



## SACOG Board of Directors

## Item #06-12-18 Report

December 7, 2006

### Executive Director's Report

*The following is a brief status report on some of the major issues and projects currently being advanced by SACOG.*

#### KEY BOARD ITEMS:

**Infrastructure Bond Item:** The Transportation Committee recommendations in this packet were made without the benefit of a potentially important piece of information, Caltrans Headquarters recommendations, which are to be released tomorrow (Friday). Therefore, we will send a supplemental packet with this information, as well as any possible refinements to the Committee recommendation that the Board may want to consider based on the Caltrans recommendations. It is very important that the Board act on this issue in December, and there should be sufficient time on the agenda for substantial Board discussion if that turns out to be needed.

**MTP Land Use Allocation:** This is an important "brick" in the foundation for the MTP. We have delayed final Board action on this for several months to give maximum time to review these numbers with your staffs. The cover memo carefully explains what these numbers mean, and what they do not mean. We are not aware of any outstanding controversial issues. We are very hopeful for Board action on this item in December so we can keep the modeling work for both the MTP and the updated air quality State Implementation Plan (SIP) moving forward in a timely manner.

**MTP Workshop:** We have a great deal of work to do with the Board to digest the substantial information obtained from the November 16 TALL Order Forum and start moving towards development of a draft preferred MTP alternative. We will use whatever time is left after the Board is done with the action items on the agenda to start this process.

**Support for Partnership for Prosperity Clean Energy Initiative:** This is an opportunity for the Board to lead on an issue of emerging importance, clean energy and global warming. The two MTP issues papers, one on air quality and the other on energy price and supplies, provide useful background for the policy resolution the Transportation Committee unanimously recommends that the Board adopt. This initiative started with the Partnership for Prosperity regional economic development strategy project and was encouraged by SACOG Board leadership that has participated in two national caliber conferences on these topics over the last two months.

#### ISSUES:

**January Committee Cycle:** As noted at the November Board meeting, the Strategic Planning Committee will meet on January 8<sup>th</sup> and will consider all items that would normally be sent to the other Board committees. At the December board meeting, a questionnaire will be handed out to members asking for their top two choices for committee assignments. The 2007 Chair will make the committee assignments at the January Board meeting and the committees will begin meeting in February.

**Regional Delegation:** The Legislation & Public Affairs Committee and the Strategic Planning Committee met with staff and representatives of our State Assembly and Senate on December 7. The purpose was to express our interests in having the entire delegation work together to compete effectively for the infrastructure bond funds that will become available through various programs over the next few months. The meeting was well attended, with staff representatives from most of the members, as well as new assemblyman and former SACOG Board member Ted Gaines. All agreed it was a highly useful meeting and that more would be scheduled in the near future, possibly on a bi-monthly basis.

**Meeting with Assemblywoman Wolk Flood Issues:** Assemblywoman Lois Wolk invited the SACOG ad hoc flood committee members to meet with her to discuss flood and land use legislation. Committee members Fargo, Dickinson, Billeci, Thomson and McGowan attended along with key staff from SACOG and local jurisdictions and SAFCA Executive Director Stein Buer. Assemblywoman Wolk summarized a new bill she has introduced, AB5, which is substantially revised from last year's AB1899, in part to respond to concerns raised in positions taken by the SACOG Board. An excellent discussion among the elected officials ensued. The meeting ended with Assemblywoman Wolk requesting that the Board authorize SACOG staff to work with her staff as the legislation proceeds.

**CSAC Annual Meeting:** Director Thomson and I spoke on a panel about regional Blueprints at the annual CSAC conference in Anaheim. It is an important topic right now because there are efforts underway to consider using regional Blueprints like SACOG's as some sort of screening criterion for distributing some of the bond funds. Many thanks to Director Thomson for a great presentation.

**RECEIVE & FILE ITEMS:** These items were previously considered Board items; however in an attempt to streamline the meetings, I am attaching them to the ED report. If you have any questions, please call me prior to the meeting. Backup material for each item is attached and any of these items can be discussed during Other Matters, if the Board so chooses.

1. TV Town Hall
2. Update on Development on McClellan Airport Land Use Compatibility Plan
3. Regional Housing Needs Plan Update
4. Blueprint Update: Housing Market Trends Status Report
5. State Bond Park and Open Space Funding
6. MTP Issue Papers: Air Quality and Energy
7. Caltrans District 3 Recommendations for Projects North of Stockton

**CALENDAR:**

Jan 8 @ 1:30 p.m.	Strategic Planning Committee	SACOG
Jan 18 @ 9:00 a.m.	SACOG Board of Directors	SACOG

Mike McKeever  
Executive Director

MM:rt



## Receive & File #1

### TV Town Hall

SACOG, working in conjunction with KCRA 3, is developing a live television town hall to be aired from 6:30 to 7:30 p.m. on Wednesday, January 31, 2007 to address key issues and questions in a draft regional-scale map for the Metropolitan Transportation Plan for 2035 (MTP 2035).

Presentation of the refined alternatives at the January televised TV Town Hall will provide additional public input for Board consideration of a final draft MTP in February/March 2007. The final draft MTP will undergo public review and ultimately adoption by June 2007.

The logistics for the TV Town Hall are being developed with KCRA 3. Generally, the event will include a studio audience of approximately 50 people, consisting of some Board representation in addition to community stakeholders, interest groups, and the general public, reflective of the full six-county region.

In-studio polling technology will be used to capture input during the moderated discussion with the stakeholder panel. Telecast viewers can give input at home using surveys completed via the Internet, phone (via a toll-free hotline), or by mail. The broadcast will contain a pre-packaged video about key transportation issues, a live studio audience discussion, and call-in/e-mail questions and comments. SACOG will be able to contrast the input gathered from participants and viewers on January 31 with results from a random sample survey to be conducted between January 8 and 24. Results from a scientific random sample survey will be available at the February 15 Board meeting.

Significant public education will continue between the TALL Order event and the TV Town Hall with earned media, website content updates, outreach to participants, and possibly a newspaper insert to inform the region about the critical choices to be made around travel investments to support auto, transit, and non-motorized travel. Education materials will also introduce performance indicators to ensure the investment packages reflect technical and fiscal realities.

Using input from this committee, we will adjust the general format of the TV Town Hall. SACOG staff will work in full partnership with the media partner in developing the format for the TV Town Hall.



**Update on Development of McClellan Airport Land Use Compatibility Plan (ALUCP)**

The McClellan ALUCP update has made progress since the summer. At the beginning of this process, there were a large number of complicated issues identified that are not considered direct ALUCP subject matters. Generally, most ALUCP updates address only height, noise and safety policies of land in the immediate vicinity of an airport. The McClellan ALUCP update is addressing others. The most encompassing is that the airport operator, Sacramento County Airport System (SCAS), wished to have disclosure on single event noise impacts included in the ALUCP. SCAS's modeling showed that this would include areas in Placer County, both incorporated and unincorporated lands, and many of which are in new Specific Plan Areas. As SACOG is not the Airport Land Use Commission for Placer County, SACOG could not impose its ALUC authority in those areas. Any restrictions on land use in Placer County jurisdictions would need to be imposed by the Placer County Transportation Planning Agency, which is the ALUC for Placer County. In addition, the City of Roseville and Placer County received letters from SCAS stating that there were noise impacts in some of its specific plan areas, and these impacts need to be collected and modeled.

After meeting with these jurisdictions, and providing updates to the ALUCP's Technical Advisory Committee, the identified solution to this particular issue is twofold: (1) SCAS has agreed to conduct the noise data collection for any agreed-upon Specific Plan Areas; and (2) the Placer County jurisdictions and SCAS are in discussions about signing an MOU that would institutionalize a process of communication and updates. SACOG will continue its role as facilitator in these "indirect" ALUCP issues.

For the "conventional" topics that are normally addressed in an ALUCP – height, noise and safety – SACOG is continuing to work with the consultant and the project's Technical Advisory Committee, which is comprised of the affected jurisdictions in the study area. Project staff estimates that some time in the second quarter of 2007, the Land Use & Housing Committee will have a presentation on the preliminary ALUCP recommendations.

The attached FAQ sheet summarizes information about the ALUCP update, and the role of the TAC.

Attachment

**McClellan Airport Land Use Compatibility Plan  
FAQ  
(November 27, 2006)**

This document serves as a frequently asked question (FAQ) sheet for the Technical Advisory Committee (TAC) of the McClellan Airport Land Use Compatibility Plan (ALUCP). This is meant as an addendum to the document “The Role of ALUCs in Airport Land Use Compatibility Planning” and to address only issues related to the Technical Advisory Committee for the McClellan ALUCP update.

**What is an ALUCP, and how is it different than a CLUP?**

Airport Land Use Compatibility Plan (ALUCP) is the new name given by the California State Legislature in 2004 in place of Comprehensive Land Use Plans (CLUP). They are the same, and often used interchangeably, although ALUCP is the official name. All of the SACOG’s current airport plans are called CLUPs. The plan for McClellan Field will be called an ALUCP because it is being revised after the official name change in state law.

**What is the role of the Technical Advisory Committee?**

The TAC was convened to provide advisory oversight in the development of the McClellan ALUCP. The TAC will review the consultant team’s work, check for accuracy, and provide direction on the plan’s development. Some of the specific questions that the TAC will address are:

- What is the recommended level of public engagement needed?
- Are there any specific concerns in the McClellan surrounding areas that should be considered in the ALUCP update?
- How shall indirectly related issues – meaning issues that are not considered in the conventional sense of height, noise or safety – be addressed, if at all, in the ALUCP?
- How might the ALUCP address exception areas?
- Based on the findings for the development of the ALUCP, what is recommended for the level of environmental review for the plan?
- How should SACOG work with jurisdictions outside of the ALUC if those jurisdictions are impacted directly or indirectly by impacts from McClellan?

**Who is on the TAC?**

SACOG invited staff level members of jurisdictions who believe they may be impacted by the ALUCP. Those jurisdictions that have elected to participate include the cities of Sacramento, Roseville, Lincoln, Folsom, Sacramento County, Placer County, the Sacramento Housing and Redevelopment Agency, and the Placer County Transportation Planning Agency. In addition, a small number of business representatives affected by the ALUCP were invited.

**What happens after the TAC provides advisory guidance?**

SACOG staff and its consultants will intermittently provide briefings to the SACOG Land Use & Housing Committee, and, when appropriate the SACOG Board of Directors. Staff will update the committee and board on the key recommendations, and, if needed, seek policy direction on more complex issues, particularly if there is no clear TAC recommendation on a matter. The Board will have final approval authority on the ALUCP.

**What contents does the ALUCP “normally” address?**

All ALUCPs (or CLUPs) address three issues: airspace protection, noise and safety.

(1) Airspace Protection primarily is concerned with limiting the height of objects near an airport so as to protect navigable airspace. Guidelines for determining if an object is an obstruction to air navigation are set forth by Federal Aviation Regulation Part 77. Additionally, airspace protection is concerned with land uses that can otherwise be hazards to aircraft flight. These uses include ones that attract birds, create visual hazards (e.g., smoke, steam), or generate electronic interference with aircraft navigation or communication.

(2) Noise is an airport land use compatibility concern because of the interference it can cause to people's normal lives. Noise contour maps are developed for the ALUCP based on average noise measurements over a period of time.

(3) Safety addresses the risk to people and property on the ground and to the occupants of aircraft in the event of an aircraft accident away from the airport runway. The intent is to minimize the number of people exposed to aircraft crash hazards by establishing safety zones and restricting risk-sensitive land uses.

A fourth concern addressed by some ALUCPs is that of aircraft overflight and the annoyance issues that arise as a result. Frequency of overflights and the single-event noise levels associated with them are both components of the overflight concern.

**What is different about McClellan? Are there issues that go beyond the “normal” ALUCP issues?**

McClellan is different than most other SACOG ALUC airports in a couple of ways. First, there is an infill redevelopment area, called Parker Homes, which would not be allowed under a traditional implementation of ALUCP standards. However, all affected jurisdictions, including the airport operator, the Sacramento County Airport System, endorse allowing an exception area within the ALUCP for Parker Homes to develop as planned. The ALUCP will need to find a way to allow for this redevelopment area with suitable mitigation measures.

Second, although the conventional noise contours from an ALUCP would not reach into Placer County, there are noise impacts that affect this county. Single-event noise contours are known in an area that is slated for considerable urban development. This is a concern for two reasons. One is that SACOG's ALUC jurisdictional boundaries do not encompass Placer County, and therefore SACOG cannot adopt ALUCP policies that the Placer County ALUC (PCPTA) must enforce. The other concern is that single-event noise contours are not traditionally incorporated into ALUCPs, yet the Sacramento County Airport System wishes to somehow document within the ALUCP that there are noise impacts in these areas.

**What is the TAC's schedule?**

The TAC will meet intermittently as needed until an ALUCP is ready to be submitted to the SACOG Board of Directors. In the first meeting in September 2006, the TAC reviewed existing information. In the second meeting in November, staff clarified for the TAC the various issues mentioned above. In 2007, the TAC will review technical data, provide guidance on policy recommendations, and continue to help resolve the “conventional” and “non-conventional” issues and questions mentioned above. The TAC will stop meeting after the SACOG Board of Directors adopts the revised ALUCP sometime in 2007.



## **Regional Housing Needs Plan Update**

SACOG is in the midst of developing the 2006-2013 Regional Housing Needs Plan.

The SACOG staff is in the middle of developing the allocations for the Regional Housing Needs Plan (RHNP) update. The RHNP will allocate to cities and counties their “fair share” of the region’s projected housing needs by four household income groups over a five-year planning period. The plan itself covers a 7.5 year period from 2006-2013. It also identifies and quantifies existing housing needs for each jurisdiction. The SACOG Board must adopt the updated RHNP by its July, 2007 meeting. Cities and counties within SACOG will have until June 30, 2008 to complete their housing elements, demonstrating how they plan to accommodate their RHNP allocations.

SACOG staff and the State Department of Housing and Community Development (HCD) agreed to a total regional growth allocation of 169,476 new units during the plan period. This figure was based on a compromise between the State’s higher projections and SACOG’s lower projections.

The RHNP is based on developing two key statistics: (1) the baseline year of 2006 and (2) the 2013 projection. The baseline year is derived from the 2000 Census, combined with SACOG tracking of development trends and individual jurisdictions’ verification. The 2013 projection will be based on a combination of various SACOG projections. The 2035 projections for the MTP will be reviewed for action by the Board in December. This figure will help establish projections for the 2018 Air Quality baseline. From there, SACOG staff proposes to look at the projection line from 2006 to 2018 and then estimate the 2013 point. It will then be reviewed with individual jurisdictions (by holding meetings in each county) and adjusted based on projections from the Blueprint implementation work and the jobs and housing allocations used for the MTP.

The attached FAQ sheet provides more detail on the RHNP development process, including a summary of how the four economic categories will be determined. Local jurisdictions are being updated on the RHNP process through the Planners Committee meetings. This FAQ sheet will be distributed to the Planners Committee distribution list for its next meeting.

Attachment

**Sacramento Area Council of Governments (SACOG)  
FAQs on Regional Housing Needs Plan (RHNP)  
(November 28, 2006)**

This document serves as a frequently asked question (FAQ) sheet for the update of the Regional Housing Needs Plan. This FAQ sheet may be updated, so please check [www.sacog.org](http://www.sacog.org) for the most recent version.

**What is the Regional Housing Needs Plan?**

The RHNP allocates to cities and counties their “fair share” of the region’s projected housing needs. Each city and county in the RHNP will receive an allocation of total number of housing units that it must plan for within a 7.5 year time period. Within the total number of units, allocations are also made for the number of units made within four economic categories: very low, low, moderate and above moderate incomes.

**What is SACOG’s role in the RHNP?**

State law mandates that council of governments develop the RHNP. The Sacramento Area Council of Governments is lead agency in developing the RHNP for the six counties and 22 cities that it serves. The plan will also include the Tahoe Basin portions that within El Dorado and Placer counties, and city of South Lake Tahoe. It is SACOG’s responsibility to coordinate with the California Department of Housing and Community Development (HCD) to determine a regional housing needs projection. Then SACOG will allocate the share each jurisdiction will receive.

**What time period does the RHNP cover?**

The update of the RHNP that SACOG is undertaking covers the 7.5 year period from January 1, 2006 through June 30, 2013. However, the allocations cover a five-year period for each jurisdiction’s housing element.

**What is the overall housing needs allocation for the region?**

HCD issued a regional allocation of 169,476 to the six-county region from 2006-2013. This number was based on a compromise between the California’s Department of Finance’s projection and SACOG’s Blueprint Project calculations. Subcategory allocations by economic category were also issued:

- Very low income (less than 50% median household income [MFI]): 38,013 or 22.4%
- Low Income (50 to 80% MFI) 28,518 or 16.8% of total allocation
- Moderate (80 to 120% MFI) 32,974 or 19.5%
- Above Moderate (above 120% MFI) 69,971 or 41.3%

**How does SACOG develop the RNHP allocations?**

With the regional allocation established, SACOG will determine the local government allocations based on Blueprint projections. SACOG will use the 2000 Census, development tracking, and verification by each jurisdiction to establish the base year of 2006.

To determine the 2013 projections, SACOG will start with each jurisdiction's 2035 Metropolitan Transportation Plan projections, which the Board of Directors is expected to review and act on at its December 14 meeting. The MTP projections represent SACOG's best estimate of what is most likely to be built in each jurisdiction based on market trends and local government policy. After the 2035 projections are adopted, SACOG will then scale back the 2035 projections to a 2018 projection set, which will be used to establish Air Quality conformance. As was done in the development of the 2035 projections, SACOG will work with each local government in developing the 2018 projections. From there, SACOG will scale back the 2018 projections to 2013. As a starting point, we will use an interpolated growth rate for each jurisdiction, based on their growth trend from 2006 to 2018. However, because each jurisdiction's growth conditions are different – some with more greenfield opportunities, some with only infill opportunities – we will work with each jurisdiction to make refinements to their growth trend.

**How will SACOG determine allocations with the four economic categories for each jurisdiction?**

There are two parts to this answer. First, HCD will consider for statistical purposes any residential lands zoned for 20 dwelling units or higher as a low or very low income housing for most jurisdictions; the city of Sacramento has a standard of 30 dwelling units or higher. Second, SACOG will determine how many of the projected housing units each jurisdiction has that falls into this category that will be built by 2013. SACOG believes that the collective already-planned growth from all jurisdictions will meet the region's low and very low income allocations. If they are close, SACOG will allocate close to these planned allocations, although some adjustments will be made to avoid over-concentrations in jurisdictions. In addition, state law requires that all jurisdictions receive some allocation in each of the four categories.

**What is the timeline for the development of the RHNP?**

Up to this point, SACOG staff has been working with the Planners Committee to discuss the conceptual methodology for the RHNP allocations. In December, the SACOG Board will take action on the 2035 MTP projection. In January 2007, SACOG staff will be able to draft individual projections for the RHNP projections. That same month, each city and county will be invited to a meeting in each of the six counties. Each jurisdiction will help SACOG verify the assumptions for the 2006 baseline, and the 2013 projection. After the discussions and modifications are made, staff will adjust the RHNP accordingly for each jurisdiction and then issue the draft RHNP for Board review. The SACOG Board will need to adopt the RHNP by July, 2007.

**How have local governments and interested parties been involved or get involved in the development of the RHNP?**

The SACOG Planners Committee is the main body that will be updated on the RHNP developments. This Committee is comprised of the Planning Directors and/or their assigned staff and is primarily a technical planning committee. This body also has served and will continue to serve as the main forum for discussions on the Blueprint Project. All are welcome to attend these meetings, but the chairs at the table are reserved first for Planning Directors or their designee. If you wish to receive email notice to the Planners Committee meetings, please email [gchew@sacog.org](mailto:gchew@sacog.org).



## Blueprint Update: Housing Market Trends Status Report

Small-lot single family and attached products are gaining market share in the new-home market in the Sacramento region. This memo summarizes staff's analysis of recent housing market data and how it relates to Blueprint goals.

Offering housing choices was one of the Blueprint Principles adopted by the SACOG Board in 2004. Apartments, condominiums, townhouses and single-family detached homes are all necessary to meet the broad housing needs of our region's residents. As the senior population grows and our transportation choices expand, diverse housing choice is becoming an increasingly important part of the Blueprint Vision.

Under the Blueprint Preferred Scenario vision, 69% of all new housing will be made up of attached and small-lot single family homes by 2050. When the Blueprint process started in 2002, these housing types accounted for only 32% of the existing housing stock and only 27% of the new housing produced that year. Within two years of adopting the Blueprint, the Sacramento region is experiencing a shift towards these more compact housing products. By the second quarter of 2006, 56% of new housing sales were either small-lot single-family or attached homes<sup>1</sup>. These statistics reflect the slow multifamily rental construction period of the past few years, but as that market picks up we expect the number of attached units in production to grow as well. The shift in new housing stock is being driven by a combination of a strong market for these new housing products and supportive public policies and attitudes.

The rise of attached for-sale homes and small-lot homes is also helping to make housing attainable to people, primarily first-time home buyers, who otherwise would not be able to afford a new home. These products are on average at least \$100,000 less than new large-lot single-family homes.<sup>2</sup> Small-lot homes are currently the best selling product in three counties within the SACOG region.<sup>3</sup> A recent Sacramento Bee article reports that in the slowing housing market, home builders are trying to reach first-time home buyers by offering smaller housing products, including condominiums, some of which are being priced in the \$250,000 range.<sup>4</sup> It appears that the price point of new housing is helping to keep some first-time homebuyers in the market, which is a stabilizing force, particularly in a slow market.

Once the 2035 growth allocation is finalized, staff will look at the relationship between the 2035 projected housing stock and these market trends. Since the 2035 growth allocation does not represent the full 2050 Blueprint Vision, it may be that the 2035 housing stock will be more similar to the new housing products on the market.

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<sup>1</sup> Hanley-Wood and The Gregory Group

<sup>2</sup> Greg Paquin, The Gregory Group, Presentation for North State BIA Sacramento Regional Housing Forecast, Nov. 1, 2006.

<sup>3</sup> Greg Paquin, The Gregory Group, Presentation for North State BIA Sacramento Regional Housing Forecast, Nov. 1, 2006.

<sup>4</sup> Wasserman, Jim. *Sacramento Bee*. 2006. First-time buyers make it happen, November 12.



## **State Bond Park and Open Space Funding**

Propositions 1C and 84 created over \$2 billion statewide for park and open space acquisition, maintenance, and operation.

Recent voter approval of propositions 1C and 84 created over \$2 billion for park and open space efforts throughout the state. A total allocation for the Sacramento region is unknown at this time. Relevant bond proceeds totals include:

### Proposition 84

#### **Protection of Rivers, Lakes, and Streams** (in millions)

Regional conservancies	\$279
Other projects – public access, river parkways, urban streams restoration, California Conservation Corps	\$180
Stormwater pollution prevention	\$ 90

#### **Sustainable Communities and Climate Change Reduction**

Local and regional parks	\$400
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#### **Parks and Natural Education Facilities**

State park system – acquisition, development, and restoration	\$400
Nature education and research facilities	\$100

#### **Forest and Wildlife Conservation**

Wildlife habitat protection	\$225
Forest conservation	\$180
Protection of ranches, farms, and oak woodlands	\$ 45

### Proposition 1C

#### **Development Programs**

Parks	\$200
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<b>TOTAL (Statewide)</b>	<b>\$2,099</b>
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## **Metropolitan Transportation Plan Issue Papers – Air Quality and Energy**

**Discussion:** These are the eleventh and twelfth in a series of as many as 18 issue papers leading up to the 2007 Metropolitan Transportation Plan. Others still in the pipeline include:

- Cross-river Access
- Major Activity Center Access
- Travel Behavior
- Transportation Funding
- Phasing Transportation and Land Development
- Key Understandings for the Plan

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## **SACOG ISSUE PAPER FOR 2030 MTP TRANSPORTATION ENERGY PRICE AND SUPPLY**

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The purpose of this paper is to address the question of whether there is anything about the probable future cost and availability of transportation fuel that should be considered as the next MTP is developed? Should the MTP explicitly or implicitly assume a plentiful and affordable supply of transportation fuel? The current MTP implicitly assumes a reliable supply of transportation fuel and the travel model explicitly assumes that real gasoline and diesel fuel prices will remain flat. What assumptions should SACOG make about these variables in the next MTP and how might those different assumptions influence appropriate transportation investment priorities for the plan?

This paper is primarily about the price and supply of gasoline. Over 90% of the fuel used to run cars and trucks today comes from oil. This is not a simple topic. Questions about the future of oil relate closely to future world political, economic, geologic and social issues. SACOG's staff does not include world energy experts. Our hope in preparing this paper is to set forth the basic elements of the issues, framed in a planning level context, so that the Board is able ultimately to determine how these important questions should, or should not, influence the MTP. We owe a particular thanks to the UCLA Extension October 2006 Lake Arrowhead Conference on Global Energy and Climate Change and the Southern California Association of Governments for providing materials and papers from international energy experts who addressed participants at a SCAG-sponsored forum this March titled "Our Energy Future."

### **Oil Consumption Issues**

- Worldwide demand for oil is growing steadily, driven significantly by the rising economies in China and India, and now consumes virtually all available supply at peak use periods.
  - Current world oil usage is about 84 million barrels per day, growing about 3 million barrels per year. Estimates vary, but a common baseline projection calls for demand to rise by about 45%, to around 120 million barrels per day by 2025 to 2030.
  - Today, China has 21% of the world's population and consumes 8% of its oil. However, China alone is expected to account for almost half of the nearly 40 million barrel per day increase in world oil consumption by 2030.
- Most of the increase in world oil demand comes from the transportation sector, where there are the fewest available alternatives to petroleum.
  - Two-thirds of the U.S. oil consumption is in the transportation sector (14 million barrels per day).
  - In 1994, China had 9.4 million vehicles, in 2004 28.6 million, and the government projects that by 2020, it will have 140 million.
  - Over the last 20 years, Californian's consumption of gasoline and diesel fuel increased 50%. Transportation gasoline consumption is projected to increase another 18% by 2025, absent significant policy or market changes.
- Over 60% of the oil used in the U.S. is imported.

## Oil Supply Issues

- Many experts now believe that the world oil supply is not keeping up with increasing consumption and production.
  - Oil supply and demand are very tight today. At most, there are less than 5 million barrels per year of additional worldwide production capacity on a base of 84 million barrels per year usage.
  - Even if there is additional oil production capacity today, there are significant limits to increasing oil refining capacity in this country and in California. California refines most its oil in-state, as well as provides refinery capacity for Nevada, Arizona, and parts of other states. California's refineries are running at 98% of capacity. A new refinery has not been built in this country since 1976. The state's ability to expand refining and other oil infrastructure capacity is lagging behind demand. Most of our incremental increase in consumption is being met through imports, largely from Ecuador and Saudi Arabia.
- Oil well and fields reach a point of peak production capability typically about 40 years after going on line. Experts generally agree that worldwide production will reach its peak sometime between 2010 and 2040.
  - Oil-peaking phenomenon was most notably articulated by geologist G. King Hubbert's curve theory. The theory hypothesized approximately 40 years from the beginning to peak of a field, followed by 40 years of declining production. Hubbert's curve accurately predicted the declining oil production in the lower 48 states.
  - Most experts agree that Hubbert's curve generally explains the shape of oil production during the useful life of an oil field. They differ by about three decades, however, in their forecasts of when worldwide oil production will hit the peak.
  - One presenter at the SCAG conference summarized 11 prominent forecasts about the timing of worldwide peak oil production: six projected the peak to occur in the next 5 years, three forecast the peak within 5 to 10 years, and two forecast the peak at greater than 15 years in the future. Daniel Yergin, Cambridge Energy Research Associates, predicts a peak between 2040 and 2045. The U.S. Energy Information Administration has looked at a number of scenarios: It projects a peak in 2037. However, the U.S. Energy Department examined the EIA's scenarios and concluded that the one estimating a peak in 2016 was "much more credible."
  - Many nations are already past their peak (54 of 65 producing countries according to one study). The key question is the countries in the Middle East, particularly Saudi Arabia, and particularly the "mother of all oil fields," the Ghawar. Some argue that the Ghawar field, and Saudi Arabia more generally, is already past its peak. These analysts point to the high volumes of water required to maintain production levels at the wells and other techniques now in use that may be signs of declining productivity. Others argue that Saudi Arabia can increase its production capacity from about 10 million barrels per year to as much as double that. The Saudi government has most consistently said that it can increase production to 15 million barrels per year on a sustained basis, although its production has been very flat over the last few years.

- The differences about peak production center on how many new fields can be brought into production and when, and how much oil remains recoverable from existing fields. Many oil producing nations are quite secretive about this information.
- Recent discoveries of oil in the Gulf of Mexico at ultra-deep (30,000 foot) depths have raised hopes of increased domestic supplies; professional opinions vary on whether these fields will ultimately lead to minor or major increases in domestic supplies. The oil companies are very hopeful.
- The differences of opinion on the timing of the worldwide oil peak center on two issues: (1) how much in the recent past oil production has or has not exceeded discoveries, and (2) how much recoverable oil is still in the ground.
  - Those who believe the peak will come soon argue that production exceeded discoveries starting in 1981, that in the last 20 years, oil consumption has exceeded new discoveries by three-fold, and that today the world is using 5 barrels of oil for every 1 it is discovering. They point out that the yield from existing wells is decreasing 4% to 6% annually (about 4 million barrels per year) and that worldwide demand is increasing about 3 million barrels per year, meaning that 7 million barrels of production must be added each year. They also argue that 75% of the world's oil reserves are in countries that in some form or another have nationalized their oil resources and treat the quantification of their oil reserves as a state secret. They are suspicious that recent claimed major increases in reserves by Middle-Eastern countries over the last several years were politically motivated by OPEC's (Organization of Petroleum Exporting Countries) short-term production quotas for each country, which are set by the amount of reserves they have. They believe that the lack of accurate information about reserves makes it impossible for the market to operate properly, because investors and consumers will not have sufficient lead time to gear up for the peak. They specifically reject the argument that today's situation is similar to past oil supply disruptions or price hikes. ("This is not your parents' energy crisis," Tom Friedman, author of *The World is Flat*.)
  - Those who believe the peak will come later point out that people have been forecasting the end of oil since the late 1800s, that the market will create efficiencies and bring on alternatives as prices rise due to limited supply, that worldwide oil output is 20% higher in 2000 than it was in 1980, and that since the 1990s, the world has added more oil reserves than it has consumed. They believe that the world has 1.1 trillion barrels of proven reserves (about 40 years' supply at current annual usage rates), and believe that the OPEC nations, in particular, have the capacity to increase output on a sustained basis by up to 35 million barrels per year.
- With supplies so tight, any reduction (or feared or rumored reduction) in oil supply, even temporarily, is disruptive and causes market volatility. The price consumers pay at the pump is directly affected today by speculation about possible political changes in producing countries.
- In addition to the physical availability of the oil is the political question of whether it will be reliably available to the U.S. in the future. There is a clear trend toward the nationalization of the oil resource, and many of the countries with nationalized oil are not currently counted among the U.S.'s closest allies. In addition, the strong emerging markets in China and India

are starting to cause changing political and market alliances among producers and consumers.

- And, finally, separate from the supply availability issue is the question of whether it is a good idea to import oil from countries that many believe are associated in one way or another with the worldwide terrorist threat. These people argue that the U.S. consumer is paying for both sides of the war, funding our armed forces but also providing oil income to countries that directly or indirectly support terrorism. One of the most recent trends is an alliance between some conservative and liberal foreign policy interests on this point.

## Price

- World oil prices have more than tripled in the last three years, but over the last 20 years prices have been low.
  - The price of gasoline in California has nearly doubled in the last 5 years, driven by the fact that crude oil cost accounts for about half of the price of gasoline.
  - The real price of gasoline per gallon in the U.S. is approximately what it was in 1981. However, when you account for the substantial increase in average fuel efficiency of vehicle (the U.S. Corporate Average Fuel Economy – CAFE – standards doubled to 27.5 miles per gallon from 1973 to 1985), it costs 30% to 40% less per mile to drive today than it did 25 years ago. Gasoline prices between then and now were substantially lower, contributing to the strong increases in consumption. Vehicle miles traveled per person increased by 60% during this period.
- Forecasters are split on the future of oil prices, just as they are on the question of when the worldwide oil peak will occur.
  - The Energy Information Administration of the U.S. Government forecasts that the price per barrel will decline over the next few years and stabilize at around \$30 to \$40 per barrel. The California Energy Commission projects price volatility through about 2015, when it expects prices to level off at approximately the same level.
  - In the summer of 2006, oil sold at \$78 per barrel, then gradually declined to \$58, and today is at \$64.
  - Others argue that the higher prices are here to stay, with the debate centering on how fast they will rise, not whether they will drop. There are many projections. One worth quoting, perhaps, is the U.S. Army Corps of Engineers in its September 2005 report *Energy Trends and Implications for U.S. Army Installations*:

*“The supply of oil will remain fairly stable in the very near term, but oil prices will steadily increase as world production approaches its peak. The doubling of oil prices in the past couple years is not an anomaly, but a picture of the future. Peak oil is at hand with low availability growth for the next 5 to 10 years. Once worldwide petroleum production peaks, geopolitics and market economics will result in even more significant price increases and security risks.”*
  - There is a connection between future oil prices and the ability to bring alternative sources of oil into the mainstream market. If those who predict real oil prices will decline are correct, this will almost certainly dampen investors’ enthusiasm for new, more expensive supply. The converse is also true. The point is, the world is not

likely to see both decreases in oil cost and large quantities of alternative fuels brought on-line.

### **Impact of Gasoline Price and Availability on Travel Behavior**

- A separate MTP Issue Paper will address this issue in more depth.
- If the supply-demand situation gets to the point where demand significantly outstrips supply, consumers obviously will have no choice but to change their travel behaviors. Everyone knows the options, which range from taking fewer auto trips, carpooling, buying more fuel efficient vehicles, to using transit, walking, biking, or using some other mode of transportation. People could also change the locations of their houses, jobs, or both to reduce their travel miles. People who live in areas with a mix of land uses in close proximity, and with transportation systems with significant emphasis on transit, walking, biking, etc., will probably experience less inconvenience and disruption to their daily lives than others (see future MTP policy paper on Land Use and Travel Behavior).
- The more challenging question to answer is how travel behavior will change if gasoline price continues to rise. The limited data that exist suggest that gasoline at its current price has resulted in small behavior changes (hybrid sales are rising, SUV sales are declining, there are some signs that transit use has increased by 10% to 20%). Whether these changes are significant and lasting is not known. As prices rise, lower income users (and countries) on the margin will be forced to change behavior, on average, sooner than others.
- In 1974, the Arab oil embargo reduced supply temporarily and doubled gasoline prices. People responded by carpooling, chaining trips together for non-work needs, and to a small degree, using transit. In the mid-term, they bought more fuel-efficient cars and some, particularly renters, moved closer to their jobs.
- This country has never experienced gasoline prices like those in Europe and elsewhere in the world (\$4.50 to \$6.00 per gallon today). In these countries, travel behavior is very different than the U.S., with non-automobile mode shares approaching 50%, compared to under 10% in the Sacramento region today. Of course, the infrastructure to support alternative modes of transportation is much more advanced than in the U.S.
- How high would the price of gasoline need to go to significantly change behavior?
  - The SACOG travel model indicates that there is a relatively small reduction in vehicle miles traveled due to substantial (50% or more) price increases. The changing cost of travel has both short-run effects (shifting from autos to transit) and long-run effects (moving your home or work location). The model is only able to estimate short-run effects.
- Higher fuel costs also impact the costs of operating buses, putting further pressure on the challenge of making transit competitive with auto travel.

### **Other Possible Impacts of Higher Energy Costs and/or Supply Limitations**

- With higher energy costs, there are other effects: high inflation, economic recession, changes to manufacturing and transport of goods, and pressure on other uses dependent on oil such as plastics and fertilizer.

- Economists point out that several times during the oil era, there have been significant price increases and/or supply disruptions, each time leading to a recession.
- However, today the U.S. uses energy about twice as efficiently as during the oil shock in the early 1970s, so we are better positioned to adapt to these impacts than in the past. China, for example, uses twice as much energy as the U.S. to produce the same unit of Gross Domestic Product (GDP). Germany, on the other end of the spectrum, uses half of the energy as the U.S. to produce the same unit of GDP.
- The Wall Street Journal estimates that increases in oil costs in summer 2006 cost the economy \$300 million per day and reduced GDP growth by a full percent. The California Energy Commission estimates that recent gasoline price increases have caused Californians to spend more than \$6 billion more on gasoline. This directly reduces disposable income, while increasing prices in goods and services due to rising energy costs reduces disposable income indirectly.

### **Alternatives to Increasing Oil Use and Transition Issues**

- Although not everyone agrees on when the oil era will come to end, most agree it is a finite resource whose use will eventually be significantly reduced. The real questions revolve around the transition – how smooth versus draconian will it be, and what factors will most influence this?
  - The oil peak theorists argue that the key date is not when oil “runs out” (it probably never will), but when the peak is hit and production starts to decline. That, they claim, is when the gap between supply and demand will grow and the risks of a disruptive transition will significantly rise.
- Several alternatives to reducing gasoline consumption exist, including higher vehicle fuel efficiency standards, mixing ethanol with gasoline and/or diesel, bio-diesel (fuel from vegetable oil, animal fat, used cooking oil), gas-to-liquid fuels (mainly from natural gas), increased use of electric vehicle, hybrids (including plug-in hybrids), liquefied petroleum gas, and hydrogen. California estimates that if major programs to implement all of these alternatives started today, then the state could virtually stop the rise in total annual consumption of gasoline and diesel fuel over the next 25 years.
- Ethanol, in particular, is receiving a great deal of attention as a gasoline substitute. Corn ethanol provides 2% of the U.S. gasoline today and requires 13% of the corn cropland to produce. Some studies indicate that when the energy required to produce and convert the corn is taken into consideration, the net energy benefits are reduced significantly. Many believe that changing to a cellulosic source of material like switchgrass will make ethanol “The” big answer for gas supplies; however, the technology to mass produce ethanol from cellulosic sources does not yet exist, and the land requirements are substantial.
- Changes to future land use patterns, such as those recommended by the Blueprint principles, together with intelligent investments in transit, walking, and biking provide further hope for reducing transportation energy demands. The adopted Blueprint scenario for 2050 reduces household vehicle miles by over 25%, which is directly correlated to reduced energy use.

- There are also a number of options to offset oil use in sectors other than transportation, thus possibly freeing up more oil for use in the transportation sector. A study prepared for the National Energy Technology Laboratory this year estimated that coal liquefaction, oil shale, and enhanced oil recovery techniques could save or produce the equivalent of 12 million barrels of oil per day worldwide by 2020. They estimated this would require a minimum investment of \$2 trillion, an all-out effort would have to begin immediately to realize benefits that large, and the world oil demand would still rise significantly, albeit at about only half of its current rate of increase. Some of these options also have significant negative air quality, water use, and land use impacts. The world's major oil companies today are investing billions of dollars in oil sands in Canada and oil shale in the Rocky Mountain states.
- For SACOG's planning purposes, perhaps two of the most important findings from studies that have comprehensively examined ways to reduce our use of oil are these:
  - Differences in how aggressively alternatives to oil are brought on-line may make only relatively small changes in when worldwide oil production will peak, shifting it only a few years sooner or later.
  - Aggressively implemented transition strategies make a large difference in how disruptive the transition is likely to be. Like compound interest, early changes now add up to big changes later. Deferring changes to a later date means that some opportunities are lost forever, and the severity of the changes needed later will be much greater.
  - Conservation is the only real and effective strategy to address the peak oil situation that is available in the relatively near future.

### **Implications for MTP**

- In many ways, SACOG has embarked on a path that will ease the impacts of higher transportation energy prices or limits to gasoline supplies on citizens, should those predicting either or both of these impacts turn out to be correct.
- The Blueprint land use strategy addresses these issues directly, through more compact and mixed use development patterns that reduce the length and number of car trips, and make walking, biking, and transit use more viable.
- The current MTP invests significantly in transportation modes that don't rely on oil; the possibility of higher prices or supply limits may lead to an even greater emphasis on these modes in the next MTP.
- Former CIA Director James Woolsey makes the argument that under any future it is smart for the country to move away from its reliance on oil:
 

*“Whatever you think about peak oil, you need to be concerned about the possibility that in the very near term at any point . . . regime change, government policy change, or terrorist attacks could put a major, and perhaps even a long-duration spike on oil prices. We need to move away from oil in either case.”*
- Robert Kaufmann, Professor in the Center for Energy and Environmental Studies at Boston University makes a similar argument:

*“We know that oil production will peak within our lifetime . . . and we know that not having alternatives in place at the time of the peak will have tremendous economic and social consequences. So if society does too much now to stimulate alternative energies, as opposed to later, there will be some loss of economic efficiency. But if society does too little now, as opposed to later, the effects could be disastrous. Under these conditions, doing too little now in the name of economic efficiency will appear in hindsight as rearranging decks chairs on the Titanic.”*

- The last MTP did not explicitly address the issue of reliability of transportation fuel supplies and assumed that the real cost of gasoline would remain flat through the 25 year planning period. Both of these assumptions deserve to be revisited in this MTP. At the minimum, since energy pricing is out of the region’s control, staff intends to conduct a series of sensitivity analyses to help identify how significant increases or decreases from \$64 per barrel oil costs and \$2.50 per gallon gasoline costs might affect citizens’ travel choices and the future performance of the region’s transportation system.

DRAFT

## SACOG ISSUE PAPER FOR 2035 MTP AIR QUALITY

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### **How Are We Doing?**

In spite of a substantial increase in population over the last two decades, the Sacramento region's air quality has continued to improve. Although we're still home to some of the worst air quality in the nation, progress has been made, even as standards have tightened. The region currently fails to attain the federal standard for ozone and the more stringent California standards for ozone and particulate matter (PM10 and PM2.5). With another million people and their autos joining us over the next 25 years, the region will continue to face an enormous challenge in meeting and maintaining state and federal health-based air quality standards. Failure to do so will have a significant impact on the region's quality of life and economy.

### **What Is Air Pollution?**

Air pollution occurs in both outdoor and indoor environments. It includes the "criteria pollutants" (Carbon Monoxide, Lead, Nitrogen Oxides, Ozone, Particulate Matter, Sulfur Dioxide) outlined in the Federal Clean Air Act; air toxics such as lead, mercury, and benzene; various chemical emissions, such as those from paint, dry cleaning, and new carpets; and smoking. Clearly, there is interest at many levels to include gases that cause global warming in that list of pollutants. The pollutants of immediate concern for attainment purposes in the Sacramento region are ground level ozone and particulate matter.

### **Ozone**

Over the last two decades, air quality regulators have focused on reducing ozone through new rules on business, tightening smog controls on cars, cleaner diesel engines, better fuels, and innovative education programs like "Spare The Air." Ozone is considered a "secondary" pollutant, meaning that it is not directly emitted from our "smoke stacks" and automobiles. The two primary ingredients of ozone are volatile organic compounds (VOCs) and oxides of nitrogen (NOx). In the presence of sunlight, these "precursors" form ozone. Although ozone is beneficial in the Earth's upper atmosphere, filtering out ultraviolet light, near ground level ozone has a huge negative impact on human health and activity.

Over the last two decades ozone levels have declined by 20 percent. Recent health science suggests even greater health impacts from ground level ozone than previously understood. In 2005, Sacramento was given 8 years to reduce ozone another 20%. Sacramento exceeds the "acceptable" ozone levels on as many as thirty or forty days each summer. Ozone is strongly influenced by weather, and typically occurs when temperatures rise above 100 degrees F.

## Particulate Matter (PM)

PM may be comprised of solid particles and liquid droplets, formed through both mechanical and chemical processes. PM is typically less than 10 micrometers in size, with “fine” PM less than 2.5 micrometers in diameter. For comparison, a strand of human hair is about 70 micrometers in diameter

While ozone has historically been the focus in the air pollution battle, particulate matter (PM) is increasingly being shown to have serious consequences to human health. Although typically divided into different classes based on the size of the particles, PM research is increasingly focusing on the smallest particles, which penetrate the deepest into the lungs or even the bloodstream. Although Sacramento has been meeting the federal air quality standards for particulate matter, new research and health information were instrumental in a new federal PM standard signed in September 2006 that allows only half the pollution as the old standard. Monitor data will be evaluated for the next three years, and it is unlikely that at the end of that period Sacramento will not meet the new standard.

## Sources of Air Pollution

Common sources of VOCs that contribute to our ozone problem are:

- Mobile Sources create almost two-thirds of the region’s VOCs. These sources include the cars and trucks we drive, delivery vehicles and big rigs (contributed about 36% in 2005). It also includes “off-road” sources, such as construction and agricultural equipment (contributed about 25% in 2005).
- Stationary Sources, which create 17% of the region’s VOCs, include landfills, manufacturing and gas stations.
- Area Sources generate about 22% of the area’s VOCs and include things like consumer products (such as household and automobile cleaners, and personal care products like hair spray), paint and other coatings.

Common sources of NOx that contribute to our ozone problem include:

- On-road mobile sources, contribute about 58% of the region’s NOx (2005).
- Off-road mobile sources, contribute about 32%
- Stationary sources, such as power plants, which contribute about 8% of the region’s NOx.
- Area sources generate about 2% of NOx from agricultural burning and residential fuel combustion for cooking, water heating and other purposes.

Most sources of ozone also contribute to particulate pollution. Other particulate sources include:

- Smoke from combustion including wood smoke, motor vehicles, and fuel burning.
- Fugitive dust.

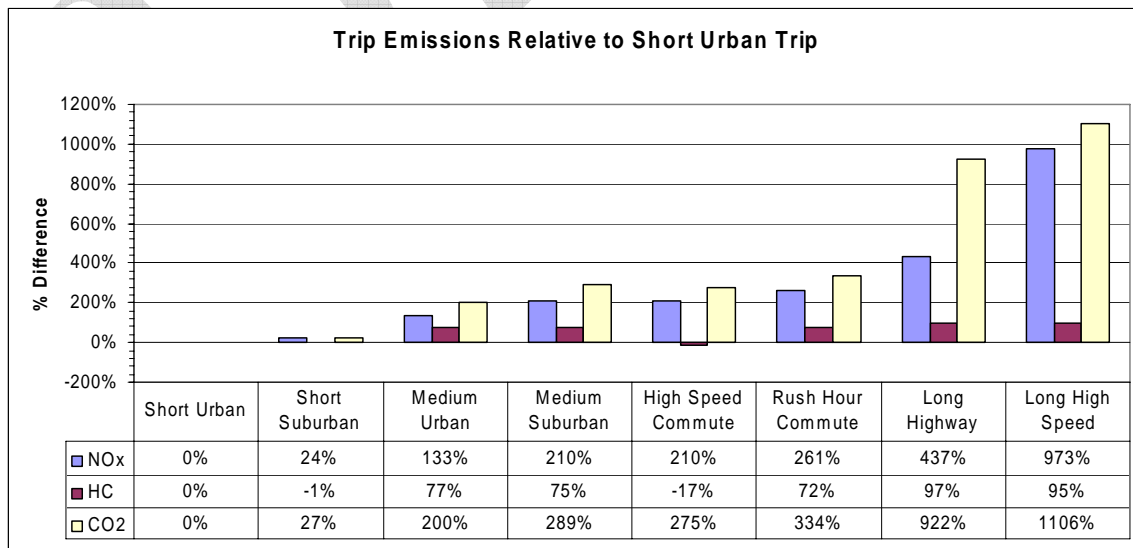
Looking at the on-road mobile source contribution to ozone in 2005 in greater detail:

- Passenger vehicles, cars and small pickup trucks and SUVs, make up almost 75% of the on-road VOC inventory, and almost 35% of the on-road NOx inventory
- Delivery trucks, garbage trucks, and other big rig trucks contribute almost 20% of the VOC inventory, and 60% of the on-road NOx inventory
- Transit buses, school buses, motor homes, and motor cycles contribute the remaining 5%, of the VOC and NOx inventories.

Air regulators recognized long ago the need to reduce emissions from diesel powered heavy-duty trucks. At the federal and state level this has resulted in much stricter standards for emissions on new engines and equipment and rules for retrofit of selected categories of equipment. Local districts and state regulators have developed incentive programs to retrofit non-regulated engines to cleaner standards. These regulations and programs, along with natural fleet turnover, are continuing to decrease emissions from the motor vehicle fleet.

Older cars are still a significant source of air pollution even though they typically do not travel as far as newer vehicles. Data from the 2005 Report to the Legislature for the Smog Check Program indicates that pre-1976 model year cars produce 19% of the VOC and 8% of the NOx emissions from the light-duty fleet even though they account for only about 2.4 percent of the vehicle population and 1.2 percent of the miles traveled. A similar distribution of emissions is projected for 2010, where pre-1982 vehicles are projected to account for 22 percent of the HC and 11 percent of the NOx emissions from the light-duty fleet even though they make up only about 2.6 percent of the vehicle population and 1.3 percent of the miles traveled.”

The charts below outline the relative pollution generated by different types of trips. It is readily evident from this information that shorter trips are much less emissive. This strongly supports land use patterns that optimize jobs/housing balance, reduce trip length and enhance the usefulness of transit and alternate modes of travel.



Total Miles Per Trip							
Short Urban	Short Suburban	Medium Urban	Medium Suburban	High Speed Commute	Rush Hour Commute	Long Highway	Long High Speed
2.9 mi	4.0 mi	8.7 mi	12.2 mi	12.3 mi	12.3 mi	42.0 mi	44.2 mi

### **Why Is Air Pollution Important?**

Air pollution affects all of us, both directly and indirectly.

According to the California Air Resources Board, premature deaths linked to PM are now at levels comparable to the deaths from traffic accidents and second-hand smoke. Studies continue to demonstrate a strong link between elevated PM levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks. Ozone can damage the respiratory tract and induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthma symptoms. To compound the problem, air pollution disproportionately impacts the most vulnerable among us: the young, the elderly, and those with some pre-existing medical conditions such as asthma.

In addition to its direct health impacts, air pollution impacts the region economically. Failure to attain federal health-based air quality standards will make it more difficult to attract new businesses and expand existing businesses in at least two ways. First, certain types of businesses would be forced to purchase emission reduction credits (ERCs), which can be difficult to find and expensive to secure. ERCs are “banked” by businesses that reduce air pollution beyond required levels, and sold at market rates to those who need them. The worse the region’s air quality designation (serious, severe, or extreme), the more ERCs some businesses would need to purchase. Second, poor air quality makes it more difficult for the Sacramento Area Commerce and Trade Organization (SACTO) and others to advertise the region’s quality of life in order to attract the businesses that provide good paying jobs and the desirable workers to fill those jobs.

Another economic impact imposed on the region by our failure to attain federal health-based air quality standards is transportation conformity. The Sacramento Area Council of Governments (SACOG) must adopt Metropolitan Transportation Plans (MTPs) and Metropolitan Transportation Improvement Plans (MTIPs) in order to receive state and federal funding for roads, bridges, transit projects, and other transportation infrastructure. Because we are in a non-attainment area, these transportation plans must “conform” to the currently adopted air quality plan for our region. That is, SACOG must demonstrate by modeling the proposed transportation improvements that these projects will not keep the region from attaining the federal air quality standards.

### **Why Is our Region’s Air So Bad?**

Due to its geography, California’s Central Valley has the greatest potential to develop air quality problems of anywhere in the nation. The Coast Range on the west and the Sierra on the east, combined with the summer inversion layer that rests on top of the region, all contribute to trapping the air pollution we create. When the Delta breeze disappears on the region’s hottest

summer days, this “bowl effect” keeps the air pollution in our region and continues to “cook” it and exacerbate our smog problem.

Since we can’t change our geography in order to reduce air pollution in our region, we have to clean up the sources of that pollution. As noted above, mobile sources contribute about three-fourths of our VOC and NO<sub>x</sub> emissions, while stationary sources, so-called “industry,” contribute about 17% of our VOC emissions and 8% of our NO<sub>x</sub> emissions. The Sacramento region has relatively few “smokestack” industries compared to the Bay Area and Southern California. Even if we were to shut down all of these stationary sources, it’s unlikely that we could meet air quality standards, particularly the tougher state standards.

It is clear that we do receive some transported pollution from other areas, as we contribute transported pollution to them. We have estimated that up to 5% of our pollution may come from such sources early in poor air quality episodes. Clearly eliminating part of this pollution is important, and we are working with other districts in that regard. But most of our pollution problem is home grown, and the situation must be resolved here.

### **Local/Regional Versus State and Federal Roles and Responsibilities**

The Sacramento Federal Nonattainment Area (SFNA) comprised of all of Sacramento and Yolo Counties, the eastern portion of Solano County, the southern portion of Sutter County and the western slopes of El Dorado and Placer Counties includes five local air districts. In addition to the local air districts, the California Air Resources Board (ARB) and the United States Environmental Protection Agency (EPA) play a significant role in improving our region’s air quality. EPA’s role is to establish air quality standards and oversee state and local efforts to attain those standards. EPA also sets standards for trucks, cars, airplanes, ships and fuels. ARB’s role is to coordinate and oversee local efforts and implement vehicular and area source programs. The Air Districts role is primarily permitting and enforcement of stationary sources, public education, and other voluntary programs to reduce driving, and incentive programs to voluntarily speed up fleet and mobile equipment turnover. None of the agencies can pre-empt local government (city, county) authority over land-use decisions but Air Districts can act under CEQA to recommend or under district rule authority (with Board approval) to designate mitigation for impacts from construction and operation of new facilities and development.

### **What Can our Region Do?**

This region’s economic health depends on reducing emissions from on-road vehicles and off-road equipment, and this will not change. The car is here to stay. We will continue to clean up these vehicles and equipment through state and federal regulations and local and regional incentive programs. For example, cold starts and evaporative emissions have been significantly reduced and constitute only about 30% of ROG and 10% of NO<sub>x</sub> emissions on late model cars. New emission standards require that the catalytic converter on vehicles heat up within a few seconds so that cold start emissions will be reduced. The Carl Moyer and SECAT incentive programs, which provide funding for repowering, retrofitting or replacing heavy-duty diesel trucks (HDDV), have reduced emissions in the region by 6 tons per day. Our outreach for these programs targets both large fleets and small truck operators.

However, these strategies will only get us so far and it takes a very long time to “turnover” the vehicle fleet, replacing older, dirtier vehicles with newer, cleaner vehicles. This is especially true in California, where cars and other vehicles last significantly longer than elsewhere, due to our favorable weather. In the meantime, the region continues to suffer the health and economic impacts of vehicular air pollution. An additional million people and their cars are coming into our region. If most are driving further and making more trips because we have continued to sprawl outward, the problem will become worse. We need to work at getting the old cars off the road and encourage carpooling wherever possible. Since running emissions account for 70-90% of the emissions from late model cars, Park ‘n Ride sites are still valuable to reduce NOx emissions. We must also encourage the purchase of the cleanest vehicles.

The future will depend on moving people and goods using as little energy as possible. All historic energy sources are approaching technological limits on reducing emissions on a unit energy basis. Development of new energy sources such as hydrogen has potential, but not in the near term.

So even though the region’s vehicles keep getting cleaner, additional roads to accommodate additional people and their vehicles offset these technological advances in smog control equipment. If the region continues its past land use patterns, at some point in the not-too-distant future, it is projected that the region’s air quality will start declining again.

There are no “silver bullets” to solve this challenge. What SACOG’s Blueprint is attempting to do is provide realistic alternatives to single occupant vehicles for more people and more trips. These strategies include:

- Increasing the density and intensity of development in areas where this makes sense; near well-served transit stations, whether they be served by light rail, bus, or other service.
- Placing compatible land uses near enough to each other and designing them to provide a high quality environment, so that residents can walk or bicycle for some trips.
- Implementing small, incremental, project by project improvements that will add up to substantial improvements in air quality, congestion, and health of regional residents. Every project is important in supporting the larger goals and good decisions keep providing benefits over a long period of time.
- Encouraging a better jobs/housing balance so people can reduce the distance they drive to work.

It is estimated that about thirty-five years ago, approximately half of all students walked or biked to school. Today that figure is about 15%. Of course, distance is not the only factor. A safe, desirable environment must be provided to encourage kids to walk or bike.

### **Paying for Air Quality Improvements**

The state and federal governments regulate most of the sources our region needs to clean up. These regulations can take many years to develop, implement, and turnover the vehicles and equipment. Local air districts primarily regulate stationary sources, but can through incentives

encourage the replacement or retrofit of some of the dirtiest vehicles and equipment if done prior to the state and federal regulations taking effect.

Through regulatory and incentive efforts, the current estimate is that it will cost our region many millions of dollars in incentive programs and regulatory costs to reach current and projected federal ozone and PM standards. If the required ozone emission reductions in the current SIP being developed are 20 tons per day, at \$15M per ton the cost would be \$300M for the Sacramento Federal Non-Attainment area. The tougher state standards will cost even more to attain. These costs must be weighed against the health costs associated with not providing healthy air for the region's residents and the impact on new and potential future businesses.

In their March 2006 study, *The Health and Related Economic Benefits of Attaining Healthful Air in the San Joaquin Valley*, Professors Jane Hall and Victor Brajer of CSU Fullerton and Fred Lermann, president of Sonoma Technology, Inc., estimate that the cost air pollution in the Central Valley is \$1,000 per person per year. Looking at ozone and fine PM alone, for the \$3 million people in the San Joaquin Valley this amounts to a \$3 billion impact each year. Their conclusion is based on premature deaths, chronic bronchitis, reduced activity in adults, hospital emissions, asthma attacks, days of school absence, cases of acute bronchitis in children, work loss days, and days of respiratory symptoms in children.

Although the Sacramento region's air is not as bad as San Joaquin's, with our current population of over 1.5 million people, it seems reasonable to conclude that our region is suffering at least a \$1 billion hit every year due to air pollution.

### Current Funding

With SACOG's assistance, the air districts in the Sacramento region have been very successful in securing local, state, and federal funding to provide incentives to replace and retrofit diesel vehicles and equipment in a cost-effective manner. Funding sources have included:

- SECAT – Sacramento Emergency Clean Air Technology funds have included both federal and state sources. This program is nearing the end of the current funding stream.
- Moyer – The Carl Moyer Memorial Air Quality Standards Attainment Program has allowed us to retrofit a large number of old diesel engines, especially those associated with agricultural pumps in the region. These have been some of our most cost-effective projects to date. The program will sunset around 2015 unless renewed.
- DMV – The four or six dollar surcharge per registered vehicle in our region has is collected by the Department of Motor Vehicles and passed along to the air districts for air pollution reduction programs. This program is funded yearly.
- Measure A – In Sacramento County only, 1.5% of the revenue generated from this one-half cent sales tax has been directed to the Sacramento Air District to mitigate the emissions associated with the road projects paid for with Measure A monies.
- CMAQ – A federal funding source, the Congestion Mitigation and Air Quality Program funds have been secured by the air districts, with the support of the SACOG Board, to help fund alternative fuel infrastructure and diesel emission reduction programs such as

cleaner school buses. This program is tied to reauthorization of the federal transportation program.

### Future Funding

It is clear that the above sources of funding will not be sufficient to complete enough incentive programs to get our region to attainment. Additional funding sources must be considered to clean up the heavy-duty diesel fleet, diesel school buses, construction and agricultural equipment and the so called “gross emitter” vehicles that some of us still drive. Efforts are continuing at the state and federal level to secure the funding necessary to meet our obligations.

### The Road Ahead

As the region moves forward with planning efforts that will result in a new State Implementation Plan (SIP) for air quality and a new Metropolitan Transportation Plan (MTP) for transportation that must both be adopted in 2007, we face some difficult decisions:

1. The region just emerged from a transportation conformity lapse (no new funding for transportation projects beyond a small group that did not impact air quality). We will soon face a less serious transportation conformity lockdown (no new projects can be added to the approved regional transportation plan, but current projects continue to be funded). This is a statewide issue with all non-attainment areas equally affected.
2. If the region decides it cannot attain the federal 8-hour ozone standard by 2013 as currently required for “serious” nonattainment areas, we do have the option of voluntarily “bumping up” to “severe” status, which will give the region until 2019 to attain the standard, or even to “extreme” status, which will give us until 2024 to meet the standard. But in return for getting more time for local, state, and federal air quality measures to be implemented, we must breathe dirtier air in the meantime.
3. Bumping up to “severe status” will have little impact, since we retain all the “severe” restrictions from our previous 1 hour ozone designation.
4. Bumping up to “extreme status” would have important consequences on business. Existing larger stationary pollution sources that provide the region with good paying jobs will be directly impacted financially by federally-required increased fees and more onerous and expensive offset requirements. More businesses will be required to find expensive emission reduction credits (ERCs) to offset new pollution from added business or capacity. New stationary source operations could find it difficult or impossible to move to our area.

### Innovative Solutions

Most of the “easy” emission reductions have already been secured. The cost-effectiveness of reducing air pollution further becomes more difficult and expensive as we move forward. The air districts of the Sacramento region have developed and continue to develop innovative

strategies for reducing air pollution that have served as models for the rest of the state and nation:

- **Cleaning up the Heavy Duty Fleet:** The five air districts have cooperated on several innovative programs, locally developing the SECAT and Moyer programs (both described above), which are now statewide programs.
- **Spare The Air:** Our region's voluntary driving reduction and health notification program has operated for more than a decade, resulting in quantifiable emission reductions and allowing people with conditions exacerbated by air pollution to better manage their illness and activity levels.
- **Rail Yard Clean Up:** One of the largest sources of diesel emissions in our region is the Union Pacific Rail Yard in Roseville. Local air districts have no authority to regulate this federal source. However, with the leadership of the Placer Air District and the cooperation of Union Pacific, an innovative emission reduction strategy has been tested at UP's locomotive maintenance facility. A "hood," which includes air scrubbers and other equipment normally associated with stationary sources can be used to capture the emissions of the locomotives being worked on at the facility. This strategy has the potential for countless applications nationwide, including port facilities and airplane maintenance facilities.
- **Cool Communities:** The air districts are working with local community leaders to implement strategies, such as light colored building roofs and streets to reduce temperatures in the urban "heat islands." This can result in lower temperatures, which means lower ozone formation.
- **Urban Forests:** Closely related to the Cool Communities effort, the air districts are working with the Sacramento Tree Foundation to quantify the benefits of planting more trees in our region to reduce temperatures and ozone formation.
- **Land Use:** Local air districts and SACOG have no authority over land use decisions. Using SACOG's Blueprint project as its vision, and acting as responding agencies under the California Environmental Quality Act (CEQA), local air districts continue to work with the development community to design projects and communities that rely less on the automobile.

### **Climate Change/Global Warming**

Our economy depends heavily on burning fossil fuels to grow, manufacture, and transport the goods we depend on for our quality of life. Our reliance on this historically inexpensive source of energy is now starting to reveal its impacts on our lives and environment. One of the consequences of not solving the climate change challenge will be increased temperatures that will make it even easier to form ozone in our region and will require additional power plants to provide energy to cool our homes. The Harvard Medical School estimates that climate change will result in a fourfold increase in the incidence of asthma. The California Climate Team Report to the Governor and Legislature identified other impacts that have a high probability of impacting the state. These include: increasing sea levels, increases in vector borne diseases, reduced snowpack as a water resource, and increases in heat related deaths.

Efforts are underway at local, regional, state, federal and international levels to address and reverse the human caused impacts associated with our current lifestyle:

- In June 2005, Governor Schwarzenegger signed an Executive Order committing the state to the following targets for reducing global warming emissions:
  - By 2010, California emissions will be reduced to 2000 levels, or by 11%
  - By 2020, California emissions will be reduced to 1990 levels or by 25%
  - By 2050, California emissions will be reduced to 80% below 1990 levels.

The resulting *Climate Action Team Report to Governor Schwarzenegger and the California Legislature* notes that California is the twelfth largest source of climate change emissions in the world.

- In December 2005, ARB passed the nation's first standards designed to reduce the GHG emissions of future vehicles. These standards are currently being challenged in court by auto manufacturers.
- AB 32 (Nunez) – The California Climate Act of 2006 – This bill, passed by the legislature and signed by the governor, directs the California Environmental Protection Agency to cap stationary sources of GHG emissions.
- According to the Earth Policy Institute, as of April 28, 2006, 227 U.S. mayors have signed on to Seattle Mayor Nickels' Climate Protection Agreement, pledging to reduce GHG emissions in their cities to seven percent below 1990 levels by 2012. Locally, the mayors of the Cities of Sacramento and West Sacramento have signed on.
- On March 23, 2006, the Sacramento Metropolitan Air Quality Management District's Board of Directors established a Sacramento Climate Protection Program to address climate change.

We are making slow progress toward making changes which can reduce the impacts of climate change. Technology has already been developed and is currently in use on some cars that reduces climate change emissions. The California Air Resources Board reports benefits from minor adjustments to catalytic converters and air conditioning systems. Vehicles that incorporate changes to the vehicle engine, transmission, tires and aerodynamics also provide climate change benefits. Individual decisions and local policies and programs, like Blueprint, that result in reduced driving will provide additional benefits because all engines that burn fossil fuels produce climate change emissions and reducing their use will help. It will be important in the coming years for elected officials, various governments and responsible agencies to work together on comprehensive programs that greatly reduce emissions of greenhouse gases, but in a way that maintains a viable and positive quality of life for residents in the Sacramento Region.



**Receive & File #7**

### **Caltrans District 3 Recommendations for Projects North of Stockton**

**Discussion:** Another portion of the Transportation Proposition 1B bonds designates a \$1 billion program for Highway 99. Caltrans has sole discretion to determine how to spend these funds. Caltrans intends to spend \$850 million south of Stockton and \$150 million from Sacramento north; the attachment shows the projects Caltrans intends to fund with the northern \$150 million.

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