September 8, 2009

The following comments were provided by Amanda Eaken, Regional Targets Advisory Committee (RTAC) member, for consideration by the committee.

2nd Working Draft RTAC Report

(September 3, 2009)

I. Introduction

~~*(August 28, 2009)*~~

~~**I. Summary of Regional Targets Advisory Committee Recommendations**~~

~~**II. Background**~~

ARB Climate Change Scoping Plan

The Climate Change Scoping Plan, adopted December 2008, is the overarching framework for meeting the Global Warming Solutions Act of 2006's (AB 32) greenhouse gas emissions reduction goal of returning to ~~the~~ 1990 emissions level by 2020. The comprehensive Plan proposes actions for all sectors to reduce emissions, including a section specifically for regional passenger vehicle-related emissions. This section points specifically to SB 375 as the process for reducing greenhouse gas emissions through more sustainable land use and transportation planning.

In adopting the Scoping Plan Resolution, the Board stated its intent that the SB 375 greenhouse gas emission reduction targets would be the most ambitious achievable. The estimated reductions included in the Scoping Plan are expected to be replaced by the outcome of the Board's decision on SB 375 targets.

Further, the Board resolved that, as input to the SB 375 target setting process, the Regional Targets Advisory Committee (RTAC or the Committee) should recommend a method that would evaluate the full potential for reducing greenhouse gas emissions in each major region of the state.

Senate Bill 375 Requirements for Target Setting

SB 375 is landmark legislation that aligns regional land use, transportation, housing and greenhouse gas reduction planning efforts. It requires ARB to set greenhouse gas emission reduction targets for passenger vehicles and light trucks for 2020 and 2035. Cal. Govt. Code § 65080(b)(2)(A). The targets are for the 18 Metropolitan Planning Organizations (MPOs) in California. MPOs are responsible for preparing Sustainable Community Strategies (SCS) and, if needed, Alternative Planning Strategies (APS), that will include the region's strategy for meeting the established targets. Cal. Govt. Code § 65080(b)(2)(B). An APS is an alternative strategy that must show how the region can meet the target if the SCS does not. Cal. Govt. Code § 65080(b)(2)(H).

Prior to setting targets for a region, ARB is required to exchange technical information with each MPO and the affected air districts. Cal. Govt. Code § 65080(b)(2)(A)(ii). In establishing the targets, ARB must take into account greenhouse gas emission reductions to be achieved by improved vehicle emission standards, changes in the carbon-intensity of fuels and other measures it has approved that will reduce

greenhouse gas emissions in affected regions. Cal. Govt. Code § 65080(b)(2)(A)(iii). As these factors may change, ARB may revise the targets every four years, and at a minimum, must update them every eight years. Cal. Govt. Code § 65080(b)(2)(A)(iv).

The targets may be expressed in gross tons, tons per capita, tons per household, or in any other metric deemed appropriate by ARB. Additionally, each MPO may recommend a target for its region. Cal. Govt. Code § 65080(b)(2)(A)(v).

Once regional strategies~~plans~~ that meet the targets are in place and approved by ARB Cal. Govt. Code § 65080(b)(2)(I)(ii), SB 375 includes California Environmental Quality Act (CEQA) incentives, which allow for streamlined environmental review of projects that meet specific criteria outlined in the bill.

~~SB 375 required ARB to create the RTAC to recommend factors to be considered and methodologies to be used by ARB when setting targets.~~

Regional Targets Advisory Committee ~~(RTAC)~~ Role

SB 375 required ARB to create the RTAC to recommend factors to be considered and methodologies to be used by ARB when setting targets. ARB appointed members to the ~~RTAC~~ Committee in January 2009. The Committee met monthly from February through September, including several additional bi-monthly meetings for a total of 14 meetings. It is comprised of a diverse group of 21 individuals representing affected stakeholders including MPOs; air districts; local governments; transportation agencies; homebuilders; environmental, planning, affordable housing and environmental justice organizations and members of the public. Appointed members are listed in Appendix A.

The Committee's specific charge is to prepare a report for ARB's consideration that recommends factors to be considered and methodologies to be used for regional target setting. Cal. Govt. Code § 65080(b)(2)(A)(i). In doing so, the Committee is required to consider relevant issues, including data needs, modeling techniques, growth forecasts, impacts of regional jobs-housing balance on interregional travel and greenhouse gas emissions, economic and demographic trends, the magnitude of greenhouse gas reduction benefits from a variety of land use and transportation strategies, and appropriate methods to describe regional targets and to monitor performance in attaining those targets.

All information and correspondence associated with the Committee is publicly available on ARB's website at http://www.arb.ca.gov/cc/sb375/sb375.htm.

RTAC Guiding Principles

~~To help frame the context in which it would proceed throughout its meetings, the Committee established a set of guiding principles at its March 4, 2009 meeting. The Committee~~ To guide its efforts, the Committee agreed to the following principles:

- Minimize administrative burden in program implementation or tracking;
- Encourage regional and sub-regional cooperation rather than competition;
- Avoid conflicting statutory requirements, if any;
- Maximize integrated system-approach allowable under the law;
- Maximize co-benefits of air quality, mobility, and economic growth;
- Maximize transparency and clarity to gain public support;
- Use metrics that measure cost-effectiveness;
- Maximize social equity;
- Emphasize the need for transit funding.

Key Questions Identified by RTAC

In addition to its guiding principles, the Committee also developed a list of questions relevant to the target setting process. Some questions are addressed specifically in these recommendations. Other questions were formed broadly and the Committee's discussion on the questions helped establish the basis for the recommendations. ~~established at the March 4 meeting a list of questions relevant to the target setting process. Some questions are addressed specifically in these recommendations; however, others extend beyond the RTAC's ability to address within the statutory timeframe given to the Committee.~~

The Committee came to consensus on the following preamble and key questions tha are relevant to the target setting process:

California's strategy for reducing greenhouse gas emission from passenger cars includes three elements: vehicle technologies, low-carbon fuel technologies, and reduced vehicle use through changed land use patterns and improved transportation. In the target setting process spelled out in SB 375, ARB is to consider greenhouse gas emission reduction strategies underway to implement AB 32. Since ARB adopts the state's vehicle and fuel technologies regulations, it currently has the tools and methods for considering these strategies in the target setting process. Therefore, apart from those, ARB needs the ~~RTAC~~ Committee recommendations on the factors and methodologies for setting targets that relate directly to passenger vehicle use. The following ten questions formed a suggested framework the ~~RTAC~~ Committee used to focus its efforts on vehicle-use related factors and methodologies.

Question #1: What are the key factors within the control of local governments and MPOs that influence greenhouse gas emissions from automobiles and light trucks use? How do land use, the transportation system, and pricing specifically affect vehicle miles traveled (VMT) and greenhouse gas emissions? What is the magnitude of these factors under a variety of conditions? (See Expert Consultation Section, page xx; Empirical Studies Section, page xx; BMP Section, page xx; Performance Monitoring Section, page xx)

Question #2: How do economic and other factors affect the magnitude of change possible in the land use and transportation sectors? This includes such factors as the price of gas and other variables that affect the price of travel, consumer preferences, especially for housing and the cost of housing, the economics of different development patterns, environmental considerations, social equity issues, funding levels available for different types of transportation investments, and local government tax structure and other market forces and fiscal considerations. (See Social Equity and Housing Section, page xx)

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Question #3: What are acceptable**,** reliable, and cost-effective data quality and modeling tool standards for implementing various methodologies to process the factors into targets? How do current models compare to these standards? Are the various models synchronized with their air quality counterparts? What improvements are needed (e.g. data gathering efforts, model calibration), what assistance can the state provide in expediting these improvements, and which can be made in time to meet the first round of targets? If not, what are the alternatives? What is the cost to make those improvements? (See Expert Consultation Section, page xx; Empirical Studies Section, page xx; Use of Modeling Section, page xx; BMP Section, page xx; and Model Enhancement Section, page xx)

Question #4: What support and authority can the state provide to local governments and MPOs in the form of implementation tools, (i.e. policies or programs/grants in addition to the modeling issues addressed in #3 above) and how do these tools affect VMT and greenhouse gas emissions? (See New Authorities Section, page xx; and State Actions Section, page xx)

Question #5: How should automobile and light-duty truck trips that cross regional and sub-regional boundaries be treated? What factors need to be considered for trips crossing state and international boundaries? (See Interregional Travel Section, page xx)

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Question #6: Should goods movement trips be considered relative to their impact on passenger vehicle emissions? (Not mentioned)

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Question #7: What metric(s) should be used to express regional targets? What are the pros and cons of the various choices? For example, should the metric(s) be per capita or total greenhouse gas emissions for a region? Should the metric(s) be relative to current conditions or a future year baseline? How should the metric(s) account for differences between regions, e.g. growth rates, incomes, current jobs-housing balance? What monitoring programs are needed to assess the permanence of emission reductions and usefulness of the metric(s) over time? (See Target Metric Section, page xx; Performance Monitoring Section, page xx)

Question #8: How should the inter-relationship between land use/transportation measures and external factors, such as low-carbon fuel and vehicle efficiency regulations be treated? How should SB 375 relate and link with existing air quality and transportation planning processes? (See Accounting for Statewide Fuel and Vehicle Technology Section, page xx; State Agency Interaction Section, page xx; and Integration into RTP Process Section, page xx)

Question #9: How can the various methods be evaluated to see if they support the goal of setting the most ambitious achievable targets? (See Expert Consultation Section, page xx; MPO/ARB Interaction Section, page xx; and Stakeholder Process Section, page xx)

Question #10: How can SB 375 implementation inform and influence existing and future federal laws and policies, when appropriate? (See Federal Transportation Funding Section, page xx)

~~While this report does not answer each question directly, the questions were helpful in framing the development of our recommendations and remain relevant as SB 375 is implemented.~~

II. Regional Targets Advisory Committee Recommendations

~~**[NOTE: The following introductory section was developed by ARB staff to integrate the concepts provided by the various RTAC subcommittee members assisting in the document write-up.]**~~

~~As ARB undertakes the target setting process, the Committee has identified and recommends the development and use of several tools that we believe will be instrumental in implementing SB 375.~~

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As ARB undertakes the target setting process, the Committee recommends that regional targets be expressed as a percent per-capita greenhouse gas emission reduction from a 2005 base year. ARB would use this metric to set a single statewide uniform target that could be adjusted up or down. Any adjustment would be subject to a "reasonably tough test." This process must ensure that targets are the most ambitious achievable for that region.

In addition, the Committee agreed to the following:

1) All MPOs employ travel modeling, and the results of the modeling with respect to greenhouse gas emissions will be made publicly available.

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2) The Committee supports the use of best management practices for:

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   a. Target setting;
   b. Greenhouse gas reduction strategy development;
   c. Target compliance demonstration by small MPOs and as an action plan to supplement model compliance by all MPOs;
   d. ARB to use as an accuracy check on each MPO's submittal as part of its strategy approval process;
   e. A user-friendly tool to facilitate public review of the greenhouse gas reduction strategy for all MPOs.

Comment [AE1]: It was my understanding that the RTAC agreed to using BMPs as one of several tools available to CARB to set the targets, not the sole methodology. This should be clarified.

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Comment [AE2]: Small MPOs should be defined by size and growth rate. MPOS with population and employment growth rates below 1% per year could be permitted to use BMPs for compliance demonstration.

3) The Committee discussed the option of recommending that all MPOs have the option of using the Best Management Practice (BMP) list as the sole method of demonstrating compliance, and could not come to resolution. Prior to ARB deciding on this option, the Committee recommends ARB consider all pros and cons related to this decision. ~~The~~

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In putting forward this recommendation, the Committee recognizes that due to the statutory timeframes for target setting, the most immediate need is the development of a list of best management practices, or BMPs. This BMP list should include data from empirical studies, ~~-~~blueprints, and modeling from MPOs that identifies the magnitude of greenhouse gas reductions that may be achieved through implementation of the policies and ~~or~~ practices. We recommend ARB initiate, with expert consultation, the

development of this BMP list as soon as possible, with the intent to finalize it in the ~~an interagency agreement with the University of California to produce this within the~~ next 4-6 months. The BMP list would immediately~~will~~ assist ARB in target setting, help local and regional governments in developing the region's greenhouse gas reduction strategy, and provide regions with a user-friendly tool to facilitate public interaction. In addition, the BMP list will assist ARB in evaluating submitted MPO strategies, and in the case of small MPOs, may be the only tool used to demonstrate compliance with the targets~~which policies to implement and help inform ARB in the target setting process~~.

~~The Committee also recommends ARB~~ The Committee's recommendation for the development of a BMP list is tied closely with its recommendation that ARB also undertake an effort, with expert consultation, to convert the BMP list into an~~a simple~~ analytical BMP spreadsheet tool ~~tool (i.e. calculator, SST, sketch planning tool, etc.)~~ that could provide an~~a sketch-level~~ assessment of what greenhouse gas reductions may be possible by implementing some or all of the policies and practices identified in the BMP list. This~~how multiple policies would interact to reduce GHG emissions within a region. This sketch-level~~ functionality would enhance ARB's target setting process and would assist MPOs in model and scenario development. ~~Based on discussions with model practitioners and academic experts, however, it is unclear whether a sketch-level tool could be fully developed in time to serve as the sole analytical tool in ARB's target setting process. Nevertheless, t~~The Committee believes strongly in the utility of such a~~a simple analytical~~ tool both for near-term target setting and longer term local planning and implementation.

The~~Finally, the~~ Committee recognizes that travel demand models, including off-model post-processors, are an essential, inextricable piece ~~parts~~ of the regional transportation planning process. Modeling provides the ability to estimate the aggregate impacts of implementing multiple land use and transportation polices and practices. Since the Committee begins with the assumption that models will be used throughout SB 375 implementation, ~~our recommendations focus primarily on~~ regional and statewide model transparency, consistency, and plans for improvement are a critical component of the Committee recommendations.

To support both the development of the BMP list and BMP spreadsheet tool, and to improve the accuracy of regional travel models, the Committee encourages the funding of more empirical studies, and recommends that any new information be appropriately incorporated into the SB 375 implementation process as it becomes available.

The ~~some degree, the~~ work of the Committee over the past eight months has, to some degree, already initiated the development of pieces of each of these tools. The ~~RTAC~~Committee ~~has~~ requested information from MPOs on their modeling capabilities and planning scenarios, recommended and described the role and function of empirical data, and discussed lists of policies and practices that may serve as the foundation of a BMP list.

Target Setting

In general, the Committee recommends that ARB use all of the tools and information at its disposal in developing and setting the regional targets under SB 375 for each MPO region. However, as evidenced by discussions at many ~~RTAC~~ Committee meetings, the sophistication and capabilities of each MPO to use these tools differ widely throughout the state. In light of this, we recommend that ARB consider this regional variation in the target setting process. ~~maintain flexibility in its expectation of the degree to which it relies on data and information derived from each tool in the target setting process.~~ For instance, the larger, more sophisticated regions have ~~the clear~~better capability of using advanced modeling tools with more sophisticated techniques to ~~capture~~ estimate the impacts of land use and transportation strategies. ARB should expect~~In these cases, it could be ARB's expectation~~ that the target setting process would rely~~relies~~ heavily on modeled outputs and scenarios in combination with BMPs in these regions. Conversely, in smaller regions with less sophisticated modeling, ARB may need to rely more heavily on the BMP list or BMP spreadsheet~~sketch planning~~ tool to ~~understand the impacts of greenhouse gas reduction policies in those regions and set targets accordingly~~estimate the impacts of land use and transportation strategies.

Target Meeting

The Committee understands and expects that with SB 375 implementation~~,~~ the science and data underlying land use and transportation planning will evolve and improve rapidly. As a result, we recognize that the tools and information ARB will have for setting targets by September 2010~~,~~ may be different, depending on each region's schedule, from the tools and information that MPOs will have when they demonstrate how they will meet their targets. ~~The decision regarding which tools are most appropriate for how a region meets its target rests with each region, and must be based on the capability of the region when it develops its strategy.~~

It is crucial that ARB, MPOs, and other stakeholders address this reality and design a process that can apply~~incorporate~~ new tools and data to the RTP update process as soon as they come available, and can reconcile the new tools and data ~~existing targets and plans~~ with the tools and data used to set the targets. It is similarly crucial that MPOs demonstrate the ability to reconcile the outputs of the various existing methodologies available to demonstrate attainment of their targets.

The Committee is recommending a strong role for the BMP list and BMP spreadsheet tool. Foremost, is the value these bring as communication tools for the public and local governments. The BMP list and BMP spreadsheet tool provide actions that can be taken by local governments that include some indication of the magnitude of greenhouse gas emission reductions that can be expected. This makes articulation and implementation of the greenhouse gas reduction strategies easily identifiable and understandable to the public and elected officials.

For all MPOs the BMP list can help form an action plan to supplement model compliance. And the Committee recommends an option to allow small MPO regions the ability to use only the BMP tools to demonstrate compliance with the SB 375 targets set by ARB. The Committee discussed the option of recommending that all MPOs have the option of using the BMP list as the sole method of demonstrating compliance, and could not come to resolution. Prior to ARB deciding on this option, the Committee recommends ARB consider all pros and cons related to this decision. ~~new information. The Committee encourages the development of the empirical literature given the clear need for more empirical studies, and recommends that any new information be incorporated as it becomes available. For instance, as regional and statewide model capabilities improve, those improvements should be immediately applicable to the region's strategy for meeting SB 375 targets – a region should not wait until its target is updated to incorporate enhanced modeling into its demonstration of how it will meet its targets.~~

Finally, as ~~As~~ ARB staff proceeds into the next phase of SB 375 implementation, we recommend that ARB continue to maintain its high degree of transparency throughout the target setting process and beyond. As described in more detail below, ARB interactions with all stakeholders are key to the target setting process and to the success of the methods recommended by this Committee.

Target Setting Process

1. MPO/ARB Interaction

SB 375 encourages a high level of ARB interaction with key stakeholders throughout the target setting process as evidenced by the representation on the ~~RTAC~~ Committee as well as specific direction for ARB to exchange technical data with MPOs and the affected air districts. The success of the target setting process, therefore, is described best through the collaborations that must continue to occur. Interaction with local governments, the public, air districts, other state agencies, and transportation and land use experts is important as discussed elsewhere in this report. The interactions between ARB and the MPOs are ~~is~~ particularly critical given that the planning requirements of SB 375 fall to the MPOs to carry out.

To ensure effective and efficient communication between ARB and the MPOs between now and September 2010, the Committee recommends the following process as a way to set the level of expectation about how that interaction could occur.

The proposed process for setting greenhouse gas emission targets under SB 375 will involve collaboration among the ~~staffs of the~~ MPOs and ARB, with support from Caltrans and the California Transportation Commission regarding modeling and regional transportation plan ~~RTP planning~~ guidance. Technical input may also be solicited from

other agencies, such as the Federal Highway Administration, Federal Transit Administration, and U.S. Environmental Protection AgencyFHWA, FTA, and EPA.

It is also acknowledged The Committee acknowledges that the process set forth below will require direct participation and buy-in from local jurisdictions, county transportation commissions (particularly for the Southern California Association of GovernmentsSCAG region), affected air districts, and other major stakeholders. The MPO/ / ARB interactions and the emission reduction target setting will be greatly enhanced with cannot be accomplished without such a "bottom-up" process.

Step 1 MPOs would prepare an analysis of their adopted fiscally constrained RTP, which also includes its assessment of where and of what intensity future land use can reasonably occur. The analysis would include estimates of their 2005 greenhouseGHG gas emission levels at a base year, as well as in 2020 and 2035 (e.g., for defined "No Project" and "Project" alternatives included in a Regional Transportation Plan (an RTP) Environmental Impact Report (EIR) or other related assessment), using their existing travel demand models. MPOs . The MPO staffs would work together with ARB staff to ensure that consistent long-range planning assumptions are used statewide, to the degree practicable, in this analysis, including, but not limited to:

- Existing and forecasted fuel prices and auto operating costs
- Reasonably available federal and state revenues revenue sources
- Assumptions about ARB EMFAC inputs that include fleet mix and auto fuel efficiency standards provided by ARB
- Demographic forecasts (e.g., aging of population and changes to household income)

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Step 2 ARB usesstaff would use the results from Step 1 to compile greenhouse gasGHG emission estimates for each of the MPOs individually in the base year of 2005 and the targetas well as years of 2020 and 2035 ("target years"), and would extrapolate those results to statewide levels for those years. ARB staff would then meet with the MPOsMPO staffs to share those results. Additional greenhouse gas, which would provide a "baseline" for further analysis to compare additional potential GHG emission reductions from regional strategies would be compared against this "baseline."

Step 3 ARB staff and the MPOsMPO staff would next develop parameters for preparing sensitivity analyses and multiplepreparation of alternative scenarios to test the effectiveness of various approaches for the 2020 and 2035 target years that would lead to more ambitious greenhouse gas emission reduction strategies, if feasible, for 2020 and 2035GHG

~~reductions in those years as compared to the baseline results~~. The policies and practices that could~~measures to~~ be incorporated into these alternative scenarios include those identified in the BMP list which may include such things as:

- Increased transportation funding and system investments in modes that will reduce greenhouse gas~~GHG~~ emissions, such as public transit, rail transportation, non-motorized transportation, and the like
- Shifts towards better land use / transportation integration, through means such as funding for supportive local infrastructure near public transit (e.g., smart growth incentive programs), and funding for regionally coordinated preservation of natural areas
- Increased the use of transportation demand management measures to reduce single-occupant vehicle (SOV) travel demand
- Increased transportation systems management measures that will improve system efficiency
- Various pricing options, including but not limited to express lanes, parking, and various fuel taxes
- Acceleration of more fuel efficient/clean fuels autos into the fleet mix than what is already required by adopted state vehicles and fuels programs.

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In this step, the MPOs and ARB would also identify the data outputs that should be obtained from existing scenario assessments or new scenario assessments developed with existing travel demand models, off-model tools, sketch planning analyses, or the BMP spreadsheet tool. The Committee recommends that the data outputs be related to the performance indicators discussed in the performance monitoring section later in this report.

In identifying the measures to be used in developing these alternative scenarios, ~~-~~MPO staffs and ARB staff will use information from existing scenario assessments and cost-effectiveness studies wherever possible.

In this step, the MPOs ~~staffs~~ and ARB staff would also ~~determine~~ identify the outputs that should be obtained ~~(~~from existing scenario assessments or new assessments ~~derived~~ developed with existing travel demand models, off-model tools, ~~or with~~ sketch planning analyses~~)~~, or the BMP spreadsheet tool. Outputs may include those listed in the Performance Monitoring section, and ~~which~~ may include:

- ~~GHG~~ Greenhouse gas levels at target years
- Transportation performance measures
- Economic performance measures
- Other environmental performance measures
- Social equity performance measures

Step 4 MPOs analyze the alternative scenarios using a sketch planning tool, BMP spreadsheet tool, or other acceptable means, and forward the results to ARB, explaining the reasons for any difference in key outputs resulting from the various methodologies used to analyze scenarios. ARB would compile the results, and, combined with its review of empirical studies and other relevant information that relates to passenger vehicles and light truck greenhouse gas emissions (including new auto fuel efficiency standards and clean fuels), prepare an preliminary draft uniform statewide target for public review and comment.

At this time, an MPO may also submit a proposed regional target pursuant to provisions of SB 375.

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Efforts will be made in this step to allow public participation in formulating alternative scenarios and determining output.~~MPO staffs would analyze the alternative scenarios using a sketch planning tool or other acceptable means, and would forward the results to ARB staff, which would compile the results and discuss them with MPO staffs. At this time, an MPO may also submit a formal request for a regional target pursuant to provisions of SB 375.~~

~~Step 5 ARB staff would use the results compiled in Step 4, combined with review of empirical studies and other relevant information that relates to passenger vehicles and light truck GHG emissions (including new auto fuel efficiency standards and clean fuels), to prepare a recommendation on a preliminary statewide target and regional targets, for review and commentby the MPO staffs and other participants.~~

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Step 5 ARB considers feedback from MPOs and other stakeholders on the preliminary draft uniform statewide target, as well as any formal MPO regional target submittals received as part of Step 4, to assess whether any region's target should be adjusted either above or below the preliminary draft uniform statewide target.

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Step 6 ARB staff recommends draft~~would consider MPO data, policies and other empirical evidence, and recommend draft statewide and regional~~ targets to its ~~the~~ Board.

The process outlined above will require a significant effort by all participants within a relatively short period of time in order to allow ARB staff to submit draft targets to its Board by June 30, 2010 in accordance with SB 375. Therefore, it is recommended that a specific schedule be developed by the participants, based on the following key milestones:

- Steps 1 through 4 should be completed by March 1~~April 30~~, 2010; and
- Steps 5 and 6 should be completed by June 30, 2010.

2. Expert Consultation

The Committee is convinced~~believes~~ that ~~the~~ input from ~~of~~ experts in land use and transportation, especially experts in the academic and practitioner communities, ~~community,~~ will be critical to the success of ~~the~~ SB 375 implementation.

Specifically, the Committee recommends that ARB work with a group of academic experts and practitioners (e.g., MPOs, business community, local jurisdictions, social equity and labor advocates, etc.) to develop a list of BMPs. The BMP list would be needed by January 2010 to help inform the ~~that can support both~~ target setting process. ~~and MPO planning.~~ The ~~initial draft of this~~ BMP list ~~is needed by January 2010 for MPOs to use in their scenario development as part of target setting. This information will help inform decisions on key policies for inclusion in MPO scenarios during target setting and MPO strategies to meet the target. It will also be a central component in the evaluation of the MPO scenarios and modeling outputs. The list~~ should be supported by the scientific~~research~~ literature and relevant case studies. If feasible and where supported by available data, the list should include elasticities associated with the BMPs. At a minimum, ARB should work with the ~~academic~~ technical experts to identify a range or general scale of the possible greenhouse gas~~GHG~~ benefits of the policies and practices identified in the BMP list~~BMPs~~.

Once the BMP list is developed, we recommend that ARB, initiate the development of a ~~further review by experts~~ BMP spreadsheet tool that could provide an assessment of what greenhouse gas reductions may be possible by implementing some or all of the policies and practices identified in the BMP list. ~~of~~

In addition, we recommend that ARB use its expert consultation process to review ~~any~~ the analytical tools that use the empirical data associated with the BMP list of policies and practices. This may include the BMP spreadsheet tool, other ~~developed from the BMP list, including calculators or~~ sketch tools, or model improvements that are validated against the empirical data~~will be needed~~. This review would ~~is needed to~~ ensure that the tools appropriately reflect the impacts suggested by the data and to identify future research needs to improve ~~empirical data and~~ the tools and empirical literature.

Finally, given that all MPOs employ travel demand models, and these models will provide data on the greenhouse gas emission of the regional~~including off-model post-processors, will play a central role in MPO demonstrations that their~~ plans ~~meet SB 375 targets~~, the Committee recommends that ARB consult with land use and transportation modeling experts during its review of MPOs' ~~MPOs~~ analyses. The Committee believes this input is critical to supplement ARB's ~~ARB~~ existing technical capabilities by helping ARB check the accuracy of the MPOs' emission reduction estimate. ~~. The input will help ARB understand how to assess the MPOs technical assessments of impacts of the its policies on the diverse land use and transportation environment in the State.~~

3. ARB Stakeholder Process

The Committee recommends that ARB continue to provide opportunities for involvement by a wide variety of stakeholders, including but not limited to representatives of local governments; air districts; transportation agencies; homebuilders; academia and environmental, planning, affordable housing, public health, labor, and environmental justice organizations. ~~A high level of transparency and outreach is key to the successful implementation of SB 375.~~ Opportunities for stakeholder participation in the target setting process is essential to build public confidence.

In addition to public meetings through out the target setting process, ~~-~~ARB should continue to encourage the submittal of data and written comments through ARB's online public comment website. The comment website serves as a mechanism for: (1) soliciting public input and (2) developing a statewide repository for information on local policies and practices that reduce greenhouse gas emissions and support the goal of sustainable community design.

A high level of transparency and outreach is key to the successful implementation of SB 375. Ensuring the public trust and establishing a system of transparency, public participation, and collaboration will strengthen the target setting process and SB 375 implementation. Because SB 375 covers numerous policy areas including: transportation and land use planning, housing affordability, and environmental assessments, crucial knowledge is dispersed over a large number of community stakeholders. For this reason, the public will need easy ways to quickly and easily access information on SB 375 implementation. Stakeholders can provide their collective expertise and information to help ensure regional targets will be the most ambitious achievable.

4. State Agency Interaction

The Committee recommends that ARB continue to work closely with other state agencies that have a key role in land use and transportation planning to ensure a certain degree of consistency across the ongoing efforts by ARB and these agencies to improve planning and sustainability. SB 375 requires new ways of looking at the planning process for land use, transportation, and related fields. State agencies need to avoid sending conflicting signals that make it difficult for local and regional agencies to know how best to proceed.

~~.—~~Currently, the California Transportation Commission (CTC) is working with ARB and the Department of Transportation (Caltrans) to update the RTP guidelines. This update is meant to ensure that RTP guidelines appropriately address changes to RTP documents, such as the inclusion of a sustainable communities strategy, and that current MPO modeling practices begin planning for necessary improvements to properly evaluate the impact certain policies will have on greenhouse gas~~GHG~~ emissions for a region. In addition to participating in these efforts, Caltrans maintains the statewide transportation model, which includes interregional travel. The Department of Housing

and Community Development (HCD) is responsible for ensuring the housing elements of sustainable communities strategies meet state requirements through the Regional Housing Needs Assessment (RHNA) process. As the planning and CEQA experts in the state, the Governor's Office of Planning and Research's (OPR's) involvement is important to implementation statewide.

Target Setting Methods

1. Use of Empirical Studies

This Committee ~~Ultimately, RTAC~~ is charged with helping ARB determine how ~~CARB~~ to identify the ~~accurately predict future MPO performance. Specifically, CARB wants to know *what*~~ reductions in greenhouse gases that~~*GHG*~~ are possible from changes in land use, transportation infrastructure and other transportation policies over a given period of time, and within the major regions in the state. ~~. C~~ARB, RTAC members, cities, MPOs and members of the public all have a vested interest in getting the answer to that question right. Empirical ~~Along with travel models and best management practices, empirical~~ studies have a vital role to play. The data derived from these studies ~~in helping to answer this question. They~~ can help define not only the expected range of VMT and greenhouse gas~~GHG~~ reduction that might result from various land use and transportation strategies, but also the series of policies and practices ~~strategies~~ that planning agencies throughout the country have found to be ambitious and achievable.

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~~*What are empirical studies?*~~

In the SB 375 context, the relevant empirical evidence consists of a set of cause-and-effect relationships observed to occur in real-world situations. The "causes" or inputs include land use strategies such as infill development, development mix, density, urban design (4Ds) and transportation strategies such as pricing, incentives, service improvements and other forms of transportation demand management (TDM). The observed "effects" or outputs are changes in transportation system use over time, measured through empirical data that includes local, regional and state road and highway traffic counts, smog check odometer readings, transit ridership counts, household travel surveys, gasoline consumption data, bridge toll data, and observed counts of bicycle and pedestrian activity.

Fortunately, significant attention has been paid to this subject in the scientific literature, and the group of experts that we recommend ARB convene~~expert panel that the RTAC has discussed convening~~ will have ample work to draw from.

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~~in their survey. At a minimum, the documents that CARB and the expert panel should review include the following:~~

- ~~Growing Cooler – The Evidence on Urban development and Climate Change, ULI, 2008~~

- ~~Moving Cooler – An Analysis of Transportation Strategies to Reduce Greenhouse Gas Emissions, 2009~~
- ~~Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?, McKinsey & Co, 2007~~
- ~~Smart Growth INDEX Method of Estimating Travel Impacts from Land-Use Changes, US EPA, 2001~~
- ~~Improved Methods of Estimating Trip Generation at Mixed Use Development, US EPA, 2009~~
- ~~Recommended Practice for Quantifying Greenhouse Gas Emissions from Transit, APTA, 2009~~
- ~~Traveler Response to Transportation System Change, TRB, 2005~~
- ~~Effects of TOD on Housing, Parking and Travel, TCRP 128, 2008~~
- ~~Assessment of Models and Tools for Estimating Smart Growth Trip Generation, Caltrans, 2007~~
- ~~Transportation Analysis Report Guidelines, Caltrans, 2009~~
- ~~Smart Growth Trip Generation and Parking Generation, SANDAG, 2009~~
- ~~SACSIM 4D Model Elasticity Update, SACOG, 2009~~
- ~~California Neighborhood Electric Vehicle (NEV) Plans, Lincoln and Rancho Mission Viejo, 2007~~
- ~~Understanding How Individuals Make Travel and Location Decisions, TCRP 123, 2008~~
- ~~A Review of the International Modeling Literature: Transit, Land Use, and Auto Pricing Strategies to Reduce Vehicle Miles Traveled and Greenhouse Gas Emissions, Rodier, 2008 (cited by CARB 2009)~~

~~*Why should CARB consider empirical studies?*~~

Empirical studies represent the only observations we have of actual travel behavior. When combined with information about transportation infrastructure investments, pricing, and other policy decisions, empirical data can be used to derive elasticity values for the impacts of certain factors on VMT, greenhouse gases, ~~GHGs~~ and other metrics of concern. An elasticity is a percentage change in one variable with respect to a one percent change in another variable, such as the percentage change in VMT for each percent change in development density. These elasticities can then help to inform the setting of the targets and the evaluation of various scenarios for the SCS. MPOs can use these elasticities to better understand how various policy or investment changes affect VMT and greenhouse gases~~GHGs~~.

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~~*How should CARB, the RTAC and the MPOs use empirical studies?*~~

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Empirical evidence lends itself to a variety of uses. Specifically, the Committee~~RTAC~~ recommends the following:

1. The most immediate use of empirical data is identified in this Committee's recommendation that ARB, with expert consultation, develop a BMP list, and enhance it by providing, if available from the literature, a range of elasticities

associated with each policy or practice. Accomplishing this, the empirical data would then be used to develop a BMP spreadsheet tool based on the BMP list. The group of experts should review the literature and derive the most region-appropriate elasticity values possible, including any interaction between the various factors. If completed in time, the BMP list could be by MPOs and ARB in the target setting process.

2. Within the same general timeframe, ARB should ~~CARB can~~ use empirical studies as one means to estimate what order of magnitude of greenhouse gas~~GHG~~ reductions are possible from various policies in California's regions in 10, 20 and 30 years as part of their process to complete Step 4 – the preliminary draft~~1 – Draft~~ uniform statewide reduction targets. As an example, the City of Stockholm instituted a pilot program for congestion charging in 2006 which reduced carbon emissions by 14 percent in the central city, and up to 3 percent citywide[1]. CARB should consider what the empirical data say is possible~~, along with estimates from travel models and documented quantified experience along with other best management practices~~ when completing Step 4.

3. Empirical evidence should also be used to calibrate and validate regional and state travel models. As discussed elsewhere in the report, the Committee is recommending ARB seek expert consultation to, among other things, derive elasticity values from the empirical evidence, appropriate to each region, and create anticipated sensitivities for each regional model. The experts would develop a list of elasticity values, and then work collaboratively with MPOs to determine that the models are generating the right answers, given the expected values. Observations of actual behavior responses to transportation investments should continually be used to refine and recalibrate model predictions.~~1.~~

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4. Empirical evidence can also be used to estimate the magnitude of co-benefits of implementing SCSs. Many Committee~~RTAC~~ members ~~have~~ discussed the importance of making the SB 375 process transparent and understandable to the public. In the aforementioned Stockholm experience, this single policy reduced injuries by up to 10 percent and reduced the average morning commute by almost an hour in the first year of implementation. These co-benefits can help to engage the public in the planning process and bring to life anticipated real-world impacts of particular policies under consideration.

~~The RTAC has had extensive discussions about the importance of improving regional travel models. During the August 5th meeting, the RTAC agreed that a combination of modeling and "off-model" approaches would be used to set and demonstrate attainment of GHG targets. One concept which has received support is for a panel of experts to review each MPO's travel model to verify proper performance. The expert panel would derive elasticity values from the empirical evidence, appropriate to each region, and create anticipated sensitivities for each regional model. As an example, in his 2008~~

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[1] Leslie Abboud and Jenny Clevstrom, "Stockholm's Syndrome," August 29, 2006, Wall Street Journal, http://online.wsj.com/article/SB115681726625048040.html

paper, *CO2 Reductions Attributable to Smart Growth in California*, Ewing estimated that the elasticity of VMT with respect to highway lane miles is .46, meaning that for every one percent increase in the number of highway lane miles, VMT is driven up .46%. The expert panel would deliver a list of elasticity values to the MPOs, and then work collaboratively to determine that the models are generating the right answers, given the expected values. For factors that the model is not sensitive to, post processors, or other off model adjustments should be used. For example, certain regional travel demand models may be unable to predict the impacts of road pricing on VMT. In this case, the MPOs would adjust the model outputs with the region-appropriate elasticity values identified by the expert panel to be reasonable representations of the effects of road pricing. In the longer term, the models could be enhanced to include the appropriate sensitivities to pricing, as discussed in recommendation #5.

4. Any Best Management Practices (BMP) approach will rely on empirical evidence to create a Simple Spreadsheet Tool (SST). Similar to the travel model post processors, the BMP list attempts to predict the impact of various policy and investment decisions on relevant metrics. The expert panel should review the literature and derive the most region-appropriate elasticity values possible, including any interaction between the various factors. The Moving Cooler document will be of particular value in this effort.

The legislature recently appropriated $12M in Proposition 84 funding for data improvement and modeling to assist with SB 375 implementation. The Strategic Growth Council is considering allocating $2M for creation of a statewide travel model that will both attempt to model inter regional travel as well as serve as a means to "ground truth" the output of the regional models. Empirical evidence should be used to calibrate the statewide model and enhance and validate the regional travel models. For example, Los Angeles' Orange Line, which opened in 2005, exceeded its ridership projections for 2020 within 7 months of opening[2]. Observations of actual behavior responses to transportation investments should continually be used to refine and recalibrate model predictions.

2. Use of Modeling

SB375 is one of many legislative or regulatory initiatives which confer benefit today, in return for promised performance in the future. The benefits in question for SB375 include: CEQA relief for certain projects, <<others…>>; the future performance is a reduction in greenhouse gas emissions. By necessity, initiatives of this sort require methods for forecasting future conditions, based on data available and policy commitments made today. Ideally, the forecasting methods are objective, scientifically-based, transparent, understandable to policy makers and the public, and fair to regions of different types and of different capabilities in terms of policy analysis.

[2] William Vincent and Lisa Callahan, A Preliminary Evaluation of the Metro Orange Line Bus Rapid Transit Project, 2007, http://www.nbrti.org/docs/pdf/Orange_Line_Preliminary_Evaluation_by_BTI.pdf

~~Meeting all these terms is a tall order, especially for the subject area of SB375: the interaction of land use and transportation, and the ability to influence the amount and type of travel through land use and transportation policies. We know from a growing body of research on the subject that many policies have the potential to influence travel. We also know that many confounding factors (e.g. demographics, geography, history, etc.) result in differing results in different regions from ostensibly the same or very similar policies.~~

This section of the report summarizes Committee ~~the research and~~ discussions on the use of travel demand models and other modeling~~methods which took place at the RTAC, and lays out a proposed approach for using models and other~~ methods for SB 375 target setting and ~~later~~ implementation. In our recommendations, we emphasize the need for MPOs to make modeling data and information regarding greenhouse gas emissions available to the public in a clear and transparent manner.

In this section, "travel demand models" refers to the computer models currently in use at MPO's for travel forecasting, ranging from relatively simple "four-step" models to more sophisticated, activity-based simulation models. "Other modeling methods" refer in general to tools which either augment or replace travel demand models, and are likely to be ~~simplified,~~ spreadsheet-based tools.

Current use of Travel Demand Models

~~*Modeling in the SB375 legislation*~~

~~In the text of SB375, travel demand models or modeling are mentioned fourteen times, including in the subject line of the bill itself. Within the bill, there are three primary threads of discussion and reference to travel demand models and modeling:~~

- ~~Development of guidelines for travel demand models to be developed by the California Transportation Commission, in consultation with other interested parties.~~
- ~~Use of models in analysis of land use and transportation policy.~~
- ~~Provision of information to the public on the methods and assumptions used in travel demand modeling, and the results of that work for SCS or APS development.~~

Each of the eighteen MPO's in California uses and maintains a travel demand model for development and evaluation of its RTP. If ~~, if~~ ambient air quality does not conform to federal air quality standards, the travel demand model, along with associated emissions models, is also used for evaluation of progress towards these standards in the future. All MPO's have staff assigned to maintenance and operation of their travel demand models, though with widely varying levels, and all periodically use consultants and outside contractors to periodically update and improve their travel demand modeling tools. Given the resources which currently are devoted to travel demand modeling, and their use in land use and transportation planning historically, it is logical that the long

term investment in analysis capabilities by MPO's be leveraged for implementation of SB 375.

Although the bill referred to travel demand models frequently, parts of the bill presaged later discussions of SB 375 implementation, by recognizing that limitations to travel demand models may require that other methods be used. For example, if travel demand models in use are unable to predict mode splits, the bill allows that other means may be used. [Cal. Govt. Code §145221.1(a)(4)].

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Committee~~RTAC~~ discussions on travel demand models

~~In part because of the reference to travel demand models and modeling in SB375, a considerable amount of research on and discussion of travel demand models in use by California MPO's was undertaken by the RTAC~~The Committee, with assistance from ARB and MPO ~~agency~~ staff. ~~This research and discussion~~ focused on two major implementation issues with respect to the use of models:

- The potential role for models to inform target setting
- The role for models in SCS and APS development and target compliance demonstration

The range of discussion on the ~~of~~ use of models for target setting and demonstration of target compliance was defined primarily by an acknowledgement that all MPOs employ travel modeling, with varying levels~~the extent~~ of capability~~reliance on travel demand models, as opposed the other methods~~. In the course of this discussion, a detailed self-assessment of travel demand models (as well as other subjects) was prepared and presented to the ~~RTAC~~ Committee (see Appendix B~~<<A>>~~). Because of the admitted variation in ~~limitations in~~ capabilities of travel demand models in use by MPO's which emerged from this assessment, the Committee discussed ways to augment and or supplement ~~any discussion of relying completely on~~ travel demand models with other methods~~for target setting ended, and the discussion shifted to whether~~ to achieve reasonable levels of sensitivity for SB 375 implementation purposes. These ~~rely on travel demand models augmented with other methods, or to rely solely on other methods without any reference to travel demand models. Other methods discussed by the RTAC~~ included:

- "Points-for-Policy", wherein regions would accumulate a pre-defined number of points for commitments to implement specific policies known to reduce greenhouse gas~~GHG~~ emissions. ~~Under this system, targets would be set as points, and not as a specific travel or emissions metric.~~
    - ~~Advantages: Simplicity; transparency; may include a wide range of policies~~

    ~~Disadvantages: Difficult to account for variation in policy effects; no accounting for interaction or overlap between multiple policies; no estimate of quantitative effects of policy~~

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- "Best Management Practices" or "BMPs", wherein a comprehensive list of greenhouse gas~~GHG~~ reduction policies and practices would be assembled, and a BMP spreadsheet tool would be developed for determining the appropriate

level of ~~the most likely GHG~~ reduction that a local jurisdiction could achieve in implementing a particular policy or set of policies.

- "Post processor tool", wherein MPOs would apply the tool to adjust outputs of their travel demand model such that they account for areas where the model lacks capability, or is insensitive to a particular policy or factor. The most commonly referred to post-processor in the Committee discussions was a "D's" post-processor, but post-processors could be developed for other non-D factors, too.

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- ~~associated with each policy would be determined. In this case the target would be a specific travel or emissions metric, and the BMP tool would be used to estimate the total change to the metric based on commitments to implement a set of policies in a region.~~
  - ~~o Advantages: Potential simplicity and transparency; may include a wide range of policies~~
  - ~~o Disadvantages: Difficult to account for cross-regional variation in policy effects; very difficult to account for interaction or overlap between multiple policies.~~
- ~~"Simplified standardized tool" or "SST", which falls somewhere between a BMP and a fully functional travel demand model. The SST would include extensive input data for each region, but without the spatial detail which is possible with a travel demand model. The SST would include a comprehensive set of elasticities or other factors to be applied to the input data, and compute the most likely GHG reductions from implementation of selected policies, in combination.~~
  - ~~o Advantages: May accounts for differences in regional context; may include a wide range of policies; potentially more transparent than travel demand model.~~
  - ~~o Disadvantages: Input data may be very complicated, difficult to assemble; difficult to account for interaction or overlap between multiple policies~~
- ~~"Post processor tool", which differs from the above three in that it would be applied to the outputs of a travel demand model, and would adjust those outputs to reflect areas where the model lacks capability, or is insensitive to a particular policy or factor. The most commonly referred to post-processor in the RTAC discussions was a "D's" post processor, but post processors could be developed for other non-D factors, too.~~
  - ~~o Advantages: Takes advantage of existing travel models in use; expands the range of policies which can be analyzed.~~
  - ~~o Disadvantages: May be difficult to tailor to specific travel models; difficult to standardize across the state.~~

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Although all of these named methods were discussed and referred to as distinct entities, large areas of overlap between the methods exist~~, and depending on the level of detail included in each method, the differences between some of them may disappear. For example, if the "points" in a points-for-policy method were defined as, say, percentage reductions in GHG emissions likely for specific policies, the differences between a points-for-policy method and a BMP method may disappear. Likewise, if one of the~~

~~inputs to an SST is aggregated outputs of a travel demand model, the SST may be virtually identical to a post-processor tool~~.

Recommendations on the use of models for SB 375

~~Proposed guidelines on use of models for SB375~~

~~Use of~~ Throughout its discussion, the Committee came to appreciate how complex modeling systems can be, and as a result, recognizes the vital importance of the transparency in the modeling process. Within the context of much improved transparency, the Committee recommends that use of travel demand models and other modeling methods for SB 375 implementation includes three steps: 1) Assessment and documentation of existing travel demand model capability and sensitivity; 2) development of a model improvement program which addresses identified modeling needs by the second round of SCS/APS development; and 3) development of short range improvements and other methods to address modeling needs for first round of SCS/APS development, and potentially for MPO proposals of their reduction targets.

Travel model assessment and documentation

SB 375 requires that MPO's "…shall disseminate the methodology, results, and key assumptions of whichever travel demand models it uses in a way that would be useable and understandable to the public." ~~[~~Cal. Govt. Code § 14522.2(a)~~]~~. This portion of the Committee's recommendation~~step in the guidelines~~ is intended to address this section of the bill, as well as identify areas of needed improvements to travel demand models. The travel model assessment should cover the travel demand model factors and policies identified in the "MPO Self-Assessment of Current Model Capacity and Data Collection Programs" presented to the ~~RTAC~~ Committee in May 2009 (Appendix C~~<<A>>~~).

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~~The assessment and documentation required in this step may be a completely new document, if no such documentation exists for and MPO travel demand model. If the MPO has prepared documentation of its travel demand model with the results of sensitivity tests of each factor or variable, no new documentation would be required. If existing~~ If the documentation is highly technical in nature, a summary of the assessments and sensitivity testing should be prepared which would be more generally understandable by a non-technical audience.

Depending on the factor or policy, the assessment required in this section may include:

- Key validation statistics, showing the correspondence of the model prediction for a validation year to observed data.

- Results of experimental sensitivity tests, wherein a single factor or variable is adjusted higher and lower from its baseline value, with the corresponding changes in model output variables shown. Minimally, the outputs shown would be: total VMT; light-duty vehicle VMT; light-duty vehicle greenhouse gas~~GHG or CO2~~; total person trips; person trips by automobile modes; person trips by transit modes; and person trips by bike and walk modes.
- Results of planning scenario tests, wherein the modeled results of planning scenarios are tabulated and correlated to show the overall sensitivity of the travel demand model to a combination of factors and policies included in the planning scenario.

Experimental sensitivity testing should be performed on all exogenous input variables (e.g. age, income, automobile operating costs) and for as many policy variables as are feasible given the structure and complexity of the model (e.g. transit fares, highway capacity, density, mix of use, pedestrian environment, transit proximity, etc.). The documentation of the sensitivity tests should identify the range of reasonable sensitivity based on research literature, and account for where in this range the travel demand model sensitivity falls. Ideally, the range of reasonable sensitivity to key factors and policy variables should be determined through a coordinated research synthesis and review process, the results of which would be a standard reference for all MPO's in the state.

Where results of planning scenario tests are reported, the MPO must show a correspondence between the planning scenario test results and the experimental, single factor sensitivity testing. Part of this documentation should assess the degree of interaction of factors and policies (i.e. the difference between the sum of all scenario variables taken individually, and the total change in modeled results).

The assessment and documentation should identify areas where the model lacks capacity for analysis of a factor or policy, and any factors or policy for which the model sensitivities fall outside the range of results documented in research literature.

As detailed elsewhere in this report~~Ideally~~, the Committee recommends ARB, with expert consultation, evaluate the sensitivity~~assessment should include an independent peer review~~ of the MPO model systems to the greenhouse gas impacts of implementing land use and transportation strategies. If the assessment results in changes to the self-assessment reported to the Committee~~RTAC~~ in May 2009, this information should be provided to ARB staff.

Model improvement program

Based on the assessment described above, each MPO should develop a multi-year program of improvements needed to address any modeling needs. Improvements should describe the basic change which would be made to the MPO travel demand model, identify what data would be required to support the improvement, provide and

order-of-magnitude cost estimates, and identify any phasing issues or dependencies on other projects in the program.

Phasing of the improvements should address the following timeframes: 1) what improvements might be implemented in time to affect an MPO-proposed greenhouse gas ~~GHG~~ reduction target; 2) what improvements are possible to implement before the first SCS/APS development by the MPO; and 3) what improvements are possible to implement before the second SCS/APS development.

The MPO model improvement program need not identify improvements to allow for all key factors and policies to be fully and reasonably represented in their travel demand model. An MPO might not require a particular modeling capability, based on the range of policies the policy-makers are willing or able to consider.

Additional short range improvements or other methods

It is likely that many MPO's will not be able to identify projects to improve their travel demand models to address significant modeling needs prior to proposing their own greenhouse gas~~GHG~~ reduction target to ARB, or prior to the development of the first SCS/APS for the region. Additionally, structural limitations in the model may also require other methods to fully address a modeling need. Where either is the case, the MPO should prepare a program of short range improvements and other methods to address this need prior to the development of its first SCS/APS.

Other methods could include the use of BMPs~~a BMP, SST,~~ or a post-processor approach as described above. These other~~Other~~ methods should rely on travel demand model outputs for all factors and policies where the model can be shown to be reasonably sensitive. If a capacity is represented in a travel demand model, but model sensitivity is not reasonable, the other method should be tailored to compensate for the insensitivity. If the capacity to model a policy or factor is absent from the travel demand model, the other method should be implemented to provide the needed capacity. However, where any other method is used to account for a missing travel model capability, the MPO must demonstrate a reasonable approach for ensuring that the other method does not double-count or over-estimate the likely impacts of the policy or factor.

3. Key Underlying Assumptions

The Committee recommends that the MPOs and ARB clearly identify the~~ARB make known all~~ key underlying assumptions included in both the targets and the MPOs determination of how it has met its~~that are used to set~~ targets. The assumptions range from population estimates to transit funding assumptions to predicted benefits of ARB's vehicle and fuel regulations. This transparency ~~of these assumptions~~ will be critical to the information exchanges between ARB and MPOs as part of the target setting

process, as well as in assessing the need for future target adjustments when the underlying assumptions change.

It is especially important that MPOs~~ARB~~ clearly document for ARB their assumptions made with regards to current economic activity as it relates to current and future residential and commercial development, current and projected economic activity as they relate to future rates of growth and development, as well as assumptions made with regards to current and future levels of transit and local government funding. Assumptions on economic activity and funding levels will be fundamental to understanding the level of change needed to meet the targets. If assumptions on these items vary by region, ARB should work with the MPOs to indicate such and provide sufficient documentation throughout the SB 375 process.

4. Best Management Practices

The Committee recommends the development of a list of~~proposed~~ Best Management Practices (BMP) and a related BMP spreadsheet tool.

The Committee recommends the BMP list and BMP spreadsheet tool be used for five purposes:

a. Target setting,
b. Greenhouse gas reduction strategy development,
c. Target compliance demonstration by small MPOs and as an action plan to supplement model compliance by all MPOs,
d. ARB to use as an accuracy check on each MPOs submittal as part of its strategy approval process, and
e. A user-friendly tool to facilitate public review of the greenhouse gas reduction strategy for all MPOs.

~~) option has three main purposes:~~

~~To provide information to local jurisdictions that are making land use and transportation decision about which strategies are most cost-effective in reducing greenhouse gases;~~
~~2. To provide a simplified method that can be used in part for setting the SB 375 reduction target(s); and~~
~~3. To provide a tool that MPOs can use to develop SCS Plans and to demonstrate compliance with the reduction target(s). In particular, for those MPOs that have limited to no extensive transportation/land use modeling capabilities.~~

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The BMP list consists~~option would consist of a toolbox~~ of available land use and transportation policies and practices ~~strategies for~~ that local and regional planners should consider when ~~to choose from in~~ addressing the requirements of SB 375. The

BMP spreadsheet tool would be ~~and a calculator~~ for determining the approximate ~~appropriate~~ level of reduction that a local jurisdiction could achieve in implementing a particular strategy or set of strategies in their particular setting. These tools~~This approach~~ would allow local jurisdictions to make appropriate greenhouse gas reduction policy choices for SCS ~~Plan~~ development based on sound science while more sophisticated land use and transportation models are being developed and refined. The BMP list and spreadsheet tool should include policies for which either empirical studies or travel models exist to estimate the likely impacts of their implementation. The BMP list and BMP spreadsheet tool~~option~~ can serve as ~~an~~ initial screening tools that allows local decisions to be made and may also serve as tools ~~a tool~~ to facilitate the development of more sophisticated transportation/land use models and measurement of implementation performance. Most importantly, they~~it~~ can enhance early implementation of policies and practices~~BMPs~~ under SB 375, which has a 25-year-plus horizon encompassing at least five to six rounds of Regional Transportation Plans (RTPs).

BMPs~~The BMP option~~ also provide~~provides~~ a tool that can be applied locally by planning commissions, city councils and county boards to successfully implement SCS strategies during their entitlement processes. Local boards and commissions are the front line that must implement SB 375 as part of their everyday planning decisions. BMPs provide ~~The BMP option provides~~ transparency to the end-user and decision-maker by providing a relatively quick assessment of respective strategy benefits.

The following sections describe how BMPs~~this option~~ can be designed and applied to~~for~~ SB 375 target setting and compliance demonstrations.

In order to be a timely, relevant tool for the uses mentioned above, RTAC recommends that ~~*Approach*~~

~~T~~the BMP list and BMP spreadsheet ~~would~~should be developed over the next 4-6 months by ARB through an expert consultation process, involving a group of academic experts and practitioners (e.g., MPOs, business community, local jurisdictions, social equity and labor advocates, etc.). A completed BMP spreadsheet tool should be beta tested under a range of conditions, peer-reviewed and completed by February 2010 in order to be eligible for use in the target setting process and first round of SCS/APS development.

~~The toolbox (i.e. menu of strategies) and the calculator would be developed by a contractor to CARB with input from a statewide Technical Advisory Committee consisting of representatives from CARB, the MPOs, local jurisdictions, other technical experts, and academia.~~

~~It is envisioned that the toolbox will be based on:~~It is envisioned that the BMP list will be based on:

1) consultation with MPOs,

2) a comprehensive literature review on land use and transportation strategies that have been implemented and demonstrated to ~~have~~ reduce greenhouse gas~~GHG reduction~~ emissions~~potential~~,
3) policies contained in current RTPs/congestion management plans (CMPs), and
4) input from MPO member jurisdictions~~its members~~, the consultant experts and the public.

The BMP spreadsheet tool should be a single spreadsheet tool, which is adaptable enough to address a range of conditions across all MPOs and all communities. It sh~~w~~ould be developed with a user interface to estimate, to the extent possible, the combined effects of BMP policies and practices while accounting for regional differences. In addition to selecting various policies and practices to test, users could ~~calculator, which would be similar to a carbon calculator, would be developed with user interface to estimate the combined effects of BMP strategies from the toolbox while accounting for regional differences. The calculator would be a simplified, standardized, spreadsheet tool for evaluating interactions among BMPs. In addition to selecting various BMPs to test, users would~~ provide other related land use and transportation information about the area being analyzed such as whether the area is rural, urban, or suburban; employment density in urban core; estimated share of work trips made by automobile; or total seat-hours of transit service per weekday per capita. The BMP spreadsheet tool~~calculator~~ would in turn calculate~~perform~~ the VMT and greenhouse gas~~GHG~~ reduction estimates. The effectiveness of the BMP policies and practices~~BMPs~~ would be based on empirical studies, modeling results, expert advice, etc., taking into consideration prerequisite conditions, interdependencies, and potential synergistic (positive and negative) effects. Policy ~~BMP~~ effectiveness ratings could be translated into factors for the spreadsheet~~calculator~~. For a policy scenario, the spreadsheet~~calculator~~ would estimate an overall effectiveness in VMT and greenhouse gas~~GHG~~ reductions which could possibly be translated into points for comparison or target achievement purposes.

The Committee recommends~~This type of calculator could be developed and tested for use by 2010. It is recommended~~ that ARB immediately initiate~~CARB commission~~ the development of the~~a~~ BMP list and BMP spreadsheet tool ~~calculator~~, and that both deliverables~~it~~ be placed in the public domain free of charge for all stakeholders.

In developing the BMP spreadsheet tool~~BMP calculator~~, a set of criteria should be considered. Some of these criteria would include:

- identification and accounting for synergistic (positive and negative) effects;
- ability to analyze strategies on a regional, local, or project level;
- financial constraints;
- fuel prices; and
- information from peer reviewed publications.

~~*Capabilities and limitations of BMP option*~~

RTAC Committee members carefully examined the capabilities and limitations of using BMPs and recommend that they be used for the purposes described above. the BMP option and recommended a dual-path approach to allow both the modeling and the BMP approach to play a role in target setting as well as SCS compliance demonstration with full recognition of the options capabilities and limitations. The following summarizes the discussions at RTAC meetings on this topic:

Capabilities	Limitations
•Provides useful information on the full set of land use and transportation options for reducing greenhouse gases •Understandable to non-technical audiences •Establishes uniform assumptions for evaluating options and equity •Facilitates the selection of a strategy package •Available short-term •Applications easy to check and verify •Implementation easy to track •Less resource intensive to use than more complex modeling •Similar approaches used by CARB to set the reduction target in the AB32 Scoping Plan •Allows time for model enhancements and improved consistency between regions which is currently lacking	•Subregional variations may not be adequately tailored •Complex interactions among land use and transportation not fully accounted for, such as trips, trip lengths, speeds, and induced travel •May not be as sensitive to certain policies compared to more sophisticated transportation/land-use models Effectiveness of BMP options would have to rely on limited data on responses to programs

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Potential applications

The BMP option can be used in several SB375 applications:
Target Setting: The process to develop the BMP option described above closely resembles the methodology CARB staff indicated at RTAC meetings in setting the target(s). Therefore, the BMP option can partially be used by CARB to help establish the target(s) that are deemed ambitious yet achievable.
SCS Development: MPOs with transportation and land use modeling capability can also use the BMP calculator to formulate an initial SCS, to perform quick sensitivity analyses for policy selections, and to allow off-model adjustments where appropriate for SCS compliance demonstration.
SCS Compliance Demonstration: Smaller MPOs that do not currently have modeling capabilities or large MPOs may opt to use the BMP option to develop SCS and

~~demonstrate compliance at least for the first cycle of RTPs. This approach may have the added benefit that MPOs are using the same tool as CARB staff. The tool could document project-level SCS consistency, allowing continuous monitoring of local and regional implementation.~~

~~*CARB Approval and Public Review of SCS:* In lieu of re-running each MPOs transportation and land use model, CARB staff can use the BMP option to QA/QC MPOs submittals for reasonableness ("reality check") as part of its SCS approval process. Similarly, the public is also afforded a relatively user-friendly tool to participate in the public input/comment process in a more meaningful and timely manner.~~

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~~*Future application*~~

The Committee fully supports the development and ongoing use of the BMP list and BMP spreadsheet tool, recognizing that these will continue to evolve as new data and information get added to the empirical literature. In the short term, BMPs will be used in multiple roles, particularly as integrated land use and transportation models and input data quality are being developed and/or improved. Over time, the Committee envisions that these BMP tools will likely find the highest value as a communication tool to help discuss greenhouse gas reduction strategies with the public and local governments in a transparent and clear way, and as screening tools for local and regional scenario development and decision making.

Regardless of the method chosen by the MPO to demonstrate compliance with their GHG reduction target, SB 375 does require regions to develop a Sustainable Communities Strategy that includes a development pattern and a transportation network designed to achieve their target. It is essential both for public outreach and understanding of region's strategy, as well as for environmental review and implementation of CEQA reforms that the region clearly outline where new growth is intended and how the transportation network will serve the region's travel needs. ~~Although the BMP option is currently recommended as an interim option while integrated land use and transportation models and input data quality are being developed and/or improved, through its first round of applications it may turn out to be a valuable tool worth preserving. It is recommended that the BMP along with its calculator be used as a screening tool for the foreseeable future. If the results from the calculator equal or exceed the SB375 target(s) plus an uncertainty adder, the proposed SCS could be deemed in compliance with the SB375 requirements without running the full regional model (i.e., screening tool). It may provide a cost-effective alternative for compliance demonstration by MPOs.~~

~~As SB 375 is implemented, data collection technologies such as global positioning system (GPS), should be deployed to garnish additional in-use information that could serve as performance checks on the efficacy of various strategies. This information can be analyzed with the BMP calculator or the more sophisticated models.~~

5. Flexibility in Achieving Targets

The Committee recommends that ARB allow for flexibility to implement innovative land use and transportation strategies to help meet the targets. As such, it is appropriate for MPOs to use, with sufficient documentation, transportation sector greenhouse gas reductions that go beyond the benefits from state actions to meet their target and receive credit for local/regional innovation. Greenhouse gas reductions outside of the transportation sector should not be credited towards meeting of targets.

To help facilitate~~For~~ this option~~to be successful~~, ARB should communicate to MPOs and others what its expectations are with regards to creditable strategies and submission of strategy documentation.

6. Target Metric

The Committee recommends that ARB express the targets in terms of a percent reduction in per capita greenhouse gas emissions. This metric is preferred for its simplicity, since it is easily understood by the public, can be developed with currently available data, and remains a widely used metric by MPOs today.

In addition, this form of metric has the advantage of directly addressing growth rate differences between MPO regions. Addressing growth rate differences between the MPO regions is important given that growth rates are expected to affect the magnitude of change that any given region can achieve with land use and transportation strategies. More growth equals more opportunities to affect the travel patterns of future households, as well as existing households. The relative characteristic of the metric ensures that both fast and slow growth regions take reasonable advantage of any established transit systems and infill opportunity sites to reduce their average regional greenhouse gas emissions.

Furthermore, this target metric also gives “credit” or consideration of early actions in the target setting process. The percent reduction characteristic of the metric gives regions that have taken early actions and, as a result have a low level of greenhouse gas emissions per person, responsibility for a lower total amount of reductions compared to regions that start with a high level of greenhouse gas emissions per person.

7. Accounting for Statewide Fuel and Vehicle Technology

The Committee recommends that ARB provide MPOs with information on the anticipated greenhouse gas emission reduction impacts of the adopted Pavley regulation and Low Carbon Fuel Standard (LCFS). SB 375 requires ARB to take into account improved vehicle emission standards, changes in the carbon-intensity of fuels and future measures to further reduce greenhouse gas ~~GHG~~ emissions from these sources when setting the targets, in addition to reductions from other sources. Given ARB’s expertise in the models and tools to evaluate the Pavley regulation and LCFS

and its responsibility for their statewide implementation, it is the appropriate agency to provide information on the benefits of these measures to the MPOs. This information will enable the MPOs to account for these benefits in a consistent manner across the state. ARB should also provide to the MPOs the potential benefits of future measures to further increase fuel efficiency and shift the state's transportation fuel mix.

8. Base Year

The Committee recommends a current base year of 2005, such that MPOs would be required to achieve emissions reductions equivalent some percentage below their 2005 per capita levels by 2020 and 2035. A current base year is preferred over a future base year since it relies on recent, existing information and is less sensitive to varying assumptions. Although 1990 was discussed as a potential base year to be consistent with AB 32, MPO representatives indicated regional transportation and land use data are not of a good enough quality ~~greenhouse gas data does not exist~~ to support its use as a base year. Additionally, many of the most recent RTPs and Blueprint scenarios have modeled year 2005 as a base year which would reflect current conditions between regions.

9. 2020 and 2035 Targets

The Committee recommends that ARB use a consistent target setting methodology for the 2020 and 2035 targets. Transportation and pricing strategies may realize considerable greenhouse gas ~~GHG~~ emission benefits in the near-term (i.e., 2020), while improved land use planning initiated in the near-term may achieve its most significant greenhouse gas ~~GHG~~ benefits over the long-term (i.e., 2035). Therefore, the factors considered in development of the 2020 target may necessarily be different than those for the 2035 target. The methodology to develop those targets, however, should be consistent to provide certainty to MPO planning efforts and comparability between the 2020 and 2035 targets.

10. Statewide Assumptions

The Committee recommends that ARB require MPOs to use consistent key assumptions across the state. Model outputs vary with differing model input assumptions, especially for those to which a model is most sensitive. Certain key assumptions therefore should be consistent statewide to ensure equitable assessments of MPO model outputs, including scenarios. For instance, ARB should recommend a set~~range of~~ gasoline price~~prices~~ for use by MPOs in their transportation models. ARB also could recommend consistent assumptions for use when developing population and employment projections.

Current economic trends include a nationwide recession which has impaired the ability of state government to provide reliable and steady funding for community planning and infrastructure delivery. The State of California in its recent budget severely curtailed

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resources for transit services. These resources are essential to support sustainable development – both at the planning and implementation stages – by local governments and transit agencies. The effects of the recession are expected to continue for at least the near term.

11. Interregional Travel

The Committee discussed four types of interregional trips and recommends a general approach for accounting for the impacts based on the type of trip. The four types include: ~~The Committee recommends that ARB work with Caltrans and the MPOs to determine how greenhouse gases from interregional trips should be accounted for in the target setting process. In doing this, ARB should consider that it may be necessary to develop different accounting approaches based on the specific type of interregional trips a region experiences, including:~~

1. Trips that begin in one SB 375 MPO region and end in another SB 375 MPO region after crossing their shared boundary (MPO-to-MPO);
2. Trips that begin outside of an SB 375 MPO region, travel across some portion of the region, and end outside of the region (through trips);
3. Trips that begin in an SB 375 MPO region but do not end in an SB 375 MPO region (interstate, international, tribal land, and military base trips); and,
4. Trips that end in an SB 375 MPO region but do not begin in an SB 375 MPO region (interstate, international, tribal land, and military base trips).

In general, we recommend that an~~An~~ MPO's ability to affect emissions from these trips through land use and transportation strategies should be a key factor in determining how trip emissions are apportioned among MPOs. For the first trip type, the Committee recommends that the travel associated~~example, two MPO regions~~ with an MPO-~~a shared boundary are likely~~ to-MPO trip be split equally between the two MPOs. Each region has an~~ have~~ equal opportunity~~opportunities~~ to affect emissions from trips that regularly cross over their shared boundary, and therefore should equally share responsibility for reducing those emissions. ~~However, an MPO's ability to affect emissions in situations where neither the origin nor destination of a trip resides within the region is less clear, and apportionment of responsibility for emission reductions should be determined by ARB on a case-by-case basis after consultation with Caltrans and the appropriate MPO/s.~~

An MPO's ability to affect emissions for the remaining types of trips is less clear, and in cases where there is significant question, responsibility for the emissions associated with these trips should be determined by ARB on a case-by-case basis after consultation with Caltrans and the appropriate MPO. In general, however, the Committee recommends that an MPO should not be responsible for through trips, and should take responsibility for half of the trip that has either an origin or destination within the MPO region.

12. Achievability and Ambitiousness of Targets

Several ~~RTAC~~ Committee members emphasized the importance of achievability of the targets to show early success in implementing SB 375. There was also discussion of the pros and cons of setting targets that would be primarily met through sustainable communities strategies rather than alternative planning strategies. Lastly, there was recognition that a balance of achievability and ambitiousness is needed. With respect to ambitiousness of targets, there was general support for a method of target setting that supports actions well beyond the status quo.

~~IV.~~III. RTAC Recommendations and Comments on Implementation

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Housing and Social Equity

1. A Guiding Principal for Ambitious Targets

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A guiding principal of RTAC is to maximize social equity (see Part 2), and this principal is incorporated in the recommendations of this Report (Parts 3 and 4). Social equity policies and practices that have the potential to reduce VMT (such as provision of affordable housing appropriate to local wage levels) must be elevated on the list of Best Management Practices that MPOs consider in developing their SCS. Accomplishing this will require CARB to designate social equity as an area of future research that CARB will conduct or direct be undertaken in the efforts to identify empirical evidence and then enhance modeling and monitoring. It will also require MPOs to engage low income communities in the SCS development process.

The affordability of housing and transportation and access to employment play a critical roll in determining where Californians live, how much they travel and, therefore, directly affect the level of achievable GhG reduction. Land use based GhG reduction strategies, however, could have beneficial or adverse effects on social equity concerns such as housing affordability (increased land prices), transportation access and affordability, displacement, gentrification, and a changing match between jobs, required skill levels and housing cost ("jobs-housing fit"[3]). Inequitable land use practices and inadequate public transit access as well as economic and racial segregation can result in exclusion, limitations on employment opportunities, sprawl and excess VMT. Implementation of SB 375, accordingly, should, at a minimum avoid facilitating or exacerbating any adverse consequences, work in concert with state Housing Element Law to achieve the state housing goals, and look for ways in which social equity strategies could improve GhG reduction.

2. Findings

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The RTAC recognizes that increasing housing and transit affordability, and improving the jobs-housing fit in the SCS forecasted development areas should increase GhG reduction. It also recognizes that to ensure that GhG reduction targets are ambitious yet feasible and reasonably achievable, a) the methodologies utilized by the CARB and MPOs should analyze social equity factors to determine their GhG reduction benefits and b) the SCS/APS should consider and attempt to avoid adverse social equity consequences and should include social equity practices to the extent their GhG reduction benefits can be demonstrated. Incorporation of social equity factors is complimentary to the civil rights and environmental justice considerations required of regional transportation plans by federal and state law. At the same time the RTAC finds

[3] The extent to which the homes in the community are affordable to the people who currently work there or will fill anticipated jobs.

that existing modeling tools will need substantial upgrading to analyze and incorporate social equity factors into CARB's target setting and measurement of GhG reductions, and that appropriate research and development will be needed in the first period of implementation.

3. Recommendations

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The RTAC makes these specific recommendations:

1. Social equity factors should be incorporated in the 2010 GhG target setting to the extent modeling or "off-modeling" methodologies exist[4] and in subsequent adjustments to the targets pursuant to §65080(b)(2)(A)(iv).[5]. [*See also* Part III—Target Setting Process.] Social equity factors include, but are not limited to, housing and transportation affordability, displacement/gentrification, and the jobs-housing fit.
2. CARB should take all steps necessary to ensure completion of the appropriate research and model development so that social equity factors are fully incorporated into the GhG modeling for the second SCS round and before any adjustments to the targets.
3. Adverse social consequences of changing land use patterns, such as displacement, gentrification and increased housing costs should be addressed and specifically avoided to the extent possible in the SCS/ACS submitted by MPOs pursuant to §65080(b)(2)(I)(i) and in the SCS/APS submitted to CARB pursuant to §65080(b)(2)(I)(ii).
4. To the extent adverse social consequences cannot be avoided they must be mitigated.
5. Social Equity Practices that avoid adverse social consequences and will lead to GHG reduction must be included among the Best Management Practices described in Part III of this Report.
6. CARB should encourage the MPOs to develop and enhance "visioning" tools that allow the public and policymakers to clearly see the social equity impacts of various planning scenarios and make informed choices. These include impacts on air quality, access to transit, household transportation costs, housing costs and the overall housing supply.

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4. Statutory Authority

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§65080(b)(2)(A) [RTAC may consider impacts of jobs-housing balance & GhG reduction benefits from land use & transportation strategies]; §65080(b)(2)(B) [SCS must identify areas to house all economic segments and must consider State Housing Goals]; §65080.01 ["Feasible" means capable of being accomplished, taking into account economic & social factors among others]; §65580-§65589.8 [State housing goals and state Housing Element Law]

[4] *See*, *e.g.* MTC's Transportation 2035 RTP, "Equity Analysis Report for the Transportation 2035 Plan of Change in Motion": http://www.mtc.ca.gov/planning/2035_plan/equity.htm.
[5] All citations are to the Government Code.

Housing and Social Equity [This section to be revised. ARB staff has asked Manual Pastor, Greg Devereaux, and Mike Rawson to provide additional language.]

1.Ambitiousness of Targets

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The affordability of housing and transportation and access to employment play a critical roll in determining where Californians live, how much they travel and, therefore, directly affect the level of achievable GhG reduction. Land use based GhG reduction strategies, however, could have consequences on social equity concerns such as housing affordability (increased land prices), transportation access and affordability, displacement, gentrification, and a changing match between jobs, required skill levels and housing cost ("jobs-housing fit"[6]). Research suggests inequitable land use practices and inadequate public transit access as well as economic and racial segregation result in exclusion, limitations on employment opportunities, sprawl and excess VMT. The reduction of GhG levels through implementation of SB 375, accordingly, should, at a minimum avoid facilitating or exacerbating any adverse consequences, maximize to the extent feasible the social equity of reducing GhG levels, work in concert with state Housing Element Law to achieve the state housing goals, and look for ways in which social equity strategies could improve GhG reduction.

2.Findings

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The RTAC recognizes that increasing housing and transit affordability, mitigating displacement, and improving the jobs-housing fit in the SCS forecasted development areas can be expected to increase GhG reduction. It also recognizes that to ensure that GhG reduction targets are ambitious yet feasible and reasonably achievable, a) the methodologies utilized by the CARB and MPOs must incorporate social equity factors to reflect their GhG reduction benefits and b) the SCS/APS must avoid adverse social equity consequences and recognize the GhG reduction benefits of including social equity practices. Incorporation of social equity factors is complimentary to the civil rights and environmental justice considerations required of regional transportation plans by federal and state law. At the same time the RTAC finds that existing modeling tools will need substantial upgrading to incorporate social equity factors into CARB's target setting and measurement of GhG reductions, and that appropriate research and development will be needed in the first period of implementation.

3.Recommendations

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The RTAC makes these specific recommendations:

[6] The extent to which the homes in the community are affordable to the people who currently work there or will fill anticipated jobs.

1. Social equity factors must be incorporated in the 2010 GhG target setting to the extent modeling or "off-modeling" methodologies exist[7] and in subsequent adjustments to the targets pursuant to §65080(b)(2)(A)(iv).[8] [*See also* Part III—Target Setting Process.] Social equity factors include, but are not limited to, housing and transportation affordability, displacement/gentrification, and the jobs-housing fit.
2. CARB must take all steps necessary to ensure completion of the appropriate research and model development so that social equity factors are fully incorporated into the GhG modeling for the second SCS round and before any adjustments to the targets.
3. Adverse social consequences of changing land use patterns, such as displacement gentrification and increased housing costs must be addressed and specifically avoided in the methodologies of the SCS/ACS submitted by MPOs pursuant to §65080(b)(2)(I)(i) and in the SCS/APS submitted to CARB pursuant to §65080(b)(2)(I)(ii).
4. Social Equity Practices that avoid adverse social consequences or will lead to GHG reduction must be included among the Best Management Practices methodology described in Part III of this Report and utilized by CARB and MPOs in target setting and preparation and review of the SCS/APS.
5. MPOs must develop and enhance "visioning" tools that allow the public and policymakers to clearly see the social equity impacts of various planning scenarios and make informed choices. These include impacts on air quality, access to transit, household transportation costs, housing costs and the overall housing supply.

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4. Statutory Authority

§65080(b)(2)(A) [RTAC may consider impacts of jobs-housing balance & GhG reduction benefits from land use & transportation strategies]; §65080(b)(2)(B) [SCS must identify areas to house all economic segments and must consider State Housing Goals]; §65080.01 ["Feasible" means capable of being accomplished, taking into account economic & social factors among others]; §65580-§65589.8 [State housing goals and state Housing Element Law].

Incentives for Exceeding Target [This section to be expanded. ARB staff has asked Richard Katz and Carol Whiteside to help provide input.]

The Committee recommends that ARB encourage regions to seek opportunities to reduce emissions beyond their SB 375 targets where possible. The Committee discussed a number of incentive programs that should be considered for this purpose that may be applied at the MPO and/or local level, including:

[7] *See, e.g.* MTC's Transportation 2035 RTP, "Equity Analysis Report for the Transportation 2035 Plan of Change in Motion": http://www.mtc.ca.gov/planning/2035_plan/equity.htm.
[8] All citations are to the Government Code.

Recognition program: The state should consider developing a statewide award/recognition program similar to existing 'green recognition/certification' programs like LEED, Green Point Rated, and others. The program should be created to recognize regions that exceed targets, or local jurisdictions that meet specified standards related to SB 375 implementation.

Regulatory relief: The state should look for opportunities to provide additional environmental review or other regulatory relief for regions that exceed targets, or local jurisdictions that meet specified standards related to SB 375 implementation,

Monetary grants from future Cap and Trade program revenues: The state should set aside a portion of future Cap and Trade program revenues exclusively for grants to regions that exceed targets, or local jurisdictions that meet specified standards related to SB 375 implementation.

Local Government Barriers

The Scoping Plan uses the term "essential partner" when describing the important role that local government will play in achieving reductions in greenhouse gas~~GhG~~ emissions. SB 375 poses a new set of challenges for local government and the findings correctly state that "local governments need a sustainable source of funding to be able to accommodate patterns of growth consistent with the state's climate, air quality, and energy conservation goals." The challenge will be to reconcile these goals with the responsibility of local governments to create safe, healthy, economically diverse, and fiscally sound communities.

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Again, the Committee has not discussed these local government barriers in detail, so the list below identifies issues, but does not represent consensus recommendations.

1. The Growth Issue

Cities and counties are required by the state to provide housing for a growing population and they must continue to grow their local economies in order to pay for infrastructure and services and provide local jobs –while they work to reduce carbon emissions. The Committee believes strongly that ~~-~~SB 375 is not a "no growth" bill and should not be implemented in a manner that turns it into one. Local agencies will need tools, such as education, retraining, and loans and credits to make a smooth transition. Without such resources, it will be difficult to ask local elected officials to make decisions that may reduce emissions while, in some instances, ~~-~~placing economic burdens in their communities. ~~and the state at an economic disadvantage.~~

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2. The Planning Problem

SB 375 adds new planning requirements for MPOs, but it does not appropriate any new funds. A companion bill, SB 732 may make $90 million available for MPOs and local

governments for "sustainable planning," but this is not nearly enough when a typical general plan (including public outreach and CEQA review) can exceed $500,000 in a small community and millions in larger ones. Planning departments are reliant on developer fees to fund staff positions. In the current economy, many have had to cut back staff—precisely at the time more planning is needed if SB 375 is to live up to its promise.

~~3.~~ *The Infrastructure Problem*

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Mixed-use, higher density development in infill areas must often overcome deficiencies in existing infrastructure such as inadequate sewer or water capacity. Other infrastructure needs can include items such as fire equipment that can make seventh story rescues, walkable paths, usable bike lanes, parks, sufficient police enforcement, and quality schools. California's fiscal structure severely constrains the ability of local agencies to raise revenues to address these needs. Developers can only be required to pay their proportional share of the impact, not for repairing existing deficiencies. And it is virtually impossible for local agencies to get voter approval on measures that require a two-thirds majority for any reason, let alone to support new development.

~~4.~~ *Conflicting State Mandates and Policies*

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The Committee believes the state must work~~develop an approach~~ to reconcile~~reconciling~~ conflicting mandates and policies. The most recent example of conflicting state policies is the disconnect between a emissions reduction strategy that encourages infill in built out areas and the current state budget that ~~raids~~ redirects the best source of funding for such development: redevelopment dollars. Another example is the conflict between reducing greenhouse gas emissions by locating more housing within existing transit corridors and the public health risk caused by existing air particulates in these same areas. Similar conflicts will arise with state housing policy, coastal or farmland preservation goals, and a number of other policies.

The Strategic Growth Council (SGC) was codified by Senate Bill 732 (Steinberg, Chapter 729, Statutes of 2008) and charged with identifying opportunities to coordinate state agency actions to encourage sustainable land use planning. The SGC should be employed as a vehicle for harmonizing and reconciling these conflicting state policies and mandates.

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~~5.~~3. Making it Understandable

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As the branches of government closest to the people, it will often be up to city and county officials to act on and explain the reasons for carbon saving strategies~~.~~. These officials will need support in developing reports and information and packaging it in a way that the broader public can easily understand. If the public is confused or cannot draw a connection between the action taken and the benefits to the community, they are likely to object and register their dissatisfaction next time they vote.

~~6.~~4. Resource Realignment

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The resources needed to make these land-~~-~~use changes and transportation strategies work~~,~~ must be structured to reward ~~realigned to flow to~~ those cities with general plans and programs that are consistent with regional plans. For instance, without adequate provision of alternative transportation choices, such as public transit, it will be extremely difficult to reduce reliance on passenger vehicles as the predominant mode of transportation. Some Committee members have argued that previous funding for transit was already inadequate; the additional reductions in state funding for transit make it virtually impossible to maintain, much less expand, transit services to those very communities where it is needed to support the type of compact urban form that results in greenhouse gas reduction.

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To help local government overcome these barriers, the Committee discussed the need for supportive action by the State and federal government. The Committee also discussed the idea of new local government authorities to aid implementation. These three concepts are discussed in the following three sections.

State Actions to Support Implementation~~—~~

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The Committee~~RTAC~~ recommends the State consider the following actions to support the implementation of SB 375.

1. Transit Funding [This section to be revised.]

- Address the discontinuity between the elimination of transit funding in the budget and mandates of SB 375. Public transit is a key tool in reducing greenhouse gas emissions. The state of California has approved mandates to reduce greenhouse gas emissions but has eliminated funding for public transit in the state budget. The state should ensure that its budgets are consistent with its policies on greenhouse gas reductions. Sustained and consistent investment in alternative transportation modes such as public transit is essential to support the development and implementation of RTPs (and SCSs) that will achieve significant greenhouse gas reduction. The Committee recommends several strategies throughout this report to restore and enhance funding to local governments and transportation agencies so they can adequately plan and implement transportation options, such as transit, that reduce reliance on passenger vehicle use.

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2. Redevelopment & Planning Funding

- Address the discontinuity between reduction in ~~Restore and make permanent~~ redevelopment funds and requirements of SB 375.

- Support infrastructure modernization funding to overcome imbedded disincentives to redevelopment.
- Encourage the Strategic Growth Council to expedite the distribution of Prop 84 funds to assist state and local entities in the planning of sustainable communities.
- Provide ~~Adopt SB 406 providing the~~ local authority to impose a surcharge on motor vehicle registration for the purpose of developing a sustainable communities strategy.

3. Affordable Housing Funding

- Provide~~Pass SB 500 to provide~~ a permanent funding source for affordable housing.

4. Regulatory Tools

- Provide additional tools for local governments to achieve greenhouse gas~~GHG~~ reduction targets (i.e.- enabling fuel fees, allowing road and congestion pricing).

~~5. Modeling Improvements~~

- ~~State support in obtaining funding for MPOs to develop and implement enhanced models, including activity-based model, land use model, 4-D models, and advanced air quality modeling tools.~~
- ~~State support for standardizing modeling assumptions such as consistent methodologies for estimating gasoline price and fuel efficiencies.~~
- ~~Conduct a Statewide Year 2010 Household Travel Survey to support development of enhanced modeling tools. The survey needs to be comprehensive and of sufficient detail for MPOs to develop/enhance Regional Models (including Activity-Based Models). A focused statewide approach towards household surveys will not only benefit all MPOs from the economy of scale (larger sample size at lower cost) but will also elevate the expertise and survey quality.~~
- ~~State support for an integrated Statewide travel demand and land use model to address inter-regional travel and provide a platform for MPO model enhancement and collaboration.~~
- ~~State support to develop and automate a statewide data system to support both the State's and MPOs' modeling efforts. Example - Enhanced VMT forecasting tools and supporting data, HPMS, and enhanced traffic count program.~~
- ~~State support for a state body to facilitate the development of travel demand model development guidelines and model validation standards for use by California MPOs. In addition, the body would develop a set of evaluation criteria to enhance the Model Peer Review process.~~
- ~~State support for establishing a statewide metropolitan cooperative research program. Large costs are involved in both improving current and developing more advanced models. Rather than having these costs duplicated at each MPO, it would be beneficial to pool resources for such activities as enhancements of existing models, development of new models, implementation procedures, and staff training programs.~~

5. Other

- Performance data collection, including use of GPS.
- Conduct a statewide housing market survey.

Federal Transportation Funding and Supporting Policies

When he signed SB 375 into law, Governor Schwarzenegger signaled California's commitment to improve land use patterns and transportation policies and investments in the name of addressing climate change. While several individual federal legislators have indicated their commitment to this issue, no similar federal legislation has been passed, and the rest of the nation is watching closely as California embarks on implementation of SB 375. Two major pieces of upcoming federal legislation—a climate bill and the re-authorization of the six-year transportation spending bill—present opportunities to advance reform that will both help ensure California is successful in implementing SB 375 *and* encourage improved land use planning to meet climate goals nationwide.

Specifically, the Committee ~~RTAC~~ recommends three categories of reform: 1) Climate funding for improved transportation planning; 2) Integration of greenhouse gas emission reduction into the current transportation planning process; and 3) Removing policy barriers to effective SB 375 implementation.

1. Climate Funding for Transportation Planning

The transportation sector is the second largest (28%) and fastest-growing contributor to greenhouse gas emissions ~~(GHG)~~ in the U.S., in large part due to steadily rising trends in the number of miles that cars and light trucks travel each year. Despite some recent stagnation attributable to the economy, driving—or vehicle miles traveled rates—has grown by three times the rate of population growth over the past 15 years and is expected to grow by 50% by 2030, largely because the majority of our communities have been designed in ways that give people no other option but to drive everywhere. Since transportation is such a significant contributor of greenhouse gases, policies to improve the efficiency of the transportation system must be a central component of the solution.

The Committee~~RTAC~~ recommends that:

- Some portion~~10%~~ of funds generated from the auction of carbon emissions allowances from any future cap and trade system be set aside to fund regional transportation planning that reduces greenhouse gas emissions.
- A ~~small~~ portion of this funding should be set aside to improve research, data collection, and tools to measure and evaluate the greenhouse gas impacts of transportation projects and plans. Regions' ability to measure and monitor results is

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also key to facilitate a move toward performance-based accountability within the program.

- A significant proportion of the funding should be allocated competitively, based on performance, to regions that adopt, and demonstrate progress towards attainment of greenhouse gas emission reduction targets. Because California is leading the charge with implementation of SB 375, MPOs that adopt SCSs will be well positioned to compete for new federal climate funding that is tied to ~~GHG~~ greenhouse gas reduction targets.

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2. Integration of Greenhouse Gas~~GHG~~ Reduction into Transportation Planning

~~Climate change has received much recent attention at the federal level and policy makers, stakeholders and regulators are talking about the best programs to reduce GHG emissions.~~ The next federal transportation bill is likely to be a $500 billion package of investments. A ~~Those committed to finding solutions to climate change should recognize that a~~ properly designed transportation bill could potentially leverage half of a trillion dollars to dramatically and cost-effectively reduce greenhouse gas~~GHG~~ emissions. Spent poorly, this funding can serve to undermine ~~the valiant~~ efforts to address climate change by continuing business as usual transportation and land use planning resulting in ever increasing rates of driving.

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The Committee ~~RTAC~~ recommends that:

- The state should request that the transportation bill should establish clear national transportation objectives, consistent with reducing carbon emissions, oil savings and congestion mitigation. ~~HR 2724 provides an example of the type of national transportation objectives that should organize future spending.~~
- State and regional long-range transportation blueprint plans should incorporate greenhouse gas~~GHG~~ reduction goals, with funding tied to implementing projects.
- Local governments play an absolutely vital role in the successful implementation of SB 375 in California. Unfortunately, many local governments are facing severe funding shortfalls, and funding for comprehensive planning is in short supply. The transportation bill should create a new program that sets funding aside for states and MPOs to provide incentive grants to local communities to update zoning and support local projects that achieve regional blueprint goals that contain greenhouse gas control strategies.

3. Leveling the Playing Field for Public Transportation

The Committee~~RTAC~~ members have repeatedly discussed declining state funding available to fund construction and operations of public transportation. ~~A natural question, then, would be: what sources of federal funding are available to assist struggling transit agencies, and how can California's communities access these funds?~~

The legacy of the last fifty years of the federal transportation program is the creation of the interstate highway system. Over the life of the program, over 80% of funding has gone to highway programs and roughly 20% to transit. While every metropolitan area in the nation has an extensive highway system, few have a regional fixed-guideway transit network or complete bus network. Federal transit funding cannot be used for local operating assistance, except in communities under 200,000.

Federal transit funds also come with more federal requirements and hurdles than federal highway money including requirements for an additional alternatives analysis for proposed transit projects, a detailed screening process for any new fixed guideway transit, and greater scrutiny of grant programs.

In addition, administrative disincentives to funding public transportation have also created an unlevel playing field between transit and highway expansion – specifically, a lower federal match ratio for transit projects recommended for funding and a complex and cumbersome approval process that adds significant time and delay to proposed transit projects.

The Committee~~RTAC~~ urges the state to support~~s~~ reform in the federal legislation to level the playing field between different modes, simplify the process for building new transit, and free up some of the proposed $500 billion available over the next six years to support the operations of the state's transit agencies.

New Authorities

Throughout the course of the Committee discussions some members have suggested new authorities as one means to overcome barriers to MPO and local agency implementation of SB 375. The following are some of the new authorities suggested by individual members. However, the Committee has not discussed these in any detail, nor have they come to any consensus recommendation on them. In fact, some Committee members have expressed opposition to some of these ideas. They are included here to reflect the scope of the Committee's discussions.

1. New Regional Authority to Raise Revenue and Promote Efficient Development

The responsibility for developing an SCS ~~a Sustainable Communities Strategy~~ falls on ~~Metropolitan Planning Organizations~~(MPOs~~,~~) transportation commissions, and ~~as well as~~ local governments. While many MPOs have put in place exemplary policies and visions to create additional transportation choices, significant ~~pro~~portions of their operating budgets are committed to maintenance and operation of existing systems, and only a small percentage is typically available to create new transportation options. Similarly, local government planning funding is in short supply, and existing planning staffs are struggling to keep pace with current planning demands, leaving little capacity for comprehensive, sustainable long range planning. ~~Both~~ These entities would benefit

from additional funding and other mechanisms to realize their visions for mixed-use, walkable communities with transportation options.

2. New Revenue Mechanisms

During Committee~~RTAC~~ meetings, the most frequently cited barriers to successful SB 375 implementation were cuts to public transit funding, and the lack of funds for jurisdictions to create new community-based plans, change zoning and do programmatic environmental reviews. Other important programs that many MPOs are implementing or may want to as part of their SCS, such as employee commute incentives, bicycle infrastructure or transit-oriented development funding programs, also have insufficient funding. Committee members mentioned ~~The RTAC recommends that the state grant~~ new authorities which would~~that will~~ help regions reach their greenhouse gas~~GHG~~ targets. ~~The authority for new revenue mechanisms may either be given directly to an MPO or COG, or it could allow them to bring proposals to the voters in the form of regional ballot measures (as fees they would require a simple majority vote).~~ Some of the primary mechanisms which could considered include: **[to be added]**

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3. A Carbon Impact Fee on Vehicles or Gasoline

The value of the current gas tax has been declining significantly, and is part of the reason for current transportation shortfalls. Similarly, vehicle license fees might be examined ~~can provide~~ as a sustainable new source of funds. ~~A timely example is SB 406 (DeSaulnier), a bill currently making its way through the Legislature that would give all California MPOs and COGs the authority to impose a $1 or $2 VLF and dedicate the proceeds directly to regional and local planning.~~

4. Express Lanes and Congestion Pricing

Congestion imposes large costs on drivers, the economy and the environment. Congesting pricing programs that charge drivers for travel in congested corridors, and use generated funds to promote additional transportation choices, can have broadly beneficial outcomes. ~~In both Southern California and the Bay Area, recent proposals would allow single-occupancy vehicles to enter carpool lanes during rush hour for a fee (known as express or high-occupancy toll lanes).~~

~~Currently, regions wishing to implement climate impact fees, congestion pricing or (changes to bridge tolls in the Bay Area) must usually go through an onerous legislative process before they can even ask voters to adopt new fees.~~ The ~~RTAC urges the~~ Legislature could~~to~~ examine the possibility of making~~e~~ it easier for MPOs, Councils of Governments~~COGs~~ and local transportation agencies to adopt new revenue mechanisms and pricing programs that would explicitly be used for reducing greenhouse gases~~GHGs~~ while improving transportation and economic efficiency.

5. ~~New Authority for~~ Indirect Source Review for ~~GHG~~ Greenhouse Gas Emissions

Indirect Source Review (ISR) is intended to link the indirect air pollution caused by vehicles to a project (both during construction and over the life of the project's operation), and then require mitigation of pollution that exceeds the thresholds. Mitigation can include on-site improvements or fees for off-site mitigation which can fund planning, implementation of infill development, or other community benefits such as new transit routes that are shown to significantly reduce emissions. {ISR} is a measure pioneered in the San Joaquin Valley to address ozone and particulate pollution. It is also being considered by other air districts for both criteria pollutants and greenhouse gases. ~~that helps developers improve the design and sometimes location of their developments, in order to meet pollution thresholds set by their local air district. ISR considers the indirect pollution caused by vehicles linked to the development and energy used by the projectboth during construction and over the life of the project's operationdeveloper the pollution that exceeds the thresholds on-site improvements such as adding shuttles or increasing pedestrian connectivity, or by contributing a fee for off-site mitigationsThese mitigations can fund planning, implementation of infill development or other community benefits such as new transit routes that are shown to significantly reduce emissions.Several California air districts have already adopted similar programs for criteria pollutants. The ARB should provide guidance that would allow air districts to implement ISR for GHG pollution as a way to implement SB 375. For all of these mechanisms, guidelines should be developed for how these fee programs are structured and implemented, as well as the use of revenues, to avoid regressive impacts on low-income drivers and ensure that revenues flow to proven VMT reduction programs and projects. As with provisions in SB 375, these new programs could be specifically designed, and limited to, mechanisms that are identified as part of the Sustainable Communities Strategy or Alternative Planning Strategy.~~

Public Education and Outreach

~~Problem:~~ According to the Scoping Plan, California is the fifteenth largest emitter of greenhouse gases on the planet and transportation accounts for the largest share of California's greenhouse gas emissions.

~~Solution:~~ To address this issue, SB 375 seeks to increase access to a variety of mobility options such as transit, biking, and walking, and anti-sprawl land use measures, that include a variety of housing options focused on proximity to jobs, recreation, and services. As a result, quality of life will be improved for everyone, including protection of agricultural land, open space and habitat preservation, improved water quality, positive health effects, the reduction of smog forming pollutants and energy savings.

1. Goals and Objectives

As it relates to SB 375, public education and outreach activities should have three overarching goals:
1) Put forward a positive image of integrated planning

2) Raise awareness of “climate change” legislation (specifically, to explain the changes Assembly Bill 32 and Senate Bill 375 have created)
3) Elicit input on the benefits and impacts of the proposed Sustainable Communities Strategies plan for each region

2. Message Development

An effective education and outreach campaign will provide a clear understanding of what it means to integrate land-use, housing and transportation planning in relatable terms, using topics that address established priorities for the public.

Additionally, crafting messages at both the regional and local level will allow for focused outreach and education. For example, regional messages such as: “California Green” or “Climate Prosperity” may be used to embody the global objective of SB 375, however at the local level focusing on ‘economic opportunity’ and ‘quality of life’ messages, while capturing the same objectives, may resonate and encourage more participation in those local areas. Ascertaining what messages work regionally and locally is the first step to creating a public outreach and education program.

3. Education/Outreach Plan

Using the targeted messages, the next step is to draft the education/outreach plan; which addresses how to reach a diverse cross-section of communities and interest groups and what communication methods to use.

Tools/Components

There are many different communication tools available to implement a successful education and outreach campaign. Below is a menu of suggested outreach tools. Of course each region should identify which components will be most effective in their region:

- Collateral Materials- Create brochures, factsheets, briefing papers, newsletters to explain SB 375 principles and develop a plan to strategically distribute them
- Online tools- SB 375 web or micro site, blog, web 2.0 tools, social networking sites, Youtube videos, e-blasts
- Public Meetings- workshops, hearings, summits, town halls, council meeting presentations
- Briefings with Electeds/Community Groups
- Media Relations- Earned media: press releases, editorials, letters-to-the-editor, features on local news and radio programs. Paid media: newspaper/radio/TV ads, billboards,
- Speaker’s Bureau- Identify electeds, opinion leaders and experts to attend meetings and deliver presentations

- K-12 Curriculum- Special materials designed to communicate broad principles in age appropriate formats (For example with younger elementary school age children, create fun games and coloring books)
- College/University Research- Utilize relationships with the academic community to analyze the science and policies involved with climate change and the SCS process
- Awards and Recognitions for ambitious new programs to achieve SCS goals

Target Audience/Stakeholders

Some examples of stakeholders and organizations that should be included in public outreach:

STATE
- Office of the Governor
- Air Resource Board
- California Council of Governments
- Resource Agencies
- Caltrans
- Department of Housing and Community Development
- California Health Department
- California League of Cities
- California State Association of Counties
- Local Agency Formation Commission~~'s~~ (LAFCO)

REGIONAL
- Metropolitan Planning Organizations
- Air & Water Districts
- County Transportation Commissions
- Transit Agencies
- Utilities
- Public Health Advocates
- Private providers of transportation
- Transit Operators
- Non-profit Organizations
- Bicycling Advocates
- Affordable Housing Advocates
- Transportation/Transit advocates
- Universities/Colleges
- Council of Governments
- Conservation Districts

LOCAL/COMMUNITY
- Subregions
- Cities/Counties

- Neighborhood and Community groups
- Homeowner Associations
- Environmental Advocates
- Building Associations
- Chambers of Commerce
- School Districts
- Interested Parties (e.g. ethnic and minority groups, special interest non-profit agencies, educational institutions, service clubs, private sector)

PRIVATE & PROFESSIONAL ASSOCIAITONS
- Urban Land Institute
- Clean Air Coalition
- Lung Association
- Environmental Defense Fund
- Business Councils
- Real Estate Professionals Organization
- American Planning Association

4. Conclusion

Substantive change starts with education. The public has to be aware and understand the environmental, economic and cultural benefits of sustainable communities; thinking about what we do today and how it affects our state tomorrow will help promote healthier living and informed decision-making. Educating the public on SB 375 provides an opportunity to emphasize community responsibility for achieving balance between land development, transportation choices and preserving natural resources, for future generations.

Flexibility in Designing Strategy

Consistent with SB 375 and the Scoping Plan, the Committee~~RTAC~~ recognizes that flexibility in designing strategies will be an important tool for reducing greenhouse gas emissions from passenger vehicles and light-duty trucks. As noted on page 48 of the Scoping Plan, "SB 375 maintains regions' flexibility in the development of sustainable communities strategies…The need for integrated strategies is supported by the current transportation and land use modeling literature." It is a strong recommendation from the Committee~~RTAC~~ that the Board and ~~C~~ARB staff provide the MPOs with the flexibility to incorporate relevant local and regional measures which allow the MPO's to meet the ambitious and achievable targets appropriate to the region's unique characteristics.

The "bottom up" approach to regional planning (as exemplified by the SACOG Blueprint process) has proven to be the model that provides the flexibility that will be important for successful implementation of SB 375. Inherent in this approach is that each of the regions are able to develop strategies that fit the profile of the region in terms of demographics, economic development, market preferences, infrastructure, growth and

the built environment. Central to the "bottom up" approach, as well, is the retention of local land-use decision making. It will be critical for the local governments to "buy-in" to the strategies developed to meet the greenhouse gas reduction targets and the collaborative nature of the Blueprint process involves the cities, counties and community to a great extent.

An additional reason for providing flexibility in designing strategies is due to the timeframes involved in changing land use patterns and allowing for the type of development local governments will encourage in order to recognize the greenhouse gas reductions from urban infill, transit-oriented, and other master-planned community type developments. The first milestone in the timeline will be the setting of the regional targets, followed by the MPOs preparation of the ~~Sustainable Communities Strategies (~~SCS~~)~~. Each region will be required to perform a detailed and complete EIR for their RTP, which incorporates the SCS.

Upon certification of the EIR ~~for the SCS by the MPO~~, most local governments will need to amend their general plan and do the necessary zoning and re-zoning to accommodate the land-use changes in the SCS and also provide a subsequent EIR covering their updated general plan (some cities may have general plans and zoning consistent with the land uses spelled out in the SCS and may not have to go through this step). The general plan update and zoning changes will allow for a consistent project to be proposed and to begin the project entitlement process. Once the project is approved, it can begin seeking financing for the development costs and then pre-selling the required number of units in order to allow for construction to begin and the project built. Due to this timeframe (see below), which can take from 9-12 years in total, regions will need the flexibility to employ other greenhouse gas~~GHG~~ reduction measures in order to meet the 2020 targets.

The Committee~~RTAC~~ recognizes the unique nature of each of the different regions and that a one-size fits all approach to implementing regional strategies to achieve greenhouse gas reduction targets is not appropriate. By providing flexibility, CARB recognizes the different characteristics, capabilities and resources of the state's regions and allows those regions to meet the most ambitious and achievable targets with strategies that are appropriate for the region.

Timeline

	Aggressive	Expected	Possible
1) Targets get set	Sept 2010	Sept 2010	Sept 2010
2) SCS gets developed Growth Forecasts RTP Scenarios RHNA Forecasts Alternatives Analysis	Sept 2011	Sept 2011	Sept 2012
3) EIR on RTP~~SCS~~	Dec 2011	March 2012	Sept 2014
4) SCS approved	June 2012	March 2013	Sept 2015
5) Local general plans updated, new zoning or rezoning	June 2013	March 2015	Sept 2018
6) EIR on general plan update	Dec 2013	March 2016	Sept 2020
7) Project proposed	June 2014	March 2017	Sept 2021
8) Entitlement process	June 2015	March 2019	Sept 2025
9) Project financing, marketing	Dec 2015	June 2020	Sept 2027
10) Project built	Dec 2017	June 2022	Sept 2032

Co-benefits of Sustainable Communities Strategies

Communities that are well designed and supported by a range of transportation options will significantly reduce greenhouse gas emissions and contribute towards climate change solutions. In addition, many other advantages can result including increased mobility, economic benefits, reduced air and water pollution, and healthier, more equitable and sustainable communities. The Committee~~RTAC~~ recommends that MPOs~~CARB~~ identify, quantify to the extent possible, and highlight these co-benefits throughout the SB 375 target setting and implementation processes. Co-benefits include the following:

1. Increased Mobility

- Congestion Relief – Fewer cars on the road results in less congestion, which has a number of benefits and helps to improve quality of life.

- More Transportation Choices – Greater investment in a balanced transportation system and transit-oriented developments can provide increased use of public transportation, and sustainable, healthy transportation options such as walking and bicycle riding.
- Reduced Commute Time and Increased Productivity – Homes closer to job centers can reduce commute time and distance, especially if other modes of transportation are available. People can save time by not sitting in traffic commuting. Public transit provides the opportunity for relaxing or getting work done. Mixed use communities also mean more opportunities to shop and access daily needs near home, saving additional travel time.

2. Economic Benefits

- Savings – Taking public transit and driving less can save individuals money for fuel costs. Infrastructure/operating costs for transit can also decrease when such costs are spread among an increased number of riders.
- Taxpayer Savings – Services such as maintaining sewer systems, and police and fire services can be more efficient and cost less if they cover more people in less space.
- Neighborhood Economic Development – Increasing density puts more residents within walking distance of neighborhood businesses, providing opportunities for neighborhood economic development.
- Lower up-front infrastructure costs for roads, parking structures, and lower associated environmental impacts.

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3. Reduced Air and Water Pollution

- Less Air Pollution – Reducing the number and length of car and truck trips means less pollution that directly or indirectly creates summertime smog and particulate pollution. Harmful pollution that can cause cancer and other health problems are greatly reduced.
- Improved Water Supply and Quality – Compact development can reduce water use and put less strain on sewer systems. Water quality can also be improved because run off can be filtered by natural lands instead of paved surfaces.

4. Conservation of Farm Land, Forest Land, and Open Space

- The Committee recognizes there are greenhouse gas benefits inherent in conserving these land-based resources. **[Placeholder for additional open space co-benefit discussion]**

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5. Healthier, More Equitable and Sustainable Communities

- More Opportunities for Active Lifestyles – Increased walking and bicycle riding can contribute to cardiovascular fitness and weight control, both of which can make people healthier and increase quality of life. Increased physical activity

can reduce a number of chronic health risks such as obesity, diabetes, heart disease, cancer and depression.

- Less Dependence on Foreign Oil – Using alternative means of transportation and alternative forms of energy and fuel will reduce our dependence on foreign oil, which can help add to national security and economic stability.
- Improved Safety – Thriving, walkable neighborhoods mean more people on the street, helping to improve safety and discourage unlawful activity.
- Greater Housing Choices – Communities can be designed to include a mix of housing options, which can better meet a growing market demand for a variety of housing types. Recent studies indicate that homebuyers are willing to pay a premium to live in a walkable community.
- Preservation of Farmland, Habitat and Open Space – Dense, mixed-use communities can encourage infill and Brownfield redevelopment, thereby preserving open space, farmland and wildlife habitats.
- More Equitable Communities – Social equity issues can be partially addressed by improving local access and transportation to nutritious foods and health care services that are often out of reach in low income communities and communities of color.

6. Recommendations on Addressing Co-Benefits in the SCS and in the Target Setting Process

- Make the advancement of co-benefits a key goal in ARB's~~the RTAC's~~ process for setting regional targets. The target setting process should provide a vision for what can be accomplished in terms of healthier, more active communities, and demonstrate pathways to achieve these goals.
- MPOs~~Both regions and CARB~~ should quantify, to the extent possible, the range of co-benefits associated with the achievement of their greenhouse gas~~GHG~~ reduction targets, as a means of increasing public understanding and support.
- Promote the development and use of planning models that can accurately estimate the potential global warming and co-benefits of various land use scenarios in the development of the targets and the SCS.

Integration into RTP Process

SB 375 requires MPOs to integrate their region's greenhouse gas emission reduction target for automobiles and light-duty trucks into their next RTP development process. Under federal and state law, each of the 18 California MPOs are required to develop an RTP. SB 375 adds a new state requirement to include an ~~a sustainable communities strategy (~~SCS~~)~~, which includes an ~~is the~~ underlying land use allocation for the RTP tied to the regional transportation system and resulting greenhouse gas reduction. The SCS is a fourth element added to three other existing elements (policy, financial, and action) that constitute a region's long range RTP.

RTPs are approved by an MPO's board, along with a transportation conformity determination that ensures the region is on track to meet air quality requirements. The documents are then transmitted to the Federal Highway Administration. The RTP serves as one of the key documents used by the federal government to identify and fund transportation projects and programs in a region. Since the SCS is part of the RTP, the resulting document must comply with all applicable state and federal requirements, including financial constraint and the use of latest planning assumptions.

SB 375 requires an additional document, the ~~Alternative Planning Strategy (~~APS~~)~~, to be created by an MPO that has determined it will not reach its region's target through its SCS. The APS is a separate document and is not required to meet federal and state requirements for RTPs. The APS is meant to "bridge the gap" between the greenhouse gas ~~GHG~~ emission reductions an SCS can achieve and a region's target, set by ARB.

~~While an APS may be developed due to funding limitations it is important to note that a region may need to develop an APS for non-fiscal reasons. For example, a region seeking to implement a pricing strategy will likely need a legislative amendment before that strategy could be included in an SCS.~~

Performance Monitoring~~Indicators~~

To ensure that SB 375 implementation results in the level of land use and transportation changes needed to achieve our state's emission reduction goals, the Committee recommends that a standard set of performance indicators ~~be developed for the~~as part of ~~a~~ a monitoring system to track the performance of the MPO's greenhouse gas reduction strategy over time. This information would help the State to track, over the long-term, the land~~state's~~ use and transportation changes resulting from SB 375 implementation and their effectiveness in reducing greenhouse gas emissions and helping the State meet its overall greenhouse gas reduction goals. Information on performance indicators would also inform ARB during its evaluation of the MPO scenarios, its determination of ~~in evaluating~~ whether a given MPO's SCS/APS plan is likely to meet its target, and its periodic update of the regional targets. MPOs could also use the indicators as a public outreach tool to communicate their progress over time. The Committee recommends that ARB, in consultation with the MPOs in a public process, identify a list of performance indicators for these purposes. ~~well as for establishing the basis for a monitoring system that would track MPO plan performance over time.~~

This set of performance indicators should represent the most effective, available means for ~~be developed such that they balance the need for comprehensiveness in~~ measuring the impacts of land use, transportation, pricing, ~~TDM/TSM~~transportation demand management/transportation system management, and ~~any~~ other MPO plan policies. A variety of indicators are needed to measure different impacts. The committee has discussed tracking of both vehicle miles travelled (VMT) and fuel usage~~, but also recognize the ability of MPOs to collect and provide the requested~~ data as two important

means for verifying greenhouse gas emission reductions from changes in vehicle use. Below are some other examples of policies and associated performance indicators that couldshould be considered: ~~for these purposes:~~

Policies	**Performance Indicators (change from base year to target year)**
Land Use	
- Land use distribution - Development density - Land use mix - Urban design/pedestrian environment - Destination accessibility Policies could have many descriptions: - Regional transit corridors - Smart growth opportunity areas - Compact development plan - Transit-oriented development	- Average residential densities - Average residential + employment densities - Housing product mix (% of new dwellings -- attached, small lot detached, and large lot detached) - Land use mix (% of new development – infill, redevelopment, Greenfield) - Housing units within X distance of transit with Y service
Transportation	
- Transit network - Road network - Non-motorized transportation network	- Housing units within X distance of transit with Y service - Average cost of transit fares - Number of lane miles - Centerline miles per square mile (to analyze walkable street patterns) - % of non-highway roads with sidewalks - % of non-highway roads with bike lanes - Funding priorities (% of funding for new capacity projects, for transit projects, for road maintenance, for transit operations, for non-motorized transportation, other) - Mode split (% trips auto, transit, bike, walk) - Speed-related impacts (% of VMT at different speeds)
Policies	**Performance Indicators (change from base year to target year)**
Pricing	
- Parking pricing - Road pricing (congestion pricing, HOT lanes, tolls/toll roads - VMT pricing	- Daily cost of driving - Speed-related impacts (% of VMT at different speeds)
TDM/TSM	
Strategies to reduce trips/VMT and to smooth extreme congestion to more carbon-friendly speeds. Includes: - Telecommuting - Incentives for ridesharing and transit - Parking management - Vanpooling - Compressed work schedules - Safe routes to schools programs - Intelligent transportation systems	These are often finite programs that often must be evaluated separately. Impacts are difficult to estimate. After-the-fact empirical data must be compiled. Such as: - For employer-based trip/VMT programs: employer participation levels accompanied by employee commute surveys. - For school-based programs: school participation levels accompanied by student/family trip surveys. - For TSM programs: Speeds and congestion incidents monitored before and after TSM programs.

- Incident management systems	

~~Land Use:~~
~~- Land use distribution~~
~~- Development density~~
~~- Land use mix~~
~~- Urban design/pedestrian environment~~
~~- Destination accessibility~~
~~- Average residential densities~~
~~- Average residential + employment densities~~
~~- Housing product mix (% of new dwellings (attached, small lot detached, and large lot detached)~~
~~- Land use mix (% of new development infill, redevelopment, Greenfield)~~
~~- Housing units within X distance of transit with Y service~~

~~Transportation:~~
~~- Average cost of transit fares~~
~~- Number of lane miles~~
~~- Centerline miles per square mile (to analyze walkable street patterns)~~
~~- % of non-highway roads with sidewalks~~
~~- % of non-highway roads with bike lanes~~
~~- Funding priorities (% of funding for new capacity projects, for transit projects, for road maintenance, for transit operations, for non-motorized transportation, other)~~
~~- Mode split (% trips auto, transit, bike, walk)~~
~~- Speed-related impacts (% of VMT at different speeds)~~

~~Pricing:~~
~~- Daily cost of driving~~
~~- Speed-related impacts (% of VMT at different speeds)~~

~~TDM/TSM:~~
~~These are often finite programs that often must be evaluated separately. Impacts are difficult to estimate. After-the-fact empirical data must be compiled. Such as:~~

~~- For employer-based trip/VMT programs: employer participation levels accompanied by employee commute surveys.~~
~~- For school-based programs: school participation levels accompanied by student/family trip surveys.~~
~~- For TSM programs: Speeds and congestion incidents monitored before and after TSM programs.~~

Model Enhancements

The Committee spent an extensive amount of time discussing model capabilities and improvements. This section includes additional Committee recommendations for model improvements that go beyond those discussed in the "Use of Modeling" section.

- In addition to regional model improvements, the Committee recognizes the critical role of state leadership in a statewide model and research effort. Caltrans provided the Committee with an update on their ongoing work to develop a statewide modeling framework that includes an enhanced 2010 Statewide Household Travel Survey, a statewide model focused on interregional trips and goods movement, as well as a long-term goal of developing a integrated econometric land use and transportation model. Included in the Committee's support of this statewide effort, is the recommendation that the state establish a statewide cooperative research program to enable the pooling of resources for model development and staff training.
- The Committee supports the incorporation of housing affordability and social equity factors into regional and statewide model improvement efforts. We encourage the state to identify and pursue the necessary research efforts and model development efforts that would support the development of this capability.
- The Committee also supports the research and development of models that can estimate the greenhouse gas reductions from such things as energy efficiency improvements that result from the various land use and transportation strategies considered throughout the implementation of SB 375.

~~The Committee recommends that the state, MPOs, and other key stakeholders work together to enhance the existing models and develop new ones that help predict with better accuracy the emission reductions a specific region can expect to achieve. The ability of models to accurately estimate greenhouse gas emission reductions and to quantify benefits from any given combination of policies or strategies will be critical for implementing SB 375. Currently, there are a variety models used by MPOs.~~

~~In the near term, MPOs need to assess existing modeling capabilities to determine if their models are, or can be made, sensitive to land use and transportation policies in each region. If not, MPOs could benefit from using off-model tools to help quantify policies.~~

~~A long-term key modeling enhancement the Committee supports is activity-based modeling to forecast travel demand. Most models currently use trip-based models which are less sensitive and less reliable for modeling actual travel behavior. Other enhancements the Committee supports include the increased sensitivity to the effects of density and mixed-use development, the effects of a balanced job-housing balance, and ensuring models are sensitive to all modes of travel including bicycle, pedestrian and transit.~~

~~To support enhanced models, the Committee recognizes MPOs would need to identify any existing data gaps and the need for data collection. This could include using regional empirical data to verify the accuracy of modeled predictions of policies and strategies.~~

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~~Improving models and data collection is not free. ARB, as well as other state entities and the Legislature, need to consider the costs and resources required for this effort. At an aggregate level, the state is expected to provide financial assistance as well as data resources including statewide household surveys. These considerations should also be considered during the California Transportation Commission's RTP Modeling Guidelines updates.~~

~~We also recognize a new generation of transportation and land use modeling capabilities is a long-term prospect, and the degree to which urban and rural regions will use these enhancements will vary. Therefore, the Committee does not anticipate these improvements being ready for all MPOs to use during the first round of regional transportation plans prepared under SB 375. However, we recommend these enhancements play an integral part of SB 375 implementation beginning with the second regional transportation plans prepared under this law.~~

IV. Follow-Up RTAC Meeting

The Committee plans to hold a future public meeting to review MPO scenario data, as it becomes available, to provide an opportunity for the members to evaluate the results of the scenario analyses for the target setting process.

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Appendix A
Regional Targets Advisory Committee Members

Andrew Chesley, Executive Director, San Joaquin Council of Governments

Stuart Cohen, Executive Director, TransForm

Greg Devereaux, City Manager, City of Ontario

Roger Dickinson, Supervisor, County of Sacramento

Stephen Doyle, President, Brookfield San Diego Builders, Inc.

Amanda Eaken, Policy Analyst, Natural Resources Defense Council

Gary Gallegos, Executive Director, San Diego Association of Governments

Steve Heminger, Executive Director, Bay Area Metropolitan Transportation Commission

Richard Katz, Board Member, Los Angeles County Metropolitan Transportation Authority

Arthur Leahy, former OCTA; current Chief Executive Officer, Los Angeles County Metropolitan Transportation Authority

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Shari Libicki, Principal, Environ Environmental Consultants

Mike McKeever, Executive Director, Sacramento Area Council of Governments

Pete Parkinson, Vice President of Policy and Legislation, American Planning Association, California Chapter

Linda Parks, Supervisor, County of Ventura and SCAG Regional Council Member

Manuel Pastor Jr., Professor of Geography and American Studies and Ethnicity, University of Southern California

Michael Rawson, Co-Director, Public Interest Law Project

Barry Wallerstein, Executive Officer, South Coast Air Quality Management District & Board Member, California Air Pollution Control Officers Association

Jerry Walters, Principal, Fehr & Peers Transportation Consultants

Carol Whiteside, Founder and President Emeritus, Great Valley Center

Michael Woo, Los Angeles City Planning Commissioner

Jim Wunderman, President and Chief Executive Officer, Bay Area Council

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