

To: California City Officials  
From: Bill Higgins  
Legislative Representative & Sr. Staff Attorney  
Date: October 10, 2009  
RE: Abridged Summary of RTAC Report

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## **I. ABOUT THIS DOCUMENT**

This is an abridged summary of the recommendations of the Regional Targets Advisory Committee (Committee). The Committee was created by SB 375 to advise the state Air Resources Board (ARB) on how to set targets for greenhouse gas (GhG) emissions for passenger vehicles. This summary is an attempt to make the report more understandable to local officials and their staff who do not have time to go through the whole report.

Whenever possible, the actual words of the Committee's report have been used. But a note of caution: this summary includes significant editing, restructuring, and paraphrasing with the intent to capture the Committee's intent with simpler words. Nevertheless, it may unintentionally lead the reader to draw conclusions that are different than those in the actual report. Those who want the details should read the actual Committee report.

## **II. RECOMMENDATIONS FOR A STATEWIDE TARGET**

*This section summarizes the elements of the Committee's report that most directly relate to how ARB should set targets. One change is that this summary pulls out the Seven Step Process for collaboration between ARB and the metropolitan planning organizations (MPOs) for setting regional targets and places it in Section III of this summary.*

### **A. Statewide Per Capita Metric**

The Committee recommends that ARB express the targets uniformly as a statewide per capita reduction in GhG emissions from 2005 levels. This means that emissions in 2020 and 2035 should be a certain percentage below the per capita emissions in 2005 (for example: X percent reduction in GhG per household). The Committee recommends that ARB use a Seven Step Process (described in Part III of this summary) with the MPOs to set the target, which could be adjusted up or down to respond to regional differences. Any adjustment would be subject to a "reasonably tough test."

The per capita metric is preferred for its simplicity. It is easily understood and can be developed with current data. It will also account for growth rate differences between regions and ensures that both fast and slow growth regions can take advantage of new

and established transit and infill sites in different ways. The 2005 base year allows regions that have already realized reduced emissions some credit from their early actions.

Looking forward, ARB should use a consistent methodology to set the 2020 and 2035 targets. Transportation and pricing strategies may yield considerable results in the near-term, while improved land use planning may achieve its most significant benefits over the long-term. Therefore, the factors considered for the 2020 target may be different than those considered for 2035. But the methodology for both targets should be consistent.

***B. The Goal: Ambitious Achievable Targets***

The resolution that accompanied ARB's adoption of the Scoping Plan stated that the Committee should develop a process that would yield "ambitious achievable" targets. The Committee struggled to determine what this meant in practice, but concluded that attainment of the targets should require efforts well beyond "business as usual." While it would be preferable if most MPOs could meet their targets in a sustainable communities strategy (SCS), the targets should not be set low simply to allow MPOs to achieve the target this way. Regions should do everything feasible to reduce GhG emissions. Regions that use an alternative planning strategy (APS) must also include all feasible measures within the SCS to reduce GhG emissions from cars and light trucks.

The Committee also stated that the federal fiscal constraint requirements should not become a barrier to setting the target. However, the major factors that are considered by the federal planning process—such as assumption about economic conditions, funding levels, and other key factors—must be accounted for in the development of the SCS. Ultimately, the Committee believed that the iterative scenario modeling that will be used in seven step target setting process (see Part III of this summary) will help flesh out this issue and define the upper ranges of achievable GhG reductions.

***C. Accounting for Current Economic Conditions***

Current economic trends have impaired the ability of the state to provide reliable funding for community planning and infrastructure. Moreover, the state budget has severely cut resources for transit services and redevelopment. These resources are essential to support sustainable development by local governments and transit agencies. The Committee is sensitive to the need for the current and future economic trends to be taken into account in determining what is actually achievable. However, the Committee was also confident that the forecasting methods currently required in the regional transportation plan (RTP) process will reflect changes in the economy, and account for economic fluctuations over time. Thus, the impact of the recent recession and economic restructuring will be reflected as these forecasts are updated for regional plans developed under SB 375.

***D. Public Process is Vital***

ARB should implement a robust public outreach and education effort during target development phase. Ensuring the trust of the public and establishing a system of transparency, public participation, and collaboration will strengthen the target setting process. Opportunities for broad stakeholder participation—including representatives of

local governments; air districts; transportation agencies; homebuilders; academia and environmental, planning, affordable housing, public health, labor, and environmental justice organizations—are essential. The public education effort should put forward a positive image of integrated planning, explain the changes Assembly Bill 32 and Senate Bill 375 have created, elicit input on proposed regional strategies and scenarios, and increase public awareness of co-benefits of greenhouse gas reduction strategies. (Pages 38 to 40 of the Committee’s Report lists broad suggestions on message development, media, and interests groups and stakeholders to be contacted).

***E. Other Factors Affecting the Target Setting Process***

The Committee also made several additional recommendations:

- *Interregional Trips.* Trips can start in one region and end in another, pass through a region, or even involve interstate travel. Generally, MPOs should take responsibility for half of an interregional trip that starts or ends in their region, but should not be responsible for through trips or international travel.
- *Accounting for Fuel and Vehicle Technology.* SB 375 requires ARB to account for improved vehicle emission standards, changes in the carbon-intensity of fuels, and future measures to reduce greenhouse gas emissions from these sources when setting the targets. The Committee recommends that ARB provide MPOs this information to enable the MPOs to account for these benefits consistently.
- *State Agency Conflicts.* ARB should work closely with the California Transportation Commission, Caltrans, Department of Housing and Community Development and the Governors Office of Planning and Research, and other state agencies to avoid conflicts with other state goals and priorities.

***F. Looking Forward: Performance Monitoring and Model Enhancements***

SB 375 requires ARB to update regional targets every eight years or every four years if significant changes to other measures would affect emission levels. The Committee considered how ARB should monitor implementation of regional strategies and what new tools should be available and to inform the next round of target setting.

For monitoring the implementation of regional strategies within the SCS or APS, ARB should, in consultation with the MPOs in a public process, identify a standard set of performance indicators that are easily understood and represent the most effective, available means for measuring the effects of MPO policies. The Committee discussed tracking vehicle miles travelled (VMT) and fuel usage as two means to verify changes in vehicle use. Indicators for various policy areas (state support, land use, transportation, and transportation demand measures) are listed on page 45 of the Committee’s Report.

In terms of developing improved capabilities, the current models and estimating tools should be improved for the next rounds of target setting. Improvements should be made

to activity-based, integrated land use, and economic models that go beyond traditional transportation demand models.

The Committee also recommends that state should support the Caltrans efforts to enhance statewide household travel surveys, model for interregional trips and goods movements, as well as develop a statewide integrated econometric land use and transportation model. The state and regions should also seek better data to incorporate housing affordability and social equity in their models; improve the ability to estimate energy efficiency and other less direct reductions that result from regional strategies; and develop a program to gather regional fuel purchase and annual VMT data (odometer readings at vehicle registration).

## **II RECOMMENDATIONS FOR DETERMINING ACCURACY OF REGIONAL METHODOLOGIES FOR GHG REDUCTIONS**

*This section collects the elements of the Committee's report that relate to how ARB and the regions will determine how specific strategies will result in GhG emission reductions.*

### ***A. Regional Variance and Flexibility***

The Committee recommends that ARB use all information at its disposal in setting the regional targets. However, the capability of each MPO to accurately project GhG emissions differs widely. For instance, the larger regions employ advanced modeling tools with more sophisticated techniques to estimate the impacts of specific strategies. ARB should expect that these regions would rely heavily on modeled outputs and scenarios. Conversely, smaller regions with less sophisticated modeling tools may need to rely on best management practices (see subpart C below) to estimate the impacts. This regional variation should be taken into account.

The Committee also recommends that MPOs retain the flexibility to incorporate relevant and innovative measures to meet targets appropriate to the region's unique characteristics. For example, it would be appropriate for MPOs to use, with sufficient documentation, transportation sector GhG reductions that are not on the BMP list, or go beyond the benefits from state actions to meet their target and receive credit for local/regional innovation. But GhG reductions that do not come from passenger vehicle usage should not be credited towards meeting of targets.

Success is more likely when each region develops strategies that work within the context of regional demographics, economic development, market preferences, infrastructure, growth, and the built environment. The Regional Blueprint Planning Program is an example of such flexibility. This approach respects local land use decision-making and it will be critical for the local governments to "buy-in."

Finally, The Committee expects that the science and data related to land use and transportation planning will evolve rapidly. As a result, the tools and information ARB will have for setting targets by September 2010 may be different from those that will be available to individual MPOs when they demonstrate how they will meet their targets. It

is crucial to design a process that can reconcile these differences and apply new tools and data to the next regular RTP update process.

### ***B Identification of Underlying Assumptions***

The MPOs and ARB should identify the underlying assumptions—such as population estimates, funding availability, and other assumptions—included in the targets and methodologies to achieve the targets.

In addition, ARB and MPOs should identify a list of statewide assumptions that would be used to equalize the effects of adopted strategies between regions. For example, MPOs currently use different figures for fuel price. But if all regional models used the same fuel price, no single region would be gain an unfair advantage to the extent that a low or high fuel price influenced the ability to achieve a target. Other statewide assumptions include auto operating costs, fleet mix, fleet fuel efficiency, expected federal and state revenues, demographic forecasts, and assumptions about goods movement.

### ***C Use of Travel Demand Models and Other Modeling Tools***

The Committee recommends using existing travel demand and other models to estimate GhG emissions to the extent that each MPO's model is capable. Models can simulate the complex interaction of demographics, land use, development patterns, transportation, and other policy factors. A rigorously tested travel demand model with well-documented expert peer review will add to the credibility of GhG estimates.

The models used by the 18 MPOs vary in their capabilities. Accordingly, MPOs should conduct sensitivity testing on their models on all external variables (such as age, income, automobile operating costs), and for as many policy variables as are feasible (such as transit fares, highway capacity, density, mix of use, pedestrian use, and transit proximity). Depending on the factor or policy, the recommended assessment may include:

- Validation statistics showing the correspondence of the model prediction for a validation (test) year to empirical data.
- Results of experimental sensitivity tests (where a single 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 total and per capita; light-duty vehicle GhG emissions total and per capita; 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.
- The documentation and assessment process should allow for incorporation of social equity factors such as housing and transportation affordability, displacement, and jobs-housing fit to the extent that methodologies exist

The assessment and documentation should also identify areas where the model lacks capacity and where the model sensitivities fall outside the range of results documented in research literature. 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 MPOs in the state.

Given the varying capabilities of the MPO models, some MPOs may need to augment their models. There are at two least ways in which this could be accomplished. The first is by incorporating practices from the BMP list described in the next section. The second way is through the use of a “post processor tool” that makes appropriate adjustments to a travel demand model to account for areas where the model lacks sensitivity.

These methods should rely on model outputs for all factors where the model can be shown to be reasonably sensitive. If a capacity is represented in a model, but model sensitivity is not reasonable, the method augmenting the result should be tailored to compensate for the insensitivity. If the capacity to model a factor is absent, another method should be implemented to provide the needed capacity. However, where any other method is used, the MPO must demonstrate a reasonable approach for ensuring that the other method does not double-count or over-estimate the likely impacts.

Finally, there is a long-term need to generally improve the models used throughout the state. Thus, each MPO should develop an improvement program to propose changes, document needs, and determine order of magnitude costs of the needed changes. The program should also describe how the region will address factors relating to housing affordability, social equity, and the measurement of the co-benefits listed on pages 42 to 44 of the Committee Report by the second round of SCS development. Since model improvement is a long term objective, MPOs should also refer to the RTP Guidelines as updated by the CTC in response to the requirements of SB 375.

#### ***D. Use of Best Management Practices***

ARB should create an initial list of Best Management Practices (BMPs) expected to reduce GhG emissions within the next four to six months so that it can be used in the target setting process. The list should be developed in consulting with experts, MPOs, current literature, local jurisdictions, and the public. The list should not be exclusive; regions may still incorporate other practices if emission reductions can be demonstrated.

The BMP list will serve several purposes. It will assist ARB in target setting, help local and regional governments develop GhG reduction strategies, and provide a user-friendly tool to facilitate public interaction. The BMP list will also assist ARB in evaluating strategies developed by the MPOs and in the case of small MPOs (at least in the near term), may be the sole method to demonstrate compliance with the targets.

Once created, the BMP list should be converted into an analytical spreadsheet tool that could estimate reductions from a specific strategy or set of strategies in a particular setting. This would allow regions and local jurisdictions to make GhG reduction policy

choices based on available research while more sophisticated models are being developed. The BMP list and spreadsheet tool should only include those policies for which empirical studies or travel models exist to estimate the likely impacts (in terms of VMT and GhG reductions) of their implementation. The BMP spreadsheet tool should be a “single spreadsheet tool” with the following characteristics:

- Compatible with existing models
- Account for significant regional differences
- Account for interactions (positive and negative effects) of multiple BMPs
- Capability to analyze projects on a regional, local, and project level
- Capability to address a range of conditions across all MPOs and all communities
- Provide ability for users to provide other 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 effectiveness of the policies would be determined by data from empirical studies and modeling results. Expert consultants should review the literature and derive the most region-appropriate elasticity values possible, including any interaction between the various factors. Prerequisite conditions and interdependencies, such as financial and resource constraints, consistency with federal air quality regulations, fuel prices, and information from peer reviewed publications, should also be taken into account.

The Committee fully supports the ongoing use of the BMP list and spreadsheet tool as they evolve to address new data and information. 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 improved. Over time, reliance on 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.

#### ***E. Expert Consultation & Use of Empirical Data***

ARB should work with a group of technical experts and land use and transportation practitioners throughout the process. Initially, these experts would help develop the BMP list and identify the range of possible GhG benefits and co-benefits of the BMPs. They would also derive elasticity values for each practice from empirical evidence, appropriate to each region, and help create anticipated sensitivities to each regional model.

The experts should also review 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 sketch tools, or model improvements that are validated against the empirical data.

This review would ensure that the analytical tools appropriately reflect the impacts suggested by the data and identify future research needs.

ARB should also incorporate empirical data and values into its target setting and strategy review process. Empirical studies provide important data 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 and define the range of VMT reductions that can be expected from a particular policy change.

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. MPOs can use these elasticities to better understand the effects of policy or investment changes. However, empirical studies must be used with caution, as it is critical to include all important variables in the empirical relationships.

The relevant empirical evidence consists of cause-and-effect relationships. The “causes” or inputs include land use strategies such as infill development, development mix, density, urban design (also known as the “4Ds”), affordable housing development, transportation strategies such as pricing, incentives, new transit service, new roadway investments, operational 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 counts of bicycle and pedestrian activity. Fortunately, the scientific literature on this issue is sufficient to give the group of experts existing work from which it can draw conclusions.

Finally, given that all MPOs employ travel demand models that will provide data on the GhG emissions associated with the regional strategies, ARB should consult with land use and transportation modeling experts during its review of the MPOs’ analyses. These experts would work 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 models and advise on the elasticities that should be associated with each practice. This input is critical to supplement ARB’s existing technical capabilities and aid ARB in meeting its statutory obligation to determine the accuracy of the MPOs’ emission reduction estimate.

#### ***F. Co-Benefits of Regional GhG Reduction Strategies***

In addition to GhG reduction, many other advantages can result in areas that are designed for and supported by a range of transportation options, including increased mobility, economic benefits, reduced pollution, and healthier, more equitable communities. MPOs should quantify, to the extent possible, these co-benefits throughout the SB 375 target setting and implementation processes. The report lists a number of co-benefits related to increased mobility, economic opportunities, reduced air and water pollution, land and open space conservation, and public health (see pages 42 to 44 of the Committee Report).

### ***G. Housing and Social Equity***

Housing affordability, transportation costs, and access to employment can affect GhG emission levels by influencing where people live and how they travel. At a minimum, target setting should work in concert with state housing element law and avoid facilitating any adverse consequences. In addition, social equity policies that have the potential to reduce GhGs (such as appropriately located affordable housing) must be included on the BMP list.

In addition, ARB should ensure completion of research and model development so that social equity factors are fully incorporated into the modeling for the second SCS and before any adjustments to the targets. Adverse social consequences of changing land use patterns, such as displacement, gentrification, and increased housing costs should also be avoided or mitigated to the extent possible in the planning scenarios submitted by MPOs. Finally, ARB should encourage the MPOs to develop “visioning” tools that enable the public to clearly see the social equity impacts—such as air quality, transit access, household costs and housing supply—of various planning scenarios.

### ***H. Accounting for Local Constraints and Opportunities***

SB 375 provides 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.” SB 375 is not a “no growth” bill. The most frequently cited barrier to successful SB 375 implementation were cuts to public transit funding and redevelopment, and the lack of funds for jurisdictions to create new community-based plans, change zoning, and do programmatic environmental reviews.

The Committee identified the need for supportive action by the State and federal government and discussed new local government authorities to aid implementation:

- *Incentives for Exceeding the Target.* Finding ways to make it easier, better, and more rewarding to implement GhG reducing strategies will increase the chance for success. Recognition programs (like LEED), regulatory relief (like CEQA relief in SB 375), grants from future cap and trade revenues, discretionary awards, technical assistance, financial assistance for specific programs, and rewards for collaborative planning (potential funding from Strategic Growth Council) should be considered.
- *State Actions.* The State should consider funding the programs necessary for local and regional governments to actually implement the set of regional strategies adopted in an SCS or APS. These include: state transit funding, local transportation system funding, redevelopment funding, planning funding, affordable housing funding, and other sources for statewide data collection.
- *Federal Transportation Policies.* The Committee also notes that two pieces of federal legislation—a climate bill and the re-authorization of the six-year transportation

spending bill—present opportunities to encourage improved land use planning to meet climate goals nationwide.

Planning monies are needed for general plan updates compatible with a new SCS. Conservation monies should be targeted to jurisdictions that have policies to protect resource areas. Transportation revenues for expansion and capital improvements should be targeted to those cities and counties with general plans and programs that are consistent with plans that achieve the targets.

Additional input on costs will come forward as SB 375 is implemented. The state should work with the MPOs and local governments to identify those costs, as well as new funding opportunities and priorities. Local governments, with public input, are in the best position to identify ideas that can facilitate forward thinking local action. Although local governments do not have a mandate under SB 375, they play a critical role in implementing the SCS and encourages incentives for their participation.

### **III. RECOMMENDED SEVEN STEP PROCESS FOR TARGET SETTING**

*This last section summarizes the “bottoms up” seven step process the Committee recommends as part of the target setting process.*

At the core of the process is collaboration between the MPOs and ARB, with support from the other state and federal agencies involved in the RTP process. The recommended process is a way to set expectations about how that interaction could occur.

This process will require a significant effort from all those involved within a short time to meet the June 30, 2010 deadline for draft targets. It will require direct participation and buy-in from local jurisdictions, county transportation commissions, affected air districts, and other major stakeholders. The Committee strongly believes that transparency is critically important and recommends that all data, analyses, and documents be available for public review and that public participation be provided at every step in the process

#### **Step 1: MPO Creates Baseline Estimates.**

MPOs review the adopted fiscally constrained RTP and analyze the location and intensity of future land uses that are reasonably expected to occur to estimate GhG levels for the 2005 base year and the 2020 and 2035 target years. To the extent practicable, the MPO would use statewide assumptions for variables such as fuel price, fleet mix, and demographic forecasts. Each MPO’s analysis would be made available to the public.

#### **Step 2: CARB Compiles Baseline Estimates**

CARB uses the results from Step 1 to compile baseline business as usual estimates for each MPO in the 2005 base year and the 2020 and 2035 target years. These results will be compared with MPO fuel use data and unexpected differences would be explained. ARB will then meet with the MPOs to share the results and make them available to the public for review. The final result will be an emissions baseline against which further reductions from regional strategies development in steps 3 and 4 can be compared.

**Step 3: Estimating the Ambitious Achievable**

MPOs and CARB would develop and test the sensitivity of multiple scenarios that are likely to result in emission reductions, such as increased transportation funding, policies that promote infill or preserve open space, programs that increase density and transportation integration, policies that locate affordable housing near transit, and measures that reduce transportation demand. In identifying the measures, MPO staffs and ARB staff would use information from existing scenario assessments and cost-effectiveness studies wherever possible.

This testing would help identify performance indicators that could be measured over time. In addition to emission reductions, these indicators would measure performance related to the transportation system, economy, environment, social equity, and housing. To the extent feasible, performance indicators should be consistent from region to region.

**Step 4: ARB Creates a Draft Statewide Target**

MPOs analyze the alternative scenarios using their own measuring methodologies and forward the results to ARB, explaining the reasons for any difference in key outputs. At this time, an MPO may also submit a proposed regional target as provided by SB 375. ARB will compile the results, and, combined with its review of empirical studies and other relevant information that relates to passenger vehicle and light truck greenhouse gas emissions (including new auto fuel efficiency standards and clean fuels), prepare a preliminary draft uniform statewide target for public review and comment.

This process should be completed by March 1, 2009 in most parts of the state, and by April 30, 2010 for the Southern California Association of Governments (SCAG). Within this time frame, the Committee plans to hold a future public meeting to review MPO scenario data to provide an opportunity for the members to evaluate the results of the scenario analyses for the target setting process.

**Step 5: Comments on Draft Target**

MPOs and stakeholders provide feedback to ARB on the preliminary draft uniform statewide target as well as any formal regional target submittals received from an MPO in Step 4, to assess whether any region's target should be adjusted either above or below the preliminary draft target. Any revisions would be subject to a "reasonably tough test" to ensure that the target is the most ambitious achievable.

**Step 6 Adoption of Draft Target**

ARB Board must adopt draft targets by June 30, 2010.

**Step 7; Adoption of Final Target.**

Exchange of technical information continues until targets are finalized before September 30, 2010.

#### IV NEXT STEPS

The following bullets summarize the next steps in the process. This table was compiled by the author and was NOT included in the actual Committee Report.

DATE	ACTION
Nov. 19, 2009	ARB Board will consider the Committee report at its November meeting.
December, 2009 to January, 2010	ARB begins to engage public to develop a list of BMPs
Feb-March 2010	RTAC reconvenes to review MPO scenario planning efforts
March 1, 2010	Steps 1 through 4 of Seven Step Process completed for all but SCAG region
March, 2010	CARB publishes BMP list
April 30, 2010	Steps 1 through 4 of Seven Step Process completed for SCAG region
June 30, 2010	ARB staff submits draft target to Board
Sept 30, 2010	Final targets are submitted to ARB Board
Fall 2010	CARB develops BMP Spreadsheet Tools