

Bay Area Air Quality Management District  
939 Ellis Street  
San Francisco, CA 94109  
(415) 749-5000

**APPROVED MINUTES**

Advisory Council Regular Meeting  
9:00 a.m., Wednesday, May 13, 2009

**CALL TO ORDER**

**Opening Comment:** Chairperson Brazil called the meeting to order at 9:00 a.m.

**Roll Call:** Chairperson Harold Brazil; Vice Chairperson Jeffrey Bramlett; Council Members, Jennifer Bard, Louise Wells Bedsworth, Ph.D., Benjamin Bolles, Emily Drennen, MPA, Stan Hayes, John Holtzclaw, Ph.D., Karen Licavoli-Farnkopf, MPH, Jane Martin, Dr.P.H., Sara Martin-Anderson, M.P.P., Kendal Oku, Neal Osborne, Jonathan Ruel, Dorothy Vura-Weis, M.D., M.P.H.

**Absent:** Secretary Ken Blonski, Robert Bornstein, Ph.D., Robert Huang, Ph.D., Kraig Kurucz, M.S. and Rosanna Lerma

**Public Comment Period:** There were no public comments.

**Consent Calendar:** Approval of Minutes of the April 8, 2009 Advisory Council Meeting

Dr. Holtzclaw requested the following amendments:

- Page 7, second paragraph; “Mr. Duker said it happened that the numbers ~~ean~~ came out equally...”
- Pages 9 and 11, strike the words, “*for discussion by Advisory Council*” after KEY POINTS and EMERGING ISSUES.

**Council Action:** Member Holtzclaw made a motion to approve the minutes of April 8, 2009, as amended; Member Bard seconded the motion; unanimously carried without objection.

Chairperson Brazil advanced agenda Item 2 to be heard first by the Advisory Council.

**PRESENTATION: CALIFORNIA’S 2050 GHG EMISSION REDUCTION TARGET – TRANSPORTATION SECTOR**

2. California’s 2050 GHG emission reduction target of 80% below 1990 levels - transportation sector - *Speakers from Metropolitan Transportation Commission, University of California, Davis (ITS-Davis), BART & Livable City, and CALSTART presented materials on GHG emission reduction strategies for the transportation sector:*

**B. Vehicle Technology & Travel Reduction**

Dan Sperling  
Professor of Civil Engineering and Environmental Science and Policy, ITS-Davis  
Automotive Related Member of the California Air Resources Board

Ms. Roggenkamp introduced Dr. Daniel Sperling, Professor of Civil Engineering and Environmental Science and Policy, and founding Director of the Institute of Transportation Studies at the University of California,

Davis (ITS-Davis), and presented his book, “2 Billion Cars”. Dr. Sperling then gave a PowerPoint presentation entitled, “*What Next for the Transportation Sector?*”

#### Highlights of Presentation:

- In 2020 there will be 2 billion vehicles globally in 2002;
- GHG emissions have been rising more rapidly in transportation than any other sector – up 120% between 1970 and 2004;
- California GHG policy timeline: 2002--AB 1493 (Pavley); 2006--AB 32 signed; 2008--AB 375 signed and AB 32 Scoping Plan adopted; 2011—LCFS and other early action regulations take effect; 2012—AB 32 regulations take effect; 2020—Reduce GHG emissions to 1990 levels;
- Large GHG reductions are required—need to transform vehicles, fuels and entire transportation systems;
- The California Model—all rules and policies are intended to be compatible with everything done elsewhere in the U.S. and the world. If similar actions are not carried out elsewhere results from California will not be very beneficial;
- Changes are needed in innovation in technology, behavior and institutions;
- Target specific GHG reductions with broad array of rules and incentives through energy efficiency standards, renewables portfolio standard, low carbon fuel standard. Overlay cap-and-trade program (and offsets) to create price signal for carbon and to equilibrate costs across sectors (and gain additional reductions);
- The three-legged stool--Transforming fuels (hard); vehicles (easiest), and mobility (hardest):
  - ❖ Transforming fuels: Today, 96% dependent on oil; future: Wide mix of fuels to power mobility (biofuels, hydrogen and electricity)
- There are many promising replacements and the challenge is how to make the transition to new fuels—need durable, performance-based and market-based policy—low carbon fuel standard:
  - ❖ Transforming vehicles—cars of the future will be far more efficient and will be powered mostly by electric-drive
- Will plug-in vehicles succeed? Battery cost must drop sharply and durability must increase;
- Fix today’s cars—fuel efficiency gains must be converted into fuel economy gains:
  - ❖ Transforming mobility: In U.S. and abroad, we’ve created a transportation monoculture where “sprawl is the law.” There are many opportunities for innovation and (SB 375 law is key).
- Expanded traveler choice is critical;
- Transportation GHG Policy in California:
  - Vehicles (cars and trucks) 39 MM tons
  - Fuels 16+ MM tons
  - VMT and goods movement 5-10 MM tons
- Portfolio Scenario to meet 80% Reduction--achieved through reducing VMT, improving conventional vehicles, biofuels, electricity, hydrogen and electric drive vehicle technology.

#### 5 Point Program to Transform Transportation (policy + technology):

1. Increase R&D investments and train next generation of scientists and engineers
  - Batteries, fuel cells, and lightweight materials
2. Accelerate advanced vehicle commercialization
  - Near-zero emissions requirement (California and US?)
  - EU 50 g/km incentive
  - Tax credits for hybrids, fuel cell, battery-electric vehicles
3. Performance Standards for fuel/GHG
  - CAFE, California Pavley Law, EU g/km standards
  - LCFS (to accelerate use of low-carbon fuels in vehicles)
4. Market instruments to align regulations with market
  - Feebates

- Fuel price floor
- 5. Reform institutions and realign incentives to reduce sprawl and VMT
  - Reward reduced GHG/VMT and stimulate investment in new mobility services
  - Remove incentives for sprawl (fiscalization of LU, zoning, engineering rules)

Council Member Discussion/Comments:

- Holtzclaw: Requested a comparison of cap-and-trade and the carbon tax in terms of money raised and spent on technologies to reduce VMT and carbon emissions and questioned how incentives would be used in moving toward more efficient transportation. Dr. Sperling said that generally, cap-and-trade and carbon tax can be made to have identical effects depending upon how they are designed. There will be different effects in different sectors for a variety of reasons and the electricity sector is likely to be most responsive; the transportation sector not very responsive. A \$50/ton tax is equivalent to a 50 cent per gallon gas tax will have some effect but nowhere near the effects of the Pavley program or the low carbon fuel standard. Policy instruments are needed if substantial change is to be seen in the near to medium term future.
- John Boesel, President and CEO of CALSTART, discussed the increase in gasoline, believed that LCSF's benefit will not be seen until 2018, and he questioned a more near-term solution. Dr. Sperling said a price for carbon or cap-and-trade will have a very small effect on the transportation sector. Therefore, additional instruments are needed and he discussed taxes and corresponding percentages in reductions.
- Bard: Reiterated the public health benefits of reductions in VMT and questioned Dr. Sperling's specific recommendations for the Advisory Council. Dr. Sperling suggested changes in local land use policies, creating institutional structures, setting targets for MPOs to filter down through the city/county level, and changing incentives for land use for infill, TODs, mixed use, higher densities, while making communities better places to live.
- Vura-Weis: Questioned if Dr. Sperling had information relating to fluctuations in gasoline prices and how it impacts behavior. Dr. Sperling said the most important part is the certainty of it; research shows that over the last 4-5 years, people have gotten accustomed to fluctuating prices, and behavior changed only modestly when gasoline increased significantly. People and companies will make individual choices in their lifestyles as to what car they buy, where they move, where they work, they will consider options for driving versus transit, and this is why he likes a price floor so people know it's not going to drop below a certain level.
- Brazil: Questioned how innovations for electric vehicles would move forward for the U.S., and Dr. Sperling said investments are being made in hybrid and electric vehicles and companies see it as a better technology and being able to pioneer efforts.
- Hayes: Said VMT can be controlled, but technology and fuels cannot be controlled at the local level. He asked Dr. Sperling to elaborate on assumptions in order to achieve the 79 MM tons of reduction at the local level. Dr. Sperling said it would be pricing of parking, roads, HOT lanes, fundamental changes of rules dealing with zoning, traffic engineering and standards for minimum parking, road width, traffic flow requirements, innovative and creative transit systems, and taxing.
- Drennen: Questioned if Dr. Sperling had data about elasticity of car ownership with price and specifically any new taxes or fees for car registration. Dr. Sperling said they have good data at UC Davis and a study was being conducted for the State on feebates and determining how people will respond. He said that while people are not very responsive in terms of changing travel behaviors, they are responsive in vehicle purchase behaviors.
- Drennen: Questioned carbon intensities for different types of vehicles and how this could be implemented. Dr. Sperling said the measurement part is not complicated for vehicles; it is the behavior which is more uncertain. There are a certain amount of people who will spend more to achieve more efficiency and what it represents holistically.

On behalf of the Advisory Council, Chairperson Brazil thanked Dr. Sperling for his presentation.

## **A. Regional Transportation Plan 2035: Change in Motion**

Steve Heminger

Executive Director, Metropolitan Transportation Commission

Deputy APCO Jean Roggenkamp introduced Steve Heminger, Executive Director of the San Francisco Bay Area's Metropolitan Transportation Commission and appointed by House Speaker Nancy Pelosi to serve on the National Surface Transportation Policy and Revenue Study Commission.

Mr. Heminger said MTC adopted the Regional Transportation Plan 2035 last month which is the last plan they will adopt prior to SB 375 taking effect. However, it is the first plan adopted with a greenhouse gas emission target. The plan is one of many transportation plans that are climate-friendly; it may be that the Bay Area is restricted in what it can squeeze out of its infrastructure plan, and what is needed is transformation.

Mr. Heminger said MTC expects to spend over \$218 billion in the Bay Area--Maintenance and operations at \$178 billion (81%), transit expansion at \$30 billion (14%), road expansion at \$6 billion (3%), and bicycle, pedestrian and others at \$4 billion (2%). He reported shortfalls at \$40 billion are due primarily to deferred maintenance and investment levels and noted operating shortfalls for several public transit systems.

### Transit Sustainability Project:

- **Overlapping Routes and Service:** Can we continue to afford to serve the same markets with multiple services?
- **Night Owl Transit Service:** Can we continue to afford to support two dozen transit operators, especially when the result is so complicated that it discourages ridership?
- **Bay Area Discount Fare Policies:** Can we continue to afford to accommodate inconsistent service policies when simple policy agreements are possible?

### Revenue Needed:

Sustainable, dedicated and long-term operating revenue is needed for public transit systems, and \$0.10 per gallon gas tax can raise significant revenue and will be considered in an upcoming election.

### Growing Pains:

- Nearly 2 million more people
- 1.8 million new jobs
- Need for over 700,000 new homes
- A tripling in freight volumes

### Challenges:

Longer commute distances  
Increasing traffic congestion

### Investing in Change:

Progress will be made in pricing and on land use, through:

- Freeway Performance Initiative - \$1.6 billion. The single most important way to reduce traffic congestion and emissions is to put meters from all ramps that lead from the local road network onto freeways.
- Regional HOT Network – creates an 800 mile HOT Network on Bay Area freeways. Through legislative action, HOV lanes are planned to be converted to HOT lanes. The 4% of road expansion over the next 25 years will be limited to: 1) carpools; 2) vanpools; 3) Express bus; and 4) those willing to pay to use it.
- FOCUS - \$400 million for Lifeline Transportation Program, \$1 billion for Regional Bicycle Network, \$2.2 billion for Transportation for Livable Communities Program.
- MTC Resolution 3434 - Most activities overlap in Priority Development Areas. Transit expansion program which will result in additional rail, ferry and bus capacity, two new transit hubs in San

Francisco and San Jose is subject to a TOD oriented policy that states in bringing transit capacity to the community, greater density and different land use approaches will need to be seen in order to achieve maximum value of the investment.

- California High Speed Rail – First in the nation, \$45 billion total cost, and State and federal funds are starting to flow.

Mr. Heminger presented a chart which showed reduced congestion 20% below today's levels. To get to such reductions, pricing and land use strategies will need to be implemented well beyond what is being done today. In reducing CO<sub>2</sub>, a target was set to reduce transportation related emissions by 40% to 1990 levels. He said part of this is done through CARB's technology improvements on fuels and vehicles. The 2035 Plan does little to affect emissions, and he presented modeling with added land use, pricing, and some with both land use and pricing, which shows added reductions. However, he believed that SB 375 is a modest step forward; even after achieving CARB targets there is a lot more to do. In terms of vehicle emissions, significant transformation is needed beyond what CARB is proposing. In terms of vehicles miles traveled (VMT), telecommuting needs to go from 3% to 10% market share, as well as and other employee strategies like parking cash-out.

Unfinished Business:

1. Address \$40 billion shortfall for highway, transit and local road repair
1. Improve transit performance – smarter service, fewer systems, sustainable funding
2. Reform federal transportation law as recommended by National Surface Transportation Policy and Revenue Study Commission
3. Change begins at home and breakthroughs are possible.

Council Member Comments:

- Holtzclaw: Questioned how SB 375 planning will encourage zoning changes to allow for mixed use and higher densities. Mr. Heminger believed it will be pushed versus encouraged and will involve CARB setting a target for the region to reduce GHG in the long-range transportation plan, which should be aggressive enough to achieve. He noted that the fact that the Air District is adopting an Indirect Source Rule as well as MTC developing a Transit Oriented Development policy is dynamic for progress.
- Holtzclaw: Referring to financial incentives not to drive as much, he said unbundling parking has been successful in San Francisco and questioned if this will be used to push areas that are built at higher density and mixed use. Mr. Heminger felt this is promising for local government to pursue and he suggested cities not provide as much parking in the first place and, if built, to price it accordingly.
- Mr. Heminger concluded by voicing optimism about challenges and he believed there is willing to experiment and try new things.

**C. Land Use, Public Transit & Trip Reduction**

Tom Radulovich  
BART Director – San Francisco  
Executive Director, Livable City

Ms. Roggenkamp introduced Tom Radulovich, Executive Director of Livable City and BART Board Director, Vice Chairperson of BART's Planning, Public Affairs, Access and Legislation Committee, Vice Chairperson of the Regional Rail Committee, Alternate for the Americans With Disabilities Act (ADA) Liaison Committee, and a member of the Joint Development Liaison and San Francisco Transportation Authority Liaison Committees.

Mr. Radulovich gave a PowerPoint presentation on “*Reducing Bay Area Greenhouse Gas Emissions – Land Use, Public Transportation, and Trip Reduction*”, stating there are many challenges ahead, and he discussed the changing environment which calls for different thinking with:

- Climate Change
- Peak Oil/resource depletion
- Cultural shift towards sustainability
- Cultural shift towards walkable urbanism
- Infrastructure deficits

Characteristics of Healthy Systems (*Hank Dittmar, Thinking Like a System, 1995*):

- Conservative: changing fundamental attributes slowly
- Adaptable & typological: composed of basic types that respond flexibly to changed conditions and feedback
- Holistic, integrated, environmentally aware
- Redundant, hence more reliable
- Focus on accessibility, not mobility

Mr. Radulovich presented a graph which shows Los Angeles as one of the densest metropolitan areas with San Francisco following. Interestingly, Copenhagen has similar density but uses one-third of gasoline consumption per capita. He then presented the following charts:

- Cities which are big generators of emissions, northeast San Francisco which, because of its density, is the lowest GHG per capita of anywhere in the region, and therefore, density, livability and transport are the key.
- California CO2 emissions (2000), the vast majority of which is transportation related at 52.4%.
- Driving versus residential density which shows going from 5 units per acre to 10 units per acre, there is an astounding drop in VMT per capita; however, it starts to level off going from 100 units to 150 units per acre.
- Impact of density and transit on driving (San Francisco Bay Area) which shows that with high density and not very good transport, there are still reductions in GHGs.
- San Francisco versus New York: Emissions per capita, auto and public transport emissions for autos and public transport, and percent of US average.

Travel Characteristics of Transit-Oriented Development (TOD) in California: (*Holly Lund, Robert Cervero, and Richard Willson, 2003*)

- ❖ TOD residents more likely to use transit if:
  - Transit is time-competitive with highway travel
  - There is good pedestrian connectivity at the destination
  - Workers are allowed flexible work hours
  - They have limited vehicle availability
- ❖ TOD residents less likely to use transit if:
  - The trip involves multiple stops (or “trip chaining”)
  - There is good job accessibility via highways
  - They can park for free at their workplace
  - Their employer helps to pay vehicle expenses (such as tolls, fuel, etc.)

Mr. Radulovich presented an outline from 1974 which showed infrastructure costs associated with different types of development. In comparing garden and high-rise apartments to cluster development and townhouses, there is a lot more infrastructure cost savings relative to conventional suburban housing, which also translates into GHGs.

Mr. Radulovich then presented:

- Copenhagen's "Finger Plan" which strings development along five rail lines radiating from the historic center which allows people to have access to open space and nobody is far from a rail transit station.
- London map from the 1940's and clusters of neighborhoods and walkable communities on neighborhood commercial districts, with nodes served by transport.

Generators of Diversity: (*Jane Jacobs, Death and Life of Great American Cities, 1962*) Primary mixed uses, small blocks, buildings of different ages, and concentration. Mr. Radulovich presented and discussed:

- Leon Krier's organic and mechanical growth, city of communities/city of zones, and functional zones and urban quarters;
- Calthorpe Associates' prototypical transit-oriented development;
- Michael Kiesling's Station access with cul-de-sac and grid plans;
- A London poster on prioritizing sustainable modes through road space resources showing a street full of cars and people which could be put on one bus;
- Examples of walkable cities, an example of Detroit, an abandoned city which rebuilt into an urban forest, or the Renaissance Center;
- Re-conquered cities which are reclaimed from domination by cars;
- A study done from Donald Appleyard's *Livable Streets, 1974* which depicts a traffic and sociability model;
- London's "Cycling Design Standards" which calms traffic in neighborhoods;
- Neighborhoods of "traffic worlds" versus neighborhoods of "social worlds";
- Examples of and uses for improvements to sidewalks, furnishing and sitting areas, pedestrian environments, shared public spaces, integration of grocery stores and temporary uses which lead to healthy lifestyles.

Mr. Radulovich said the country spends as much on parking as it does on its military and he presented an outline of things done in San Francisco which he said Livable City has been a part of since 2002/2003:

- Limiting the amount of parking allowed in office buildings
- Requiring secure bicycle parking in office buildings and parking garages
- Eliminating minimum parking requirements in transit-rich areas
- Establishing maximum parking limits
- Separating, or unbundling, parking costs from housing costs
- Allowing space-efficient parking (valets, lifts, stackers) by right
- Requiring car-sharing in new large residential buildings
- Requiring secure bicycle parking in new residential buildings
- Implementing demand-responsive or market rate parking meter rates

Mr. Radulovich presented a map of the Bay Area in 1869 which shows a well-establishing, emerging pattern of regional town centers and rail and port networks; the Bay Area in 1915 which shows an extensive network of railroads, streetcars, and ferries serving entire populated regions; and the Bay Area in 2009 which shows a re-emergence of a physically integrated regional rail network.

MTC's 2035 Regional Transportation Plan:

- Doubles funding for Transportation for Livable Communities (TLC) program from \$27 million/year to \$60 million/year
- Increasing funding for The Lifeline Transportation Program, addresses the needs of low-income communities (\$400 million)
- Increases funding for Safe Routes to Transit and Safe Routes to School programs
- Funds a comprehensive regional bicycle plan, and fully funds a \$1 billion Regional Bicycle Network (except for the toll bridges)
- Electrification of Caltrain from San Francisco to Tamien (\$626 million) \$6.4 billion for highway expansion
- Shortfalls for Muni capital replacement and maintenance of Muni (\$4.5 billion) and BART (\$7.2 billion)
- No funding for adding BART capacity, and only \$32 million for BART station capacity improvements
- No funding for adding capacity to Muni's crowded light rail and bus lines, or expanding and improving Muni yards and shops
- Unsustainable BART and Muni expansion
- Shortfall of \$13 billion on the \$17 billion needed to maintain state highways

Mr. Radulovich presented strategies for a livable and sustainable Bay Area as:

- End highway expansion;
- Redirect transportation funding towards maintenance and capacity expansion of existing transit, and sustainable transit expansion
- Foster walkable communities near transit
- Create walkable and bike able communities
- Quantify and encourage infrastructure efficiency
- Quantify and reduce embodied energy from cars and infrastructure
- Eliminate or reduce parking requirements
- Unbundle parking from everything, and encourage demand-responsive (aka market rate) parking pricing

**D. Goods Movement**

John Boesel

President & CEO, CALSTART

Deputy APCO Jean Roggenkamp introduced John Boesel, President and CEO of CALSTART, stating that prior to joining CALSTART in 1993 Mr. Boesel worked as an Environmental Business consultant providing services to natural resource-based businesses and non-profit groups.

Mr. Boesel gave a PowerPoint presentation entitled, "*Cleaner and Lower Carbon Truck Future: What Can We Do Now?*" and presented CALSTART's mission statement and discussed their four-part role to grow the clean transportation technology industry. CALSTART sponsored AB 118 (Nunez) which would create new annual \$200 million transportation program in California and AB 236 (Lieu) which establishes petroleum reduction goals for the State's own fleet, and they have assisted the Federal Transit Association develop its Electric Drive Strategic Plan.

Mr. Boesel discussed the following regarding leading edge hybrid and biomethane truck technologies:

- Natural gas as a proven technology in the bus industry; the cleanest of fossil fuels
- The Port of Long Beach/Los Angeles Hybrid Hostler Demo project
- Successes with Hilarides Dairy trucks running on renewable biomethane
- Microgy, Inc.'s development of biogas plants in California
- The California Dairy Industry generating feedstock for biomethane

- Hybrid Trucks – good for public health
- Hybrid Trucks Users Forum (HTUF) funded by the U.S. Army
- HTUF’s 6 core and main working groups – driving industry forward
- Received U.S. Army funding to test 24 Hybrid Electric “Trouble” Trucks
- Hybrid Tractors emerging for regional heavy applications
- Electric “Reefer” units emerging with hybrid systems
- Class 4/5 offerings expanding
- Field pilot testing of Hydraulic Refuse trucks
- Plug in Hybrid trucks are emerging: four utility industry variants unveiled
- Electric trucks – electric fans on buses resulting in 3-7% less fuel consumption
- Electric delivery vans deployed by FedEx in the UK because of congestion pricing
- Top emerging truck technology beyond aerodynamics
- Better designed and modified trailers can cut fuel usage and GHGs through underside skirts, suspension fairings, vortex devices, and nosecones and can deploy when needed

Next Steps:

- Long term and consistent policies:
  - CALSTART Federal Legislative Agenda for high efficiency trucks
  - Extend and augment existing federal tax credit for hybrid trucks
  - Ensure auction revenues from the cap and trade program can be used to provide high efficiency truck incentives
  - Development of innovative federal high efficiency/low carbon truck RD&D program
  - Develop sensible fuel economy metric for M-HDVs

AB 1527 (Lieu) – Integrating Funding Programs for Clean Transportation

*Problem:* Current guidelines make it difficult or impossible to combine air quality funds and climate change funds for the same project.

*Solution:* AB 1527 revises guidelines to allow federal funds and AB 118 funds to be combined with Carl Moyer and Prop 1B funds.

Price Signal Critical:

- High fuel prices resulted in historic change in gasoline and diesel consumption (2006-2008)
- Long Term price signal will stimulate investment in clean transportation technologies
- Increased prices thus far have been the most effective GHG reduction policy
- Cap and trade program unlikely to create significant price signal in transportation sector (20-60 cents/gallon)
- Approaches for State to decrease sales tax and increase gas tax over time, trade-offs with payroll and income taxes, and send a signal that gas/diesel will steadily increase

**PANEL DISCUSSION**

**3. Transportation Sector GHG Emission Reduction Strategies for California and the Bay Area**

Panelists discussed the need for a carbon tax versus cap and trade, a consistent price signal around gas and fuel pricing which will encourage efficiency and a modal shift, the possibility for local governments to adopt resolutions, CARB programs and mobility innovation.

Chairperson Brazil discussed BART’s Strategic Plan and whether it incorporated certain technologies. Mr. Radulovich said BART conducted a study to look at various programs and their impacts, and transit-oriented development without parking access rose to the top. BART found that expanding their systems is not very greenhouse gas friendly and they are encouraging full utilization of the existing system. In terms of technological innovations and efficiencies, BART is conducting lighting retrofits for a 70% electricity savings, regenerative braking on BART cars, installing capacitors, looking at new rail cars which are energy-efficient

and electric station cars, but he said walking, cycling, transit, and technology around vehicles is most effective. With growth, there is also a lot of leverage around land use that is not being realized.

Public Comments: Sam Altshuler asked to look at the holistic energy use and carbon footprint and questioned whether we would be better off burning bio-mass, making electricity and putting that into vehicles in a battery or making ethanol out of the bio-mass and moving vehicles in that direction. He also believed there may be a model and lessons to be learned from the sulfur trading process, which occurred in the northeast in the 1990's. Mr. Radulovich cited the growing size of trucks on the road. He suggested efficiencies with information technology and the potential to place logistic centers on the edges of towns with smaller trucks making deliveries, which would relieve congestion, impacts on roads, and reduce delivery costs.

Council Member Comments:

- Dr. Bedsworth questioned obstacles of implementing ramp metering and questioned whether there was any regulatory authority to require it. Mr. Heminger said Caltrans owns freeway ramps, he agreed metering has a dramatic improvement on freeway congestion which has not been found to significantly impact local street traffic, and trade-off's should be made in terms of emissions and congestion.
- Dr. Bedsworth said heavy duty trucks and equipment are used for many purposes and she questioned if this makes it harder to design policies to affect this sector as opposed to the passenger vehicle sector. Mr. Boesel believed regulators are struggling to develop a standard fuel economy because of the many applications of trucks and trailers, and he discussed Japanese technologies and said hopefully a program will be in place by 2016.
- Ms. Drennen questioned and confirmed with Mr. Heminger that congestion can be reduced through HOT lanes and metering, and noted an example in Minneapolis and its dramatic effects when metering was turned off.
- Ms. Drennen questioned how to best fix the transit shortfall. Mr. Heminger discussed the need for a voter-approved regional gas tax measure that builds things while also taking care of the current infrastructure.
- Ms. Drennen referred to funds already allocated and questioned the possibility of reconsidering committed projects, especially given climate change and limited funding. Mr. Heminger believed the majority of projects are either voter-approved in which case MTC cannot change their allocations, or, projects are well advanced in the project development process. He said when a project is still in the environmental review phase, this is when a good argument can be made.
- Ms. Drennen questioned what the Air District can do in terms of funding and implementing new programs. Mr. Radulovich believed better quantification be done on how market rate parking pricing reduces vehicle trips, congestion and emissions such as: 1) an R&D program that studies the region, 2) grants to understand the relationship between better pedestrian bicycle facilities and increased utilization and bike lanes, 3) support and funding for transit-oriented development and quantification of its effects behaviorally, and 4) further coordination in the application and process of grant funding.
- Mr. Boesel said the United States creates 25% of the world's GHG emissions, believed San Francisco should lead change in innovative technologies, suggested maintaining current toll policies for alternative fuel and high efficiency vehicles, asked the District to back AB 1527 to combine AB 118 and Prop 1B funds, to review its own vehicle registration program, get a new bill authored allowing those funds to be spent on climate change, and revise Carl Moyer Program guidelines.
- Mr. Radulovich supported a higher level of smog check, getting older cars off the road, and, coupled with the buy back program he believed this would improve emissions to impacted communities and

could also spur the purchase of alternative vehicles. Mr. Broadbent confirmed the District has endorsed increased smog check levels.

- Mr. Hayes referred to Mr. Heminger's presentation Slide number 17 and confirmed that the difference between the 2035 Plan and the CARB plan represents the effect of the Transportation Plan. Adding in things like parking pricing, land use planning, and other measures are represented by other alternatives and the band is fairly narrow. Mr. Hayes said there are many good public policy reasons to explore the many options. He referred to the 2035 objective and noted 2/3 of it could be achieved with CARB measures; however, the range of reductions from all others is relatively small.
- Mr. Heminger said their analysis is that transportation is 40% of the inventory and it must achieve 40% of the reduction. It may very well be that more cost-effective CO<sub>2</sub> emission reductions will be garnered from the other sectors first, they may have to do more if the transportation cannot quite do all of its share. He noted it was a proportional exercise and it may not be the way this plays out.

Chairperson Brazil and Advisory Council Members thanked all speakers for their presentation.

**OTHER BUSINESS:**

**Council Member Comments/Other Business** – Chairperson Brazil confirmed that three Advisory Council Members would be attending the A&WMA Conference in Detroit June 16-19, 2009.

**Time and Place of Next Meeting:** 9:00 a.m. Wednesday, July 8, 2009, 939 Ellis Street, San Francisco, CA 94109

**Adjournment:** The meeting adjourned at 12:20 p.m.

*/s/ Lisa Harper*  
Clerk of the Boards