plants. What effect federal policy changes will have on supply that currently comes to California is not known. Natural gas prices and volatility also are impacted by supply and demand imbalances, infrastructure (storage and pipeline) issues, the weather, regional and global economic conditions, speculative trading, market manipulation, and unreliable data.

![Monthly Natural Gas City Gate Price in California](chart)

The San Diego region should utilize natural gas as efficiently as possible to help mitigate volatility issues. As power plants are the largest user of natural gas, and the region is home to aging, inefficient plants, there are opportunities to make improvements in this area. Energy efficient natural gas plants currently are combined-cycle gas turbine plants. Biogas (generally at landfills and wastewater treatment plants) offers another way to diversify from natural gas use. The region will need to rely on natural gas plants for part of its fuel supply for the foreseeable future to provide dispatchable power when the electricity system requires it. There are aging, inefficient plants in the region. New plants would provide more energy for less fuel. Chart 1 shows the state and regional fuel sources for electricity.
Statewide Electricity Mix 2006*

Coal 16%
Large Hydro 19%
Natural Gas 41%
Nuclear 13%
Renewables 11%

SDG&E Electricity Mix 2006*

Coal 18%
Large Hydro 15%
Natural Gas 49%
Nuclear 15%
Renewables 8%

*2006 was latest year for which data was available

Recommended Actions:

- Monitor the availability and cost of natural gas supplies in light of increased regulatory and environmental restrictions on fossil fuels.
- Establish or support energy efficiency programs that reduce natural gas usage in existing homes and businesses.
- Support policies that will provide more stable natural gas prices and reduce consumer exposure to market volatility.
- Support increased use of solar water heating in residential, pool and commercial uses to offset natural gas demand.
- Promote the use of high efficiency distributed generation technologies like combined heat and power.
- Promote the weatherization and insulation of un-insulated homes built before the development of building energy codes (1983).
- Increase and promote demand-side energy efficiency programs to reduce residential, commercial and industrial gas usage.
- Facilitate the re-powering, replacement, or removal of older power plants in the county based on the RES loading order with high efficiency combined cycle gas turbines or renewables where possible.
8 - TRANSPORTATION FUELS

Goal: Substantially increase efficiency and the deployment of alternative fuel vehicles.

The region can improve air quality, promote public health, protect against petroleum price volatility and supply uncertainty, reduce GHG emissions, and the benefit the economy by substantially increasing efficiency and transitioning to alternative fuel sources in the transportation sector. Passenger vehicles, heavy-duty trucks and buses, aircraft, watercraft, off-road engines, and rail transportation can each improve the efficiency of fuel consumption or operate fully or in part on fuels other than gasoline or diesel. Alternatives to these petroleum-based fuels include biofuels (ethanol and biomass-based diesels), electricity, hydrogen, natural gas, and liquefied petroleum gas (LPG or propane). Electricity can displace the most petroleum and GHG emissions. Electric drives are inherently more efficient than internal combustion engines, and existing electric infrastructure would facilitate the deployment of this alternative fuel faster than others. Hydrogen and renewable biofuels also offer significant GHG emission and petroleum reduction benefits, but significant economic and technological barriers must be overcome before these fuels can be deployed on a large scale. Natural gas and propane can also achieve economic and environmental benefits for the region, but of a more modest nature. Please consult the Regional Alternative Fuels, Vehicles, and Infrastructure Report for a detailed assessment and comparison of petroleum-based and alternative fuels, vehicle technologies, and infrastructure.

Alternative fuels and vehicle technologies, although generally offering more benefits than petroleum, are not without potential drawbacks. For example, it is important to note that natural gas is a finite fossil fuel (as is propane) with many other important applications, including electricity generation, residential and commercial end uses like space and water heating, as well as the raw material in fertilizers critical to food production. Electric vehicles, deployed on a large scale, would have a potentially significant impact on the electricity grid. In addition, there is a limited amount of land to produce feedstocks for biofuels, and hydrogen fuel must be created from another energy source like natural gas or electricity. Moreover, production of alternative fuel vehicles is an energy-intensive process that requires extraction of raw materials, industrial assembly, and typically long-distance distribution to customers. A careful, holistic approach to alternative transportation fuels will help the region minimize unintended consequences of a transition to alternative fuels and vehicle technologies.

State and federal energy policy provides significant opportunities for the region to increase the deployment of alternative fuel vehicles and infrastructure, including funding and tax credits. Moreover, a variety of alternative fuel vehicles in multiple vehicle classes are available now or will be in the near future, including factory-made and commercially-available vehicles from major automobile manufacturers and after-market vehicle conversions and retrofits. Much government funding, research, and private sector investment is focused on the development of plug-in hybrids, electric vehicles, and biofuels. Hydrogen, natural gas, and propane are also the focus of public and private sector research and dollars.

It should be noted that the future of alternative fuels in general, as well as individual technologies, is uncertain. While this strategy attempts to identify broad future trends in alternative transportation fuels, the many variables that affect these trends can be unpredictable, including but not limited to national and global economic conditions, the price and availability of crude oil and natural gas, national and global energy policy, technological developments, and levels of state and federal funding and support. This alternative fuels strategy should be revisited and revised as needed in the case that any of these or other important variables change significantly.

Increasing efficiency and reducing the growth in travel demand are also essential components of a comprehensive approach to achieving goals for air quality, climate change, public health, and energy security. Measures to lower travel demand are discussed in the Land Use and Transportation Planning section of the Regional Energy Strategy.
On-Road Transportation

The on-road transportation sector is a large consumer of energy, and is almost entirely dependent on petroleum-based fuels (gasoline and diesel). As shown in Figure 1, passenger cars and light-duty trucks are by far the largest consumers of transportation fuel, accounting for about 1.6 billion gallons of gasoline and diesel or 85 percent of total consumption by on-road vehicles. Light-duty trucks represent only about 35 percent of total miles traveled, but due to their relatively low efficiency, account for about half of fuel consumption.

Heavy-duty trucks and buses account for most of the remaining consumption by on-road vehicles, about 170 million gallons. In total, on-road vehicles account for about 46 percent of GHG emissions in the region. While heavy-duty trucks mostly use diesel fuel, the region’s transit agencies operate a substantial number of CNG buses, including CNG-electric hybrids. Passenger vehicles are the largest contributors, generating about 89 percent of emissions from on-road vehicles, while heavy-duty vehicles account for the remainder. Without changes in policy or behavior, on-road consumption of petroleum-based fuels is expected to increase sizably by 2020, with the trend continuing to 2030.

Figure 1. Fuel Consumption by On-Road Transportation Vehicles in San Diego County
Source: Energy Policy Initiatives Center, University of San Diego, 2008.

Passenger Cars and Light-Duty Trucks

The State has developed a 2050 vision for alternative fuels and vehicles based on a fair-share of GHG emission reductions from passenger vehicles. Although transportation accounts for a larger proportion of regional than statewide emissions and a fair-share approach is not established by statute, the vision illustrates the magnitude of change the region must undergo over the next four decades. By 2030, the horizon year of the RES, substantial progress toward this vision must be achieved. Major attributes of the 2050 vision include:

- Average vehicle fuel economy of 60 miles per gallon (mpg); 80 mpg for electric vehicles, significantly higher than current average of about 22 mpg;
- Fuel mix consisting of 40 percent electricity and hydrogen, 30 percent biofuels, and 30 percent petroleum-based fuels, substantially different than existing supply of nearly 100 percent petroleum.
- Carbon intensity reductions of 90 percent below today’s gasoline vehicles for electricity and hydrogen, 80 percent for biofuel vehicles, and at least 10 percent for other fuel and vehicle types.
- Per-capita vehicle miles traveled (VMT) of about 8,200, approximately 20 percent lower than projected statewide for 2050 without change in policy or behavior (about 14 percent lower than the regional 2030 projection).

The Regional Alternative Fuels, Vehicles, and Infrastructure Report provides a detailed analysis of alternative fuels and vehicles, including recommendations for passenger cars and light-duty trucks. At least for the near-term, plug-in hybrids and electric vehicles are the priority alternative fuel and vehicle recommendations for the region.
Electricity can achieve significant GHG and petroleum reductions, and electric charging points are relatively inexpensive. Electric vehicles will likely first become available to the region in 2010, with additional automaker vehicle rollouts over the next 2-5 years. While hydrogen and biofuels (when produced from renewable sources) show potential to significantly reduce petroleum consumption and GHG emissions, there are technological and economic barriers to be overcome before they are commercially viable. The cost and availability of infrastructure and fuel production (as well as vehicles for hydrogen) currently makes hydrogen and renewable biofuels uncompetitive with other alternative fuels. If these technologies become commercially viable on a large scale, they could offer benefits of a similar level to plug-in hybrids and electric vehicles. Natural gas and propane can help the region achieve modest near-term benefits, although not of equal magnitude to plug-in hybrids and electric vehicles. Long-term, natural gas and propane will comprise a minor portion of the passenger vehicle fleet. Importantly, government coordination of public access electric charging and alternative fueling infrastructure is required to support private sector rollout and purchase of vehicle and fuels in the San Diego region.

**Heavy-Duty Trucks and Buses**

Although a small portion of transportation fuel consumption relative to passenger vehicles, there are opportunities to reduce petroleum energy consumption from the movement of people and goods by transitioning heavy-duty trucks and buses to alternative fuels. Other heavy-duty vehicles such as trash haulers and street sweepers can operate on alternative fuels and efficient vehicle technologies. The emerging fuels and vehicle technologies included in this analysis are renewable diesel, hydraulic hybrids, battery-electric hybrids, full-electric vehicles, hydrogen fuel cells, propane, CNG, and LNG. The state 2050 vision for heavy-duty vehicles foresees CNG, LNG, propane, biodiesel and hybrid technologies with the greatest potential for displacing petroleum-based fuels and improving efficiency. Biodiesel blends up to B20 can be used in most existing vehicles and equipment (when consistent with manufacturer warranty). Changes in diesel engines may allow use of blends greater than B20, while efforts to produce biodiesel from renewable feedstocks like algae and waste may be commercially viable within the timeframe of the RES. Natural gas is recommended for heavy-duty trucks and buses: CNG is best suited for short- and medium-haul applications, while LNG is better suited for longer distances. Both propane and natural gas can be applied to more medium-duty vehicles like vans and cargo trucks. Hybrid electric and hydraulic hybrids are viable options for a variety of medium and heavy-duty applications like refuse trucks, drayage trucks, and utility trucks as well as transit and school buses. Where opportunities arise to incorporate electricity and hydrogen fuels into the heavy-duty vehicle sector, the region should take advantage of them. However, electricity and hydrogen will play an important, but likely smaller role in the heavy-duty truck and bus sector.

It should be noted that, after air transport, heavy-duty trucks are the least efficient form of goods movement. As discussed in the next section, Other Transportation, rail and ocean-based goods movement are more energy efficient modes than heavy-duty trucks.

**Other Transportation: Aviation, Rail, Watercraft, and Off-Road Equipment**

Although small relative to fuel use by passenger cars and heavy-duty vehicles, energy consumed by the civil aviation, rail transportation, water-borne equipment, and off-road sectors is significant. Fuel consumption in these sectors accounts for about 10 percent of GHG emissions in the San Diego region and is primarily petroleum-based.

As of 2007, the civil aviation sector (primarily comprised of flights and ground operations at San Diego International Airport) consumed about 210 million gallons of jet fuel, 28,000 gallons of aviation gasoline, and 53 million cubic feet of natural gas. International flights are not included in this analysis. Fuel use in this sector combined to account for about five percent of total GHG emissions in the region. The off-road category is the next largest consumer of fuel in this sector (primarily gasoline and diesel), and accounted for about four percent of total GHG emissions. The largest fuel users in this category are construction and mining, industrial, pleasure craft, and agricultural.

The rail transportation category consumes diesel fuel for goods movement, the Coaster commuter rail line, and the Sprinter light-rail line. The light-rail San Diego Trolley is powered by electricity. The diesel consumption
accounts for about one percent of the region’s carbon footprint, while electricity to power the Trolley accounts for a very small amount of GHG emissions from the region’s electricity consumption. There are many types of water-borne navigation in the San Diego region, but the largest sources of fuel consumption are ocean-going vessels (OGVs) and harbor craft at Port of San Diego marine terminals. It should be noted that in addition to rail, OGVs are the most efficient mode of goods movement. The majority of fuel use from OGVs is due to automobile shipments, refrigerated vessels, and passenger cruise ships, which primarily consume heavy fuel oil, but also use diesel fuel. The majority of harbor craft fuel use is due to commercial and charter fishing boats. Water-borne navigation accounts for less than one percent of total GHG emissions. Without change in policy or behavior, fuel consumption from these sources is expected to increase to 2030 and continue to rely primarily on petroleum-based fuels. However, the trend of decreasing aviation fuel consumption is projected to continue.

Regional Planning for Alternative Fuels and Vehicles

Siting alternative fueling stations, vehicle charging points, vehicle maintenance facilities, and other infrastructure in coordination with vehicle availability and purchases is of critical importance to a successful transition to alternative fuel vehicles in the on-road transportation sector. Such coordination is needed to provide customers like fleet managers and the general public with a level of certainty that infrastructure will be available to support their investment in an alternative fuel passenger vehicle. Planning for truck stop electrification (TSE) and anti-idling (AI) measures can help save energy from heavy-duty trucks in the goods movement sector. Outfitting the region with electric charging points and alternative fuel infrastructure can also help attract private investment associated with alternative transportation to the region.

SANDAG is a logical entity for coordinating planning of alternative fuel infrastructure and identifying suitable locations for infrastructure. As a regional planning agency, SANDAG can ensure that alternative transportation considerations are integrated with development of the regional transportation network and recommend specific alternative fuel and vehicle technologies for different transportation sectors that are tailored to the unique characteristics of the region. In addition, SANDAG can facilitate vehicle and infrastructure deployment through actions such as development of a unified regional vision, identification of funding opportunities and coordination of funding applications, and development of standardized guidelines for infrastructure siting, permitting, and education. Please see SANDAG’s Draft Regional Alternative Fuels, Vehicles, and Infrastructure Report for a detailed assessment of alternative fuels, vehicles, and infrastructure and recommended actions for the San Diego region (the final report is anticipated in Fall 2009).

Recommended Actions:

General

- Create an action plan that incorporates alternative fuel vehicles and increased efficiency into the SANDAG vehicle fleet, and the vehicle and equipment fleets of contractors and funding recipients, such as the vehicle fleet for the vanpool program.
- Use the Regional Alternative Fuels, Vehicles, and Infrastructure Report and the Regional Energy Strategy Update as tools to support the integration of alternative transportation options into local government fleets, planned regional transportation projects, and future updates of the Regional Transportation Plan and the Regional Comprehensive Plan.
- Develop a regional approach to infrastructure planning for alternative fuels by facilitating continued development of a public-private strategic alliance.
- Support regional efforts to educate the general public about the benefits of alternative fuels.
- Help local governments develop streamlined permitting requirements and standardized design for electric charging stations.
- Support regional production of alternative fuels, vehicles, and infrastructure.
- Help the region pursue and secure funding for increased deployment of alternative fuel vehicles and infrastructure.
- Support electricity and natural gas tariffs that encourage their use as transportation fuels.
- Support state and federal legislation that can help the region increase availability of alternative fuels, vehicles, and infrastructure.

**Passenger Cars and Light-Duty Trucks**
- Make plug-in hybrids and electric vehicles the top priority for alternative fuel vehicle purchases. Where plug-in hybrids or electric vehicles are not an option, purchase new CNG vehicles.
- Monitor the status of E85, propane, biodiesel, and hydrogen fuels and vehicle technologies and periodically re-evaluate opportunities for regional deployment.
- Accelerate the transition to plug-in hybrids and electric vehicles by developing a regional plan for the installation of a public access electric car charging network, as recommended in the *Regional Alternative Fuels, Vehicles, and Infrastructure Report*.
- Analyze the potential impacts of plug-in hybrid and electric vehicle deployment on the electricity grid.

**Heavy-Duty Trucks and Buses**
- Make natural gas, biodiesel blends up to B20, and hybrid technologies the top priority for heavy-duty trucks.
- Improve efficiency and conserve energy in the heavy-duty truck sector through measures like truck stop electrification and anti-idling.
- Monitor the status of electric vehicles, hydrogen, and biodiesel blends greater than B20 and periodically re-evaluate opportunities for regional deployment.
- Coordinate with regional transit agencies and school districts to incorporate alternative fuels, vehicles, and infrastructure considerations into their bus fleets.
- Facilitate the transition to natural gas, B20, and electrification by developing a regional plan for public access infrastructure.
- In addition to improved efficiency and alternative fuels, support energy efficient alternatives to moving goods by heavy-duty truck.

**Other Transportation**
- Support strategies to reduce jet fuel and natural gas consumption, including but not limited to lower-carbon alternatives to jet fuel, provision of landside electric power to aircraft, more efficient movement of aircraft, electrification of airport ground support equipment, and shifting people and goods movement to more efficient travel modes like rail transportation.
- Support efficiency, electrification or use of alternative fuels to power off-road vehicles and equipment.
- Support ocean going vessels as an efficient means of people and goods movement.
- Reduce fuel oil and diesel consumption in ocean going vessels through electrification and strategies to increase efficiency.
- Support rail transportation as an efficient mover of people and goods relative to on-road transportation and aviation.
- Reduce diesel consumption from rail transportation through use of the most efficient diesel locomotive technology or electrification.
9 - LAND USE AND TRANSPORTATION PLANNING

Goal: Reduce the energy demand of the built environment through land use and transportation planning.

Energy consumption is strongly related to urban form, the physical features and composition of the built environment in a region. The built environment is comprised of the building stock, land use pattern, transportation network, open space system, and distribution of other public facilities such as parks and schools. The energy demand of the built environment is strongly related to the design and orientation of buildings, distribution and density of development, types of transportation infrastructure, and the design of public facilities. Although there is considerable variation throughout the region, the existing built environment generally features segregation between land uses and transportation systems and urban design that favor the automobile over biking, walking, and public transit. To a large degree, these factors influence the amount of energy residents of the San Diego region consume in their daily lives. In fact, personal vehicle use (e.g., passenger cars; sport utility vehicles; pick-up trucks), residential electricity use and natural gas consumption together account for about 56% of total GHG emissions in the region.

![Figure 1: The Urban Heat Island Effect](image)

In addition, exposed urban surfaces like roofs and pavement absorb heat and cause surface and air temperature in developed areas to become warmer than undeveloped areas through a process known as the urban heat island effect (Figure 1). There are several negative impacts associated with urban heat islands, including increased energy demand for cooling during summer months, particularly during periods of peak electricity demand.

Local governments and SANDAG have the ability to influence the built environment, including the amount of energy consumed, through regulation, incentives, and infrastructure investments. In addition, local governments can contribute to regional energy goals for increased distributed generation and large scale renewable power by considering the spatial requirements of energy infrastructure in local land use plans, ranging from on-site and distributed generation systems to utility-scale renewables, power plants, substations and transmission lines. A local government’s approach to these issues may influence its character, energy demand, carbon footprint, and type of available energy sources.

A major objective of local land use and regional transportation planning is to identify the land and infrastructure needed to accommodate projected population, housing, and job growth while maintaining and enhancing quality of life. The San Diego region is forecast to grow by another million residents by 2030, about 30 percent more people than today. In the past, population growth has been associated with increased total electricity consumption, gasoline consumption, and vehicle miles traveled. The relationship among population growth, energy consumption and travel behavior will continue to follow past trends unless the region develops a new strategy for population growth and the built environment that addresses energy savings.
Existing Planning Efforts

Fortunately, SANDAG and the local jurisdictions, through a collaborative process, have already developed a strategy to accommodate projected growth based on the concept of smart growth. Under SANDAG’s adopted smart growth principles, smart growth opportunity areas are places that could accommodate higher residential and employment densities within pedestrian-friendly activity centers connected to other activity centers by public transit. Essentially, smart growth seeks to reduce the amount of vehicle use. The Smart Growth Concept Map (Figure 2) illustrates the nearly 200 locations of existing, planned, and potential smart growth opportunity areas in seven place types reflecting the notion that smart growth is not a “one-size-fits-all” concept. SANDAG provides funding for transportation and transportation-related infrastructure improvements and planning efforts that support smart growth development through the TransNet Smart Growth Incentive Program.

The Regional Comprehensive Plan – the blueprint for the region’s growth – describes the importance of better integrating smart growth development with transportation planning. SANDAG develops the Regional Transportation Plan (RTP) and allocates funding to implement the long-range vision for the regional transportation network. The adopted 2007 RTP is founded on four main components: (1) better integration of smart growth land use with the transportation system, (2) systems development including improvements to the highway, road, and public transportation systems, (3) systems management to make more efficient use of existing facilities and investments, and (4) demand management to encourage alternatives to driving alone and minimize demand during peak travel periods.

Broadening Planning Efforts to Address Energy

Energy savings is not an explicit objective of regional land use and transportation planning. However, the region’s adopted smart growth strategy and existing transportation investments in areas like public transportation and demand management promote a less energy-intensive built environment. These energy implications of the smart growth strategy and transportation plan should be acknowledged, as should land use and transportation strategies that do not save energy. Moreover, the region could more broadly address energy demand, supply, and infrastructure issues by broadening the definition of smart growth to include all energy strategies. Increasing onsite production of renewable energy, using distributed electricity generation, orienting residences in relation to the sun, increasing shading, incorporating roofs and pavements that reflect heat, producing food locally, and installing energy-efficient appliances are some of the non-transportation related strategies that would fall under a broader definition of smart growth and produce significant energy savings. Smart community strategies – deployment of information technology to change how a community uses its physical space – may also reduce the energy demand of the built environment by reducing the amount of vehicle travel, for example.

A review of the region’s existing strategies against the following general characteristics of low-energy demand built environments (at a minimum) would ensure that energy considerations are more fully integrated into the region’s smart growth land use and transportation planning:

1. Building stock featuring energy efficiency, distributed generation, and solar orientation;
2. Compact land use pattern with convenient access to a mixture of land uses and a person’s daily needs;
3. Infrastructure supporting energy efficient transportation choices like walking, bicycling, and public transit as well as alternative fuel vehicles;
4. Public realm designed to reduce urban heat island effect (e.g., increased tree and vegetative cover; cool pavements) and convey a scale and character that supports convenient access and energy efficient transportation choices;
5. Smart community strategies that deploy information technology to change how a community uses its physical space to save energy (e.g., telecommuting to avoid vehicle trips); and
6. Consideration of spatial requirements of small- and large-scale energy infrastructure.
Figure 2: Smart Growth Concept Map
Since the existing built environment is the result of several decades of land use development and transportation investments, reducing its energy demand will likely be incremental in the near-term. However, by 2030, land use and transportation planning decisions made to accommodate future growth can have a large impact on the amount of energy consumed, the distribution of land uses, access to destinations, the design of the public realm, and how people travel. The evolution of the built environment will not only affect achievement of energy and climate change goals, but the region’s ability to maintain and enhance residents’ quality of life through co-benefits like improved public health and air quality. The region can lower the energy demand of the built environment through continued smart growth development, increased energy efficiency and distributed generation, improved urban design, and transportation planning and investments that reduce energy consumption.

Finally, it is important to note that the increased support for walking, bicycling, and public transit as well as shorter vehicle trips associated with a low-energy demand built environment will help lower greenhouse gas (GHG) emissions from passenger cars and light-duty trucks. SANDAG’s requirement under state law to achieve GHG emission reduction targets from passenger cars and light-duty trucks in the next update of the RTP through integrated land use and transportation planning will be discussed in greater detail in the Regional Climate Action Plan.

**Recommended Actions:**

- Local governments should participate in SANDAG’s Sustainable Region Program and Energy Roadmap Initiative that identify ways to integrate energy considerations into local planning tools, codes, and ordinances such as the General Plan, zoning ordinance, and building code.
- Support adoption of local building energy codes beyond the current Title 24 and other measures that help meet a goal of zero net energy homes by 2020 and zero net energy commercial buildings by 2030.
- Continue to encourage and help local governments incorporate Potential Smart Growth Opportunity Areas into adopted land use plans.
- Support a low-energy demand built environment, energy efficient transportation choices, and alternative fuel vehicles in future updates of the Regional Transportation Plan, including, to the extent applicable, the Sustainable Communities Strategy required by Senate Bill 375.
- Support further integration of energy considerations for the built environment in future updates of the Regional Comprehensive Plan.
- Explore opportunities to support one or more demonstration projects in the region that exemplify adopted smart growth principles along with comprehensive energy saving strategies.
- Include comprehensive estimates of energy consumption and GHG emissions for land use and transportation planning scenarios at the regional and local level.
10 - ENERGY AND BORDERS

**Goal:** Integrate energy considerations into existing and future collaborative border initiatives.

Energy supply, usage, and conservation in the San Diego region are impacted by actions of its neighbors and vice versa. San Diego County borders include Orange, Riverside and Imperial Counties, Mexico, and 17 tribal governments (the most in any county of the US). Collaborative efforts are underway among SANDAG, its member agencies and its neighbors on various issues including transportation congestion management and goods movement. SANDAG and its member agencies can take steps to further integrate energy considerations into its border planning activities as the region strives to diversify its fuel sources, expand renewable energy resources, and address environmental and climate-related pollutants from transportation. The region cannot be successful in any of these areas without the involvement of our neighbors. Through its Borders Committee, SANDAG addresses policy issues related to transboundary planning from three perspectives—tribal, interregional, and binational.

**Tribal Governments**

The tribal governments in San Diego County and SANDAG are working together to develop and implement innovative government-to-government strategies to address transportation and other regional planning issues. Existing tribal coordination includes goals, policy objectives and actions focused on improving communication and collaboration with tribal governments in areas of regional importance such as economic development, transportation, housing and water supply. Energy can be integrated into these discussions in terms of transportation fuels, mobility choices, efficient building design and retrofits, renewable energy development, and water-energy issues.

**Interregional Coordination**

During the 1990s, the San Diego region's average annual population growth rate paralleled the national average. However, the rates in Orange, Riverside, and Imperial Counties were substantially higher. Through interregional coordination, neighboring councils of government and transportation planning agencies have begun to develop collaborative strategies in economic development, transportation, and housing that will improve the quality of life for residents in each county by reducing the impacts of interregional commuting, creating more jobs in housing-rich areas and more housing in jobs-rich areas. SANDAG and its member agencies can foster the integration of energy considerations into existing interregional efforts, like the voluntary partnership between Western Riverside and San Diego region centered on the two-county commute corridor along the Interstate 15.

**Binational Coordination**

Given San Diego’s unique position as an international gateway, binational coordination already exists to address economic development, homeland security and other pressing cross-border issues. In 2008, SANDAG hosted its annual binational event in which participants met to discuss smart growth issues, including climate change. This year’s binational event was held in June 2009 and focused solely on climate change initiatives on both sides of the border, as well as exploring opportunities to share information and work together to reduce greenhouse gas emissions. Continued coordination between California and Baja California can help identify common issues, interdependencies and policies and actions to address energy planning and infrastructure on both sides of the border.

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Recommended Actions:

- Encourage regional coordination on energy and climate related issues in the border region that come within the purview of SANDAG, the Borders Committee, the Committee on Binational Regional Opportunities (COBRO), and the Regional Energy Working Group.
- Collaborate with entities seeking funding opportunities that promote binational, tribal and interregional energy efficiency programs for buildings, planning, infrastructure and transportation.
- Support the integration of energy-saving measures for buildings, transportation and overall project design for the development of the new Port of Entry at Otay Mesa East.
- Support measures including greater transit, pedestrian, and bicycle access that can reduce congestion and vehicle idling at the Ports of Entry between San Diego, California and Baja California, Mexico.
- Support measures that reduce the petroleum use and greenhouse gas emissions from heavy duty vehicles associated with goods movement across our borders.
- Explore energy saving measures on both sides of the international border that relieve stress on the shared regional electricity system.
- Monitor and evaluate regional natural gas storage and pipeline capacity to accommodate future demand.
11- CLEAN ENERGY ECONOMY

**Goal:** Collaborate with workforce entities, employers, and labor unions to identify and expand local job placement mechanisms in the Clean Energy Sector.

According to the California Economic Strategy Panel, green products and practices, including those in the Clean Energy Sector, can be found in the same industries as conventional products and practices. As such, an economic analysis of the type and amount of clean energy jobs and investment based primarily on tracking business and employment growth by industry is difficult to quantify. The following types of industries and jobs comprise the Clean Energy Sector:

<table>
<thead>
<tr>
<th>GREEN INVESTMENTS AND JOBS</th>
<th>REPRESENTATIVE JOBS</th>
</tr>
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<tbody>
<tr>
<td>Building Retrfitting</td>
<td>Electricians, Heating/Air Conditioning Installers, Carpenters, Construction Equipment Operators, Roofers, Insulation Workers, Carpenter Helpers, Industrial Truck Drivers, Construction Managers, Building Inspectors</td>
</tr>
<tr>
<td>Mass Transit/Freight Rail</td>
<td>Civil Engineers, Rail Track Layers, Electricians, Welders, Metal Fabricators, Engine Assemblers, Bus Drivers, Dispatchers, Locomotive Engineers, Railroad Conductors</td>
</tr>
<tr>
<td>Smart Grid</td>
<td>Computer Software Engineers, Electrical Engineers, Electrical Equipment Assemblers, Electrical Equipment Technicians, Machinists, Team Assemblers, Construction Laborers, Operating Engineers, Electrical Power Line Installers and Repairers</td>
</tr>
<tr>
<td>Wind Power</td>
<td>Environmental Engineers, Iron and Steel Workers, Millwrights, Sheet Metal Workers, Machinists, Electrical Equipment Assemblers, Construction Equipment Operators, Industrial Truck Drivers, Industrial Production Managers, First-Line Production Supervisors</td>
</tr>
<tr>
<td>Advanced Biofuels</td>
<td>Chemical Engineers, Chemists, Chemical Equipment Operators, Chemical Technicians, Mixing and Blending Machine Operators, Agricultural Workers, Industrial Truck Drivers, Farm Product Purchasers, Agricultural and Forestry Supervisors, Agricultural Inspectors</td>
</tr>
</tbody>
</table>

Source: Political Economy Research Institute, University of Massachusetts-Amherst, 2008

**Clean Energy Sector jobs are defined as blue or white collar positions that:**
- Preserve, restore, or improve the environment;
- Help save energy, advance new energy efficient technologies, or foster a more sustainable regional and national energy system;
- Have been updated to adopt sustainability as a core segment of the job description; and
- Provide career pathway opportunities leading to sufficient income to support a household and potential for advancement.

**Opportunities and advantages to the Region from expanding the Clean Energy Sector:**
- Creating new jobs or retraining the unemployed and under-employed in a time of economic downturn;
- Providing opportunities for career advancement in the sustainability fields;
- Reducing our dependence on foreign oil, and strengthening national security;
- Promoting the use of domestic renewable energy resources;
- Reducing high utility costs of energy-inefficient public buildings and public housing; and
- Mitigating climate change by cutting greenhouse gas emissions.

Through 2019, significant investment will be injected into the Clean Energy Sector through the American Recovery and Reinvestment Act (ARRA) of 2009. Nationally, ARRA will provide $787 billion of stimulus funding, with most made available in 2009-2011. As of June 2009, energy-related allocations to California are listed in the table below.
Investment in the Clean Energy Sector Growing

Even without ARRA funds, the Clean Energy Sector is expected to grow. Clean Edge, which tracks the growth of clean-tech markets, reports that global revenues for solar photovoltaics, wind power, and biofuels expanded from $75.8 billion in 2007 to $115.9 billion in 2008, an increase of about 53 percent.

Clean Edge’s 2009 energy trends study identified a 30 percent growth of clean energy venture capital investments as a percentage of total venture capital investments in US-based companies from 2007 (9.1 percent) to 2008 (11.8 percent). In 2000, clean energy venture capital comprised only 0.6 percent of the total.

Job Creation by Clean Energy Sector

The influx of federal stimulus funding creates the potential for significant growth in Clean Energy Sector. Various levels of job creation are identified in economic studies from the US Environmental Protection Agency, American Council for an Energy-Efficient Economy (ACEEE), American Solar Energy Society (ASES), US Council of Mayors, University of California Berkeley, among others. In 2008, a comprehensive analysis of national energy efficiency and energy supply investments by ACEEE found that since 1970, energy efficiency and energy productivity gains have met 75 percent of new energy service demands in the U.S., while new energy supplies contributed 25 percent.

Building Retrofit and Green Construction

Generally, green construction, retrofit, and conventional construction projects are bid and worked on by similar contractors. In construction, some of the differences between green and conventional renovations are the composition of materials used in the process, where and how the materials are produced and how waste is addressed. Continual training and continuing education programs can provide the knowledge needed about green construction for contractors, architects, inspectors, permitters, and marketers that communicate with customers.
**Renewable Energy and SMART Grid Workers**

Similar to construction, many workers in renewable energy fall under the classifications of the traditional construction trades. Increasing demand for energy efficiency and renewable energy systems can be expected to generate new employment opportunities for electricians, HVAC technicians, carpenters, inspectors and permitters, plumbers, roofers, laborers, and insulation workers, among others. Comprehensive home and commercial building programs also would increase demand for green building materials, and would stimulate associated manufacturing industries. Training and retraining of existing workers is integral to expanding the region’s clean energy sector.

<table>
<thead>
<tr>
<th>Manufacturing Investment</th>
<th>Job Creation</th>
</tr>
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<tbody>
<tr>
<td>$1 million in renewable energy systems</td>
<td>5 full time employment component manufacturing jobs</td>
</tr>
<tr>
<td>$1 million in energy efficiency programs</td>
<td>3-4 building material manufacturing jobs</td>
</tr>
<tr>
<td>1 direct manufacturing job</td>
<td>2.9 indirect jobs (finance, transportation, supply chains, installers, and other related businesses) (EPI 2003)</td>
</tr>
</tbody>
</table>

Sources: Apollo Alliance Green Manufacturing Action Plan, 2009, Economic Policy Institute

**Clean Transportation (including transit and biofuels)**

Continuing and rapid changes in transportation technology to improve vehicle or system operation efficiency, to switch from petroleum based to alternative fuels, to reduce environmental emissions, and to effectively integrate transportation systems have also resulted in major changes in skill requirements. Some of these skills are enhancements of existing ones; however there is a substantial difference between working on a diesel powered vehicle and one powered by natural gas. Hybrid vehicles require advanced electrical training and biodiesel, a good working knowledge of chemistry. Training and retraining of existing workers is critical to reducing petroleum use and limiting adverse environmental emissions.

**Regional Clean Energy Job Development Opportunities**

Leverage state and federal resources such as California’s Green Collar Jobs Council (formed by passage of Assembly Bill (AB) 3018) and Clean Energy Workforce Training Partnership, which was formed to best utilize ARRA funding to stimulate quality job growth.

The Green Jobs Guidebook prepared by the Environmental Defense Fund provides detailed job descriptions for renewable energy and energy efficiency related jobs in California for employment year 2008-2009. Links to apprenticeship programs and job placement programs are included.

**Recommended Actions:**

- Promote the integration of Clean Energy Sector initiatives into existing workforce systems.
- Foster the development and implementation of clean energy workforce training programs amongst the region’s private and governmental organizations and labor unions.
- Collaborate with universities, community and technical colleges, high schools, Workforce Investment Boards (WIBs), community-based organizations, and economic development agencies to bring funds to the region and support pathways to provide technical training, and integrate students and newly trained workers into the local workforce.
  - Support apprenticeships, internships, and/or job shadowing with labor unions, government organizations, and private companies
  - Support continual technical (re)training of existing workforce to maintain jobs as new technologies and methods change
- Collaborate with regional economists to develop mechanism to start tracking level of clean energy investment and jobs in the San Diego region.
12 - ENERGY AND CLIMATE CHANGE

Goal: Transition to energy sources and consumption levels that will put the region on a path to achieve the 2050 emissions level for climate stabilization.

The type and amount of energy used in the San Diego region is the overwhelming source of greenhouse gas (GHG) emissions that cause climate change. Table 1 shows emissions in the four principal categories established by the United Nations Intergovernmental Panel on Climate Change (IPCC).

### Table 1: San Diego County GHG Emissions by IPCC Category

<table>
<thead>
<tr>
<th>Intergovernmental Panel on Climate Change Category</th>
<th>Percentage of Total Greenhouse Gas Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>91%</td>
</tr>
<tr>
<td>Industrial (non-fuel)</td>
<td>5%</td>
</tr>
<tr>
<td>Waste</td>
<td>2%</td>
</tr>
<tr>
<td>Agriculture, Forestry, Land Use</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: Energy Policy Initiatives Center, University of San Diego, 2008.

Although a myriad of energy-consuming activities are responsible for GHG emissions in the region, about 80 percent of emissions are caused by three categories: on-road transportation (i.e., passenger cars, light-duty trucks, electricity generation, and heavy-duty vehicles); electricity generation; and natural gas end uses (Figure 1). The largest emissions category is on-road transportation, which accounts for nearly half of emissions (47 percent). Moreover, energy consumed by passenger cars and light-duty vehicles (pick-up trucks, sport utility vehicles), primarily gasoline for personal transportation, accounts for about 89 percent of on-road transportation emissions, and about 41 percent of total emissions in the region.

### Figure 1: Summary of Greenhouse Gas Emissions by End-Use Category

GHG emissions can also be analyzed by economic sector. As shown in Figure 2, the residential sector (i.e., passengers cars, light-duty trucks, electricity and natural gas consumption) accounts for more than half (56 percent) of all regional emissions. This indicates that energy used by residents move around the region and how they consume energy at home are significant contributors to regional GHG emissions.
Regional Greenhouse Gas Emissions Projections

Under a business-as-usual scenario in which current energy use trends and policies do not change, GHG emissions in the region will be approximately 43 MMT CO₂E in 2020, approximately 26% greater than the 2006 level and 48% higher than the 1990 level. Emissions would be even greater in 2030 under a business-as-usual scenario. The projected increases in energy consumption and GHG emissions for on-road transportation, natural gas and electricity are provided below in Figures 3-8.

Figure 3: Projected On-road Fuel Consumption, 2007-2020

Source: Energy Policy Initiatives Center, University of San Diego, 2008.
Figure 4: Projected Greenhouse Gas Emissions from On-road Consumption, 1990-2020

Source: Energy Policy Initiatives Center, University of San Diego, 2008.

Figure 5: Projected Natural Gas Consumption, 2007-2030

Source: Energy Policy Initiatives Center, University of San Diego, 2008.

Figure 6: Projected Greenhouse Gas Emissions from Natural Gas Consumption, 1990-2030

Source: Energy Policy Initiatives Center, University of San Diego, 2008.
Greenhouse Gas Reduction Targets

The California Global Warming Solutions Act of 2005 (Assembly Bill 32, Statutes of 2006) requires GHG emissions to be reduced to the 1990 level by 2020; about 15 percent below current levels. In addition, Executive Order S-3-05 establishes a long-term goal for GHG emissions equal to 80 percent below the 1990 level by 2050. Although not required by statute, the 2050 target is based on the level of emissions reduction required for climate stabilization and used as the long-term driver for state policy development.

Although the state does not set reduction targets for specific geographic region of the state, the theoretical emissions reductions necessary to reduce emissions to the 2020 and 2050 targets illustrates the magnitude of change the region needs to make over the next four decades (Figure 9). It should be noted that deep cuts in GHG emissions must occur during a period of projected growth in population and economic output.
The Regional Energy Strategy Approach to Climate Change

Achieving the 2020 target will likely focus efforts to use energy more efficiently, while the 2050 target for GHG emission reductions will require fundamental change in how we use energy. Fortunately, we have already started on a path to a cleaner and more energy efficient future. The Regional Energy Strategy identifies recommended actions that build on existing efforts to start the region on a long-term path to do its part for climate stabilization.

Strategies for On-Road Transportation

The three primary strategies for reducing GHG emissions from fuel use in the on-road transportation sector are to: (1) improve vehicle fuel efficiency, (2) reduce the carbon content of transportation fuels, and (3) better integrate land use patterns and transportation infrastructure through improved planning.

The State has adopted the Light-Duty Vehicle Greenhouse Gas Standards and Low Carbon Fuel Standard (LCFS) to improve vehicle fuel efficiency and increase the availability and diversity of low-carbon fuels, respectively. Section 8, Transportation Fuels, identifies how the region can contribute to the deployment of low-carbon alternative fuels, vehicles, and infrastructure to local governments and the general public. Senate Bill 375 (Statutes of 2008) requires metropolitan planning organizations (MPOs) such as SANDAG to achieve GHG emissions reduction targets from passenger cars and light-duty trucks through improved land use and transportation planning. Section 9, Land Use and Transportation Planning, describes how the region can reduce energy consumption from passenger cars and light-duty trucks through improved land use and transportation planning. A major focus is on the need for land use planning and transportation investments to support energy efficient transportation choices like walking, bicycling, and public transit as well as shorter vehicle trips.

Strategies for Electricity Generation and Natural Gas End Uses

The primary strategies for reducing GHG emissions from electricity generation and natural gas end use are increasing energy efficiency and reducing the carbon intensity of electricity supplies.

Energy Efficiency

Energy efficiency measures for both electricity and natural gas can significantly reduce GHG emissions. The primary focus is on improving energy efficiency for both existing building stock and new construction. In particular, the existing building stock presents a significant opportunity to achieve major improvements in energy efficiency. Much of the region’s building stock is already on the ground, and substantial new building stock will be added between now and 2030. Buildings typically have a lifespan of several decades. As a result, it is important to reduce emissions from both the existing building stock and new construction.

The strategies to improve building energy efficiency include Zero Net Energy (ZNE) buildings, voluntary and mandatory measures to achieve energy efficiency beyond minimum requirements for new construction, voluntary and mandatory energy-saving retrofits for existing buildings, and improved compliance and enforcement of energy efficiency standards. Increased installation of high efficiency technologies like solar hot water heaters and cogeneration systems are additional strategies to offset natural gas use and meet energy needs more efficiently. And finally, funding and financing strategies are essential to successfully increasing energy efficiency and reducing GHG emissions from the region’s building stock. For more on Energy Efficiency, please refer to Section 1.

Carbon Intensity of Energy Supplies

In addition to improved energy efficiency, reducing GHG emissions from electricity and natural gas requires the increased installation of renewable energy sources, including renewable onsite power systems such as photovoltaic solar panels and utility-scale electricity projects taking advantage of solar and wind resources. Clean, nonrenewable onsite power systems and the most efficient, state-of-the-art utility-scale natural gas plants also are needed to reduce the GHG intensity of the region’s energy supply. Please see Section 2 for more discussion of regional goals and actions related to renewable energy. Natural gas is discussed in Section 7.
Although resources like biomass, geothermal, and small-scale hydroelectric generation can provide baseload power, other renewable resources are intermittent (wind) or variable over time (solar). As a result, integration of intermittent generation into the electricity system will require grid improvements to accommodate the variation in power availability and improve grid reliability such as improved communications technology, automated demand response, and other modern technologies. Recommended actions to improve demand response and implement the smart grid are discussed in sections 5, Peak Demand, and 6, The Smart Grid, respectively.

Energy-Water-Climate Change Connection

In the San Diego region, water and energy resources – and therefore climate change – are closely connected. Water utilities use large amounts of energy to pump, treat, deliver and recycle water, while residents and businesses use energy to heat, cool, and use the water. Energy also is used to dispose of wastewater and power the large pumps that move water throughout the state. GHG-emitting fossil fuels are the primary source of the embedded energy in water. As of 2005, water-related energy use consumes 19 percent of the state’s electricity, 30 percent of its non-electricity generation natural gas consumption, and 88 million gallons of diesel fuel every year. Moreover, water demand continues to grow. End-uses, like landscape irrigation and clothes washing, are the highest amount of water-related energy use. On the other hand, water providers have the opportunity to offset their energy consumption and even contribute to regional goals for renewable electricity by generating hydropower through pumped storage projects, or onsite generation of renewable electricity.

Historically, the energy implications of water decisions were not typically considered. Water sources were chosen without consideration of the energy costs; conversely, energy savings were not associated with water conservation and efficiency measures. However, understanding of the nexus between water and energy is beginning to grow. The region can build on this understanding to take actions that save energy and water resources: reducing the energy intensity of water supply and uses will reduce the region’s contribution to climate change while using less water will help the region adapt to the reduction in water supply anticipated from climate change. Integrating energy considerations into water planning also can save money and strengthen the economy. California water and wastewater agencies spend more than $500 million annually on energy costs. Recommended actions are provided in Section 4, Energy and Water.

The Effect of Climate Change on Energy Consumption

Environmental changes caused by climate change also will impact energy production. In the San Diego region and statewide, climate change is projected to increase the risk of drought or water shortages during summer months. In addition, winter runoff may increase and increase risk of flooding. As a result, hydroelectric power generation may be adversely affected. Lower runoff flows would decrease hydropower generation while higher flows often must be spilled past dams without generating any electricity. Lost hydropower generation would have to be replaced with electricity generated from renewable sources, or else GHG emissions from electricity generation would increase.

In addition, increased average temperatures and longer and more extreme heat events associated with climate change are expected to increase peak demand for electricity. In many cases, relatively inefficient and high GHG-emitting “peaker plants” are utilized to meet peak demand. As a result, demand response strategies will become an even more important part of the region’s energy strategy as a result of climate change.

Conclusion

The goals and recommended actions of the Regional Energy Strategy described above will help the region meet its energy needs while beginning and making substantial progress on a path to clean, low carbon energy future. Please refer to SANDAG’s Regional Climate Action Plan for more details on the region’s response to global climate change.
Introduction

The Assembly Bill (AB) 32 Climate Change Scoping Plan and Senate Bill (SB) 375 emphasize the need to better connect land use plans with regional transportation networks to help achieve the state's greenhouse gas (GHG) emissions reduction target for 2020. SB 375 requires metropolitan planning organizations (MPOs) to create a Sustainable Communities Strategy (SCS) that integrate the transportation network with development patterns in a way that achieves GHG emissions reduction targets from passenger cars and light-duty trucks while meeting housing needs and other regional planning objectives. SANDAG is required to develop a SCS demonstrating how the region will achieve the targets to be established through the SB 375 process in the next Regional Transportation Plan (RTP) update.

As part of the multi-year partnership with the California Energy Commission and included as a mitigation measure in the 2007 RTP Environmental Impact Report (EIR), SANDAG is preparing a Regional Climate Action Plan (RCAP). The RCAP will assist in SANDAG efforts to develop an SCS that achieves the SB 375 targets - a key component of the next RTP. In addition to transportation and land use planning, the RCAP also will address a broad range of opportunities for SANDAG and its member agencies to reduce their contribution to climate change and prepare for its impacts.

This report presents guiding principles developed as a framework for the RCAP, potential policy measures to reduce GHG emissions, and prospective performance measures to monitor progress. These draft components have been developed with stakeholder input from the Regional Energy Working Group (EWG) and the Regional Planning Technical Working Group (TWG), and were discussed at April 3, 2009, meeting of the Regional Planning Committee (RPC) and the May 22, 2009, meeting of the Board of Directors.

Discussion

The primary purpose of the RCAP is to analyze and recommend climate change policy measures that SANDAG and its member agencies can support, with a focus on helping SANDAG identify measures to achieve the SB 375 targets for passenger cars and light-duty trucks. Major RCAP components will include:

- Guiding principles to direct regional and local climate change decision-making;
- Emissions data from the GHG Emissions Inventory for San Diego County conducted by the Energy Policy Initiatives Center (EPIC) at the University of San Diego (USD);
- County-specific climate impacts and adaptation findings from the Regional Focus 2050 Study prepared by the San Diego Foundation;
• Policy guidance to help SANDAG and its member agencies reduce GHG emissions and adapt to the projected impacts of climate change; and

• Performance measures to gauge the effectiveness of climate change policy measures, monitor their progress, and verify results.

The draft guiding principles identify priorities to guide regional and local planning decisions related to climate change. They are intended to inform the development of goals and policies for the RCAP and ensure that decision-making puts the region on a path to achieve the needed level of emissions reductions for the near- (2020) and long-term (2050). The draft guiding principles include emphasis on improved community design, support for alternative fuels and vehicles, increased use of public transit, biking, and walking, energy efficiency and renewable energy, and preparation for the projected impacts of climate change. The guiding principles in Attachment 1 have been recommended for inclusion in the RCAP by the EWG.

With a primary focus on helping SANDAG implement SB 375, staff will calculate the potential GHG emissions reductions from potential land use and transportation policy measures using the SANDAG travel demand model and state emissions model where possible, and alternative methods when use of the models is infeasible (Attachment 2). Quantifying potential GHG emissions reduction associated with land use and transportation policy measures will help inform SANDAG recommendations to the state's Regional Targets Advisory Committee, which is charged with recommending a methodology for the California Air Resources Board to use in the establishment of regional GHG reduction targets required by SB 375. This analysis also will support SANDAG’s development of an SCS in the next RTP update.

In addition to land use and transportation planning, staff proposes to develop additional policy guidance addressing the major sectors and activities that account for regional GHG emissions and adapting to the projected regional impacts of climate change. Finally, a preliminary list of performance measures is provided as a means of evaluating over time the extent to which land use and transportation policy measures reduce GHG emissions (Attachment 3).

Next Steps and Schedule

In August 2009, staff will commence testing of the land use and transportation policy measures, with results expected in September. Next, a draft of the RCAP will be submitted to the Energy Commission for an internal peer review, and a public workshop will be held in October. The draft report will be taken back to the working groups and policy committees for additional input and review throughout the fall, with the final draft plan anticipated to be before the Regional Planning Committee and Board of Directors for consideration in late 2009 or early 2010.

BOB LEITER
Director of Land Use and Transportation Planning

Attachments: 1. Draft Guiding Principles for the RCAP
   2. Draft Greenhouse Gas Reduction Policy Measures for the RCAP
   3. Draft Performance Measures for the RCAP

Key Staff Contact: Andrew Martin, (619) 699-7319, ama@sandag.org
DRAFT GUIDING PRINCIPLES FOR THE REGIONAL CLIMATE ACTION PLAN

TAKE IMMEDIATE ACTION
Climate change is a serious global challenge to public health, the environment, and the economy requiring all levels of government, including SANDAG and its member agencies, to engage in immediate and sustained actions to reduce greenhouse gas (GHG) emissions and prepare for the impacts of a changing climate.

LEAD BY EXAMPLE
SANDAG and its member agencies lead by example and increase public awareness of climate change: our actions to reduce GHG emissions from internal operations and prepare for the impacts of climate change encourage residents and the private sector to follow our lead.

TAKE A BROAD APPROACH
The broad range of sectors comprising regional greenhouse gas emissions, impacts of climate change to the region, and major regional issues associated with climate change are addressed.

PROMOTE SOCIAL EQUITY AND ENVIRONMENTAL JUSTICE
Climate protection policies and actions promote the principles of opportunity, inclusion, and equal access for disadvantaged populations and ensure fair treatment and meaningful involvement for all people regardless of race, ethnicity, gender, income, national origin, or geography.

PREPARE FOR THE IMPACTS OF A CHANGING REGIONAL CLIMATE
The region will be prepared for projected impacts of climate change to San Diego, including increased threats to public health, higher sea level, warmer average temperature, more frequent and longer heat waves, increased peak demand for electricity, more vulnerable water supply, more frequent wildfires, and loss of native plant and animal species.

DESIGN COMMUNITIES FOR WALKING, BIKING, AND PUBLIC TRANSIT
Regional transportation planning is integrated with improved community design to significantly lower demand for vehicle travel by making walking, biking, and public transportation practical choices for everyday travel.

ACHIEVE ZERO NET ENERGY BUILDINGS
Aggressive strategies, including regulations and incentives, are employed to achieve zero net energy usage in new residential and commercial buildings and communities and reduce energy usage in existing residential and commercial buildings and communities through energy efficiency, clean distributed generation, and community planning efforts.

MINIMIZE GREENHOUSE GAS EMISSIONS FROM VEHICLE TRIPS
Programs to manage demand for vehicle trips, such as carpools, vanpools, and telecommuting, and improve their efficiency are an emphasis in regional transportation planning.

FUND THE REGIONAL TRANSIT NETWORK
Increasing and maintaining funding for public transportation planning and operations is recognized as critical to the success of the region’s efforts to reduce GHG emissions.
INCREASE ALTERNATIVE TRANSPORTATION FUELS AND VEHICLES
Infrastructure and policy promote the transition away from petroleum to vehicles and fuels with lower greenhouse gas emissions on a full fuel cycle basis.

PRICE TRANSPORTATION MODES TO REFLECT THEIR CLIMATE IMPACTS
Transportation pricing signals lead to travel behavior that supports regional GHG emissions reductions.

REDUCE GREENHOUSE GAS EMISSIONS FROM INTERREGIONAL AND BINATIONAL MOVEMENT OF PEOPLE AND GOODS
Infrastructure, policy, and technology are deployed as necessary to significantly lower GHG emissions associated with the interregional movement of people and goods.

MINIMIZE GREENHOUSE GAS EMISSIONS FROM ELECTRICITY AND NATURAL GAS USE
Conservation, energy efficiency, renewable energy, and distributed resources are preferred over new utility-scale fossil-fuel generated resources.
## DRAFT GREENHOUSE GAS REDUCTION POLICY MEASURES FOR THE REGIONAL CLIMATE ACTION PLAN

<table>
<thead>
<tr>
<th>Policy Measure</th>
<th>Description</th>
<th>Method to Determine GHG Reduction*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALTERNATIVE WORK SCHEDULES</strong></td>
<td>Workers would participate in a flexible work schedule or compressed work hours program to limit commuting during peak periods and/or limit the number of home-to-work commuting trips. A typical schedule involves employees working 10 hours per day, four days per week, or nine hours per day with one day off every two weeks.</td>
<td>Staff exploring alternative methods</td>
</tr>
<tr>
<td><strong>COMMUTER FINANCIAL INCENTIVES</strong></td>
<td>Financial incentives can be used to encourage the use of alternative commute modes. These include parking cash out, travel allowances, transit and rideshare benefits, and company travel reimbursement policies. These incentives are often provided as an alternative to subsidized employee parking.</td>
<td>Staff exploring alternative methods</td>
</tr>
<tr>
<td></td>
<td><strong>Parking Cash Out</strong>: commuters offered subsidized parking are also offered the cash equivalent if they use alternative travel modes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Travel Allowances</strong>: financial payments provided to employees in lieu of parking subsidies. Commuters could use the travel allowance to pay for parking or for another travel mode.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Transit and Rideshare Benefits</strong>: free or discounted fares provided to employees.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Reduced Employee Parking Subsidies</strong>: commuters who drive would pay a portion or all of their parking costs.</td>
<td></td>
</tr>
<tr>
<td><strong>DRIVER EDUCATION</strong></td>
<td>This strategy would promote fuel-efficient driving practices, such as reduced idling and gentle accelerations. This strategy could be implemented as a new driver education program or added to existing ones.</td>
<td>Staff exploring alternative methods</td>
</tr>
<tr>
<td><strong>ENHANCED SMART GROWTH LAND USE</strong></td>
<td>Build-out of the 111 potential smart growth opportunity areas shown on the SANDAG Smart Growth Concept Map.</td>
<td>SANDAG Model/EMFAC</td>
</tr>
<tr>
<td><strong>ENHANCED REGIONAL TRANSIT NETWORK</strong></td>
<td>Implementation of the Regional Transportation Plan (RTP) Unconstrained Revenue Transit network plus the following transit service improvements: circulator bus service with 10-minute frequency all day in the central City of San Diego communities of Mission Valley, North Park, and City Heights and 5-minute frequency all day in Downtown; 10-minute all-day service for all bus rapid transit (BRT) and regional bus routes; 7½-minute frequency all day for the Trolley; and 20-minute all day service for the COASTER.</td>
<td>SANDAG Model/EMFAC</td>
</tr>
<tr>
<td><strong>HIGH-OCCUPANCY VEHICLE (HOV) PRIORITY</strong></td>
<td>Strategies to prioritize high-occupancy vehicles (HOVs) – carpools, vanpools, and transit vehicles – on the road and for parking.</td>
<td>Staff exploring alternative methods</td>
</tr>
<tr>
<td><strong>PARK-AND-RIDE FACILITIES</strong></td>
<td>Collection points for individuals in carpools, vanpools, shuttle services or using public transit intended to encourage use of these modes as alternatives to driving alone.</td>
<td>Staff exploring alternative methods</td>
</tr>
</tbody>
</table>
### DRAFT GREENHOUSE GAS REDUCTION POLICY MEASURES FOR THE REGIONAL CLIMATE ACTION PLAN

<table>
<thead>
<tr>
<th>Policy Measure</th>
<th>Description</th>
<th>Method to Determine GHG Reduction*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PEDESTRIAN AND BICYCLING IMPROVEMENTS</strong></td>
<td>Measures that increase walking and bicycling as alternative modes of travel. There are many ways to increase nonmotorized transportation, such as improved sidewalks, paths, and bike lanes, pedestrian-oriented land use, building design, and streetscapes, increased connectivity, traffic calming, and safety improvements.</td>
<td>Staff exploring alternative methods</td>
</tr>
<tr>
<td><strong>PRICING MEASURES</strong></td>
<td>Increase in the per-mile cost of vehicle trips. Two price levels are being modeled: $0.012 per mile and $0.0472 per mile. Policies to increase the cost of vehicle trips could include road tolls, high occupancy toll lanes, congestion-pricing, cordon (area) tolls, fuel or carbon tax, and a per mile fee for vehicle travel.</td>
<td>SANDAG Model/EMFAC</td>
</tr>
<tr>
<td><strong>RIDESHARING</strong></td>
<td>New or expanded policies, programs, and incentives to promote carpooling and vanpooling.</td>
<td>Staff exploring alternative methods</td>
</tr>
<tr>
<td><strong>SMART GROWTH PARKING FEES</strong></td>
<td>Parking zones would be established in the existing/planned and potential smart growth opportunity areas. Parking fees are assessed according to level of density and land use mixture. No parking fees would be assessed at residential uses or within Rural Communities.</td>
<td>SANDAG Model/EMFAC</td>
</tr>
<tr>
<td><strong>SPEED LIMIT</strong></td>
<td>Maximum speed limit on regional transportation network of 55 miles per hour.</td>
<td>SANDAG Model/EMFAC</td>
</tr>
<tr>
<td><strong>TELECOMMUTING</strong></td>
<td>Two scenarios are proposed: (1) 40 percent of all jobs suitable for telecommuting, or 2 days offsite per work week; (2) 20 percent of all jobs suitable for telecommuting, or 1 day offsite per work week.</td>
<td>SANDAG Model/EMFAC</td>
</tr>
</tbody>
</table>

Notes:
*The EMFAC (EMission FACtors) model is developed by the California Air Resources Board and used by SANDAG to calculate air pollutant emission rates from on-road motor vehicles for purposes of demonstrating conformity with air quality standards.*
DRAFT PERFORMANCE MEASURES FOR THE REGIONAL CLIMATE ACTION PLAN

URBAN FORM AND TRANSPORTATION

- Greenhouse gas emissions, total and by passenger vehicle type (e.g., passenger cars and light-duty trucks)
- On-road fuel consumption, total by fuel type and per-capita*
- Regional vehicle miles traveled, total and per capita*
- Share of new housing units and jobs located within Smart Growth opportunity areas**
- Passenger vehicle ownership, total and per-capita
- Share of passenger cars, light-duty trucks, and alternative fuel vehicles in the passenger vehicle fleet
- Average vehicle occupancy
- Average trip distance*
- Miles of bike paths and lanes, total
- Annual transit boardings**
- Mode Share (commute** and non-work trips)
  - Single-Occupancy Vehicle
  - High-Occupancy Vehicle (HOV)
  - Transit
  - Nonmotorized
- Number of alternative fueling stations, privately and publicly accessible and by fuel type
- Miles of HOV lanes, total
- Employers providing trip reduction programs and/or incentives, total employers and covered employees

REGIONAL TRANSIT OPERATORS

- Greenhouse gas emissions, total by transit mode for each operator
- Fuel consumption, total by fuel type, transit mode for each operator
- Share of low emission/clean/alternative fuel vehicles for each operator’s fleet

LOCAL GOVERNMENT VEHICLE FLEETS

- Greenhouse gas emissions, total by jurisdiction’s fleet
- Share of low emission/clean/alternative fuel vehicles for each jurisdiction’s fleet

*Existing 2030 Regional Transportation Plan Performance Measure
**Existing Regional Comprehensive Plan Performance Monitoring Indicator
Coordinated Airport Multimodal Planning

- SB10 (2007) requires coordinated airport multimodal planning
  - Regional Aviation Strategic Plan (RASP) to be adopted by Airport Authority
  - Airport Multimodal Accessibility Plan (AMAP) to be adopted by SANDAG
- RASP / AMAP findings will be inputs into 2050 RTP
AMAP Phase 1 - Air-Rail Network Study

Can high-speed rail provide connections to airports forecast with additional capacity?

Two current studies:
- State’s Los Angeles to San Diego via Inland Empire High Speed Train (HST) Corridor
- SANDAG Feasibility Study to Extend to Tijuana International Airport

California Proposed High-Speed Train System

- 800-mile system
- Steel wheel-on-steel rail
- Up to 220 mph
- LA to San Diego via Inland Empire Corridor
- San Diego to
  - Riverside: 48 min
  - LA: 1 hr 18 min
  - Bay Area: under 4 hrs
Los Angeles to San Diego via Inland Empire HST Corridor

- Southern California Inland Corridor Group (SoCal ICG)
- Completing feasibility
- Project-specific environmental work (September) and final document in 2013
- Current terminus is Lindbergh Field / Downtown San Diego

Feasibility Study to Extend to International Border

- Two goals for study:
  - Feasible to extend state’s intercity service to U.S. crossborder terminal at Tijuana International Airport?
  - Feasible to operate high-speed commuter rail service along same alignment?
Proposed Evaluation Criteria

- Design
- Land Use
- Constructability
- Community
- Environmental Resources
- Natural Environment
- Stakeholder Comments

Alternative Alignment #1

- Interstate 5
- 12 minutes to Tijuana International
- Potential commuter rail stop at National City, Chula Vista and/or San Ysidro
Alternative Alignment #2

- Interstate 805
- 16 minutes to Tijuana International
- Potential commuter rail stop at National City, Chula Vista and/or Otay Mesa POE

Alternative Alignment #3

- State Route 125
- 19 minutes to Tijuana International
- Potential commuter rail stop at National City, Chula Vista and/or Otay Mesa POE
**Next Steps**

- Complete feasibility study
- Additional stakeholder outreach
- Return to Transportation Committee and Board of Directors in September
- Formal comment on extension to CHSRA and Federal Railroad Administration
- Complete AMAP in FY2010

**Recommendation**

The Transportation Committee is asked to provide input on proposed project evaluation criteria to be used in evaluating alternative alignments for feasibility study of the Downtown/Lindbergh Field to International Border HST segment as reflected in Table 2.
Background

- TransNet Environmental Mitigation Program
  Created Two Funds
  - Biological Mitigation Fund
  - Regional Habitat Conservation Fund
Background

The MOA states:

“Starting in 2010, and then once every two years thereafter, SANDAG will develop a report card to analyze the status and progress of the MOA implementing the goals of the TransNet EMP for presentation to the SANDAG Board as part of the update to the Regional Transportation Improvement Program (RTIP).”
Regional Habitat Conservation Fund

Encumbrances by Fiscal Year

Conservation Fund Encumbrances by Category as of July 2009

Monitoring
Management
Coordination

Implementation

1. Securing opportunities for wetlands remains a challenge

2. Transparent, up-to-date system to depict the status of the EMP and to be able to track expenditures

3. Cost saving accrued under the EMP since the start of its implementation
Background

- The Transportation Committee has been delegated the authority to “Recommend Funding Allocations to the Board” pursuant to Board Policy 1
- Board of Directors approved a Five-Year Funding Strategy for management and monitoring on Dec 15, 2006 and updated Sept 26, 2009
- Five-Year Funding Strategy consistent with the funding levels identified in Board approved MOU
Discussion

*Updated Five-Year Funding Strategy and FY10 Funding*

- Minor modifications are recommended to address the most current needs (Attachment 1)
- Specific funding for FY10 activities proposed (Table 1) are consistent with funding strategy and overall budget in *TransNet EMP MOU*

Discussion

*FY10 Land Management Grant Criteria (Attachment 2)*

- EMP has a competitive land management grant
- EMPWG reviewed eligible activities:
  - Invasive Removal - Wildfire Recovery
  - Habitat Restoration - Signage and Litter Control
- No changes recommended on eligibility
Discussion

FY10 Land Management Grant Criteria (Attachment 2)

- EMPWG reviewed application process and evaluation and weighting criteria:
  - More information on the distribution of the grant and proposed matching funds
  - More information on public outreach and education
    - Number of public to benefit
    - Number of volunteer hours
    - Signage and interpretation features
    - An access plan for public use
  - No changes recommended to weighting criteria

Recommendations

The Transportation Committee is asked to Recommend that the Board of Directors:

- Approve the updated Five-Year Conceptual Funding Strategic Plan, the proposed management and monitoring activities and budget for FY 2010 totaling $4 million, and, subject to Board Policy No. 017, authorize staff to solicit proposals and enter into contracts or amend existing contracts accordingly; and

- adopt the modifications to the submittal and evaluation criteria for land management grants for FY 2010 as reflected in Attachment 2.
What’s been done so far…

• Began project in summer 2008
• Overseen by Energy Working Group
• Received direction from Regional Planning Committee and Board
• Analysis assisted by EPIC, CCSE, SDG&E and CEC
<table>
<thead>
<tr>
<th>What Topics are addressed in the Preliminary Draft?</th>
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<tbody>
<tr>
<td>• energy efficiency</td>
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<td>• renewable energy</td>
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<td>• distributed generation</td>
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<td>• energy and water</td>
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<td>• Natural gas</td>
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<td>• Transportation fuels</td>
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<td>• Energy and Borders</td>
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<td>• Clean energy economy</td>
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<td>• Energy and climate change</td>
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<td>• Land use and transportation planning</td>
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Transportation Fuels Goal

Substantially increase efficiency and the deployment of alternative fuel vehicles

Possible Recommended Actions

• Facilitate regional approach to infrastructure planning
  – Refueling and Recharging stations
• Support local production of alternative fuels
Possible Recommended Actions

- Action plan for SANDAG vehicles and contractor vehicles
- Help the region pursue funding opportunities
- Support regional efforts to educate the general public

Land Use and Transportation Planning Goal

Reduce the energy demand of the built environment through land use and transportation planning.
Possible Recommended Actions

- Support building retrofits that reduce energy and water use
- Support voluntary stretch codes
- Participate in Sustainable Region Program's Energy Roadmap Initiative

Possible Recommended Actions

- Support smart growth principles in adopted land use plans
- Support energy-efficient built environments and transportation choices
Possible Recommended Actions

- Support one or more demonstration projects that combine smart growth principles and energy saving strategies

Next Steps

- Regional Planning Committee to review Preliminary Draft today
- Regional Planning and Transportation Committees will review a Final Draft this fall
- Board may consider adopting Regional Energy Strategy Update in October 2009
Regional Climate Action Plan Progress Report

July 31, 2009

Presentation Overview

• Background
• Regional Climate Action Plan Purpose
• Plan Process
  – Draft guiding principles
  – Draft policy measures
  – Draft performance measures
• Next steps and schedule
Background

• State Policies and Legislation
• SANDAG Regional Transportation Plan
• California Energy Commission Partnership

Purpose of the RCAP

• Help develop Sustainable Communities Strategy that achieves GHG reduction targets
• Focus on measures that regional and local governments can influence
• Address highest-emitting categories: transportation, electricity, and natural gas
Plan Process

- Develop vision with guiding principles
- Summarize Regional Inventory and Impact Study
- Develop policy measure recommendations
- Identify performance measures

Draft Guiding Principles

- Serve as framework for decision-making regarding climate change in the region
- Ensure decision-making achieve necessary level of GHG reduction and prepare for climate change impacts
- Express responsibility to take action
- Inform development of policy measures
Reducing GHG with Land Use and Transportation

- Many types: land use, transportation investments, pricing, demand management (TDM)
- Quantify reductions to help establish priorities
- Contribute to SB 375 target-setting process and support Sustainable Communities Strategy

Smart Growth, Public Transit, Pedestrians

- Enhanced smart growth land use
- Enhanced regional transit network
- Biking and walking
Transportation Demand Management

- Alternative work schedules
- Carpool and Vanpool
- High Occupancy Vehicle (HOV) priority
- Park-and-ride
- Telecommuting

Pricing Measures and Vehicle Speed

- Commuter financial incentives
- Pricing measures
- Smart Growth parking fees
- Lower speed limit
Other Potential Policy Measure Areas

- Energy and buildings
- Alternative transportation fuels and vehicles
- Local government operations
- Energy and Water
- Preparation for climate change impacts

Draft Performance Measures

- Regional Comprehensive Plan (RCP) includes regular performance monitoring
- Measures expressly related to GHG emissions and climate change are proposed as means of monitoring progress on regional climate goals
- Draft measures focus on urban form and transportation
Next Steps and Schedule

- Continue plan development at EWG meetings
- Seek comments on first draft
  - Public workshop and comment period in fall 2009
  - Feedback from state agency staff and peers
- Return to Board with first draft plan for additional input in fall 2009
- Return to Board for consideration of final draft plan by January 2010

Regional Climate Action Plan
Progress Report

July 31, 2009