



The Gateway Cities
Air Quality Action Plan

Air Quality Action Plan (AQAP) New Measures Workshop—October 10, 2012 Meeting Summary

Gateway Cities Council of Governments (GCCOG)
Environmental Committee
AQAP Technical and Advisory Roundtable Groups

Location: Gateway Cities Council of Governments, 16401 Paramount Boulevard, Paramount, CA 90723

Time: 5:00 p.m. to 8:00 p.m.

Environmental Committee Members - present

Chairman Bill DeWitt, City of South Gate
Doug Drummond, Harbor Commissioner, Port of Long Beach
Steve Lefever, City of South Gate
Daniel Ojeda, City of Lynwood

Advisory Roundtable Members - present

Academic & Educational

Brian Cole, UCLA School of Public Health

Community Representatives

Joan Greenwood, West Long Beach Neighborhood
Harold Tseklenis, Downey Community Representative

Environmental

Robert Cabrales, Communities for a Better Environment
Jesse Marquez, Coalition for a Safe Environment

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Public Health Advocates

Jessica Tovar, Long Beach Alliance for Children with Asthma
Zahirah Washington Mann, Legal Aid Foundation Los Angeles

Private Sector

TL Garrett, Pacific Marine Shipping Association
Molly Deringer, California Environmental Associates (representing Union Pacific and BNSF Railway)

Technical Roundtable Members - present

James Bahng (for Kevin Maggay), Port of Los Angeles
Judeth Luong (for Nelson Kerr), City of Long Beach
Susan Nakamura, South Coast Air Quality Management District
Jonathan Nadler, Southern California Association of Governments
Robert Vasquez, Los Angeles County Public Health

Project Team:

GCCOG	Jerry Wood, Karen Heit
Metro	Adrian Alvarez, Danielle Valentino
ICF Team	From ICF: Jeff Ang-Olsen, Scott Broten, Andrew Papson, Arlene Rosenbaum (via phone), and Ed Carr (via phone) From Arellano Associates: Susan DeSantis, Maria Yanez-Forgash, Elizabeth Hansburg, and Kyle Santiago

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Agenda**I. Opening Comments and Introductions**

Susan DeSantis welcomed everyone, and introduced Councilman Bill DeWitt, Chair of the GCCOG Environmental Committee. Mr. DeWitt thanked everyone for coming, and their commitment to the AQAP process. He noted the positive impact it will have for people living in the Gateway Cities subregion for many years to come

II. Agenda Overview

Ms. DeSantis reviewed the agenda for the meeting. She noted that the first part of the meeting was a presentation by Jeff Ang-Olsen of ICF International, providing highlights of the air quality modeling analysis and results. The second part of the meeting was devoted to roundtable discussions of the initial list of potential new measures by members of the Gateway Cities Environmental Committee and the AQAP Advisory and Technical Roundtable Groups.

III. Oral Reports**A. AQAP Status Report**

Ms. DeSantis gave an update on the status of the AQAP Project, the tasks that have been completed, and those currently underway, including the Health Risk Assessment. She reviewed the calendar of events for the remainder of 2012 and outlined the next steps moving into 2013. She invited participation in the Technical Webinar for the Health Risk Assessment on November 13 and noted that the Draft version of the AQAP Health Risk Assessment Report would be presented to the GCCOG Environmental and Transportation Committee in January. Lastly, she informed the attendees that the Draft AQAP will be presented to the Environmental and Transportation Committees in late March or early April next year. Ms. DeSantis then introduced Jeff Ang-Olsen of ICF International, who presented the highlights of the air quality analysis.

B. AQAP Air Quality Results for 2035

Mr. Ang-Olsen began with an overview of the air quality modeling approach, which used 2009 as the base year and predicted air quality in 2035 using data from South Coast Air Quality Management District and the I-710 EIR/EIS. He also reviewed the four pollutants that were of greatest concern based on the air quality analysis conducted by the ICF Technical Team: particulate matter (PM_{2.5}), diesel particulate matter (DPM), nitrogen oxides (NO_x), and other air toxics.

Mr. Ang-Olsen began with PM_{2.5} and said that the model predicts significant improvement from 2009 to 2035 in the concentration of PM_{2.5} in the Gateway Cities Region. By 2035, concentration levels will be in compliance with current EPA standards of 15 milligrams per square meters. Even though there will be a 21% decrease in the average concentration of PM_{2.5} between 2009 and 2035, the sources remain largely unchanged with secondary PM_{2.5} accounting for roughly 50% of all PM_{2.5} in 2009 and 2035. He briefly explained the sources of secondary PM_{2.5}, which forms in the atmosphere from NO_x and other volatile organic

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compounds (VOC). Other significant sources of PM_{2.5} also remain the same with *area*, *freeway*, *non-freeway* and *dust* remaining the largest sources.

Next Mr. Ang-Olsen moved to an explanation of DPM. He noted a large reduction of DPM concentration, approximately 80%, is predicted to occur between 2009 and 2035 in the Gateway Cities. He also noted that while DPM is known as a cancer causing pollutant, there is currently no state or federal standard for DPM concentrations. Like PM_{2.5}, the distribution of sources in 2035 remains largely unchanged from the distribution in 2009. Freeways remain the largest single source of DPM (40% in 2035 down from 43% in 2009), and non-freeway roads remain the same at 23%.

Lastly, he reviewed the 2035 predicted levels of air toxics that are known to contribute to cancer risk. The largest contributor is DPM (70%), which is consistent with MATES III findings. Other contributors include Chromium-6, arsenic, butadiene, benzene, and formaldehyde. He explained that the Health Risk Assessment, which is currently underway, would further assess the health impacts of these air toxics. To provide a context for the cancer health risk caused by these air toxics in the Gateway Cities region, Mr. Ang-Olsen reviewed an exhibit displaying the cancer risks associated with air pollution in major metropolitan areas in the United States, specifically in the counties in which the major cities are located. He compared those levels to the level in the Gateway Cities region. The 2009 level in the Gateway Cities is higher than the 2005 level in Los Angeles but lower than in New York City. When asked about the disparity between the highest and lowest risk levels nationwide, Mr. Ang-Olsen said that the data came from a EPA study, which used census tracts as the unit of data collection; therefore, the size of the counties, the number of census tracts within each county and the proximity of county's population to the emissions sources could all influence the average cancer risks calculated for each county. Arlene Rosenbaum, also of ICF, added that some counties have "hot spots," concentrated locations of emissions sources, which greatly increase the risk within those tracts, thereby increasing the county average. In other metropolitan areas, major emissions sources may be located outside of the central county.

A TRT Member asked the threshold size for DPM used in the model and why ultrafine particles were not modeled and analyzed separately. Mr. Ang-Olsen said that ultrafine particles were being considered in the HRA, but that at this time, ultrafines are still an emerging area of science and the data was not in place to accurately predict ultrafine particles in 2035. There are currently no regulations that cover ultrafine particulate matter. Ed Carr of ICF added that the project team did produce a state-of-the-science report on ultrafine particles. Ms. DeSantis said this report would be made available upon request

C. AQAP New Measures

After fielding these two questions, Mr. Ang-Olsen moved on to present the new measures. He explained that the purpose is to develop additional strategies that can be implemented to minimize health risks and improve air quality within the Gateway Cities in 2035. He described a

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potential advocacy, coordination and funding roles for the GCCOG to implement these new measures within the region. He then moved on to outline the four goals around which the new measures have been developed, which focused on reducing the following four air pollutants: PM2.5, DPM, NOx and other air toxics associated with cancer risk. For each pollutant, Mr. Ang-Olsen briefly reviewed the primary source categories and then identified potential measures that could help reduce emissions from these primary sources. An initial list of these potential measures can be found in the PowerPoint presentation as well as the roundtable reports.

- Measures to control PM2.5 include reducing area source emissions from charbroiling and residential wood burning, reducing mobile source emissions by reducing the number of vehicle miles traveled (VMT), and decreasing road dust near construction sites where earth-moving activities are great.
- Measures to control DPM fell into two categories: truck reduction measures and other mobile sources, which include rail, marine, and construction equipment. Truck emissions reduction would be reduced through the implementation of zero or near-zero emission trucks. Measures to reduce emissions from other mobile sources include using low-emission locomotive and construction equipment and expanding the use of shore power for ships.
- Measures to control NOx emissions have the co-benefit of reducing PM2.5 emissions because NOx is a primary contributor to secondary PM emissions. The NOx measures include the use of zero-emission technologies in transportation refrigeration units (TRUs), construction equipment and on-road vehicles.
- Measures to reduce other air toxics included changes to industrial chrome coating operations and glass manufacturing as well as encouraging the public to use low emission or electric lawn mowers and garden equipment.

Next, Mr. Ang-Olsen described the relationship between the AQAP potential new measures and the Gateway Cities Sustainable Community Strategy, which was developed by GCCOG in compliance with SB 375. One element would use land use planning to reduce vehicle miles traveled and thereby reduce greenhouse gas emissions. Because the SCS does not apply to heavy-duty trucks, trains or watercraft, the primary point of overlap is limited to PM2.5 from light-duty vehicles; however, the AQAP PM2.5 reduction measures will work in conjunction with land use changes and the reduction of VMT as a means to reduce GHG emissions in the Gateway Cities. At the conclusion of his presentation, Mr. Ang-Olsen responded to the following questions.

A GCCOG staff member asked if there was any way to quantify the efficacy of the initial list of new measures. Mr. Ang-Olsen responded that this was the Technical Team's next step. Using the feedback gathered at this workshop, the ICF team will prioritize the new measures and analyze them for cost and efficiency. An Advisory Roundtable environmental representative stated that much of this work has already been done and volunteered sources of this

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information for rail and for ships. Mr. Ang-Olsen acknowledged these sources and said that ICF's efforts will build upon the existing information.

Roundtable members from South Coast Air Quality Management District (SCAQMD) raised concerns over ICF's 2035 forecasted air quality levels, specifically that they are inconsistent with SCAQMD's projections. They requested a meeting with ICF to review the inventory of data used in the model in the hopes of understanding why the predictions are not more in line with those of SCAQMD. Ms. DeSantis indicated that a meeting would be scheduled to follow-up on these concerns.

The presentation concluded with Mr. Ang-Olsen emphasizing that the analysis will include material on how the Gateway Cities can help to implement the potential new measures. Ms. DeSantis commented that while some measures must be implemented at the regional, state or federal level, the GCCOG can play a role in advocating for implementation of those measures where applicable. Jerry Wood of GCCOG raised the example of their advocacy work on air quality and credited it as responsible in part for improved sensitivity and responsiveness to air quality concerns by the ports and other entities.

IV. Roundtable Discussion on New Measures

Following Mr. Wood's comments, Ms. DeSantis transitioned the meeting to the roundtable discussion, identifying the table facilitators and discussion topics, and explaining the three point rating scale, where 1 is most important for analysis and 3 is no further analysis necessary. The roundtable groups discussed their respective measures for approximately 55 minutes.

V. Roundtable Reporting Out

At the conclusion of discussion time, a spokesperson from each roundtable group reported back to all the meeting participants. The complete list of new measure rankings and the additional measures suggested by participants can be found in the roundtable reports.

- Table 1 reported on their assessments of the potential new measures to reduce air toxics. This group rated the measures concerning chrome and glass industrial operations as most important. They also contributed three additional measures: (1) agencies such as SCAQMD should give local governments access to the database containing the known locations of permitted industrial operations within their boundaries; (2) cities should pool their resources and "ground truth" these locations; and (3) comprehensive standards for all air quality pollutants must be developed and should encompass those pollutants for which there are currently no regulation or standards.
- Table 2 reported on their assessments of the potential new measures to reduce PM2.5 emissions. This group rated as most important the measures to reduce emissions associated with construction equipment and construction sites as most important. They also rated as important the measures aimed at reducing emissions from traffic and VMT and suggested adding the development of affordable housing and local jobs as a way to reduce VMT.

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- Table 3 reported on their assessments of the potential new measures to reduce DPM emissions. They rated as most important the development of economic incentives, regulations, and implementation of low and zero emission trucks for use at the ports and throughout the Gateway Cities region. The group added two recommendations for local governments: to use land use controls, such as zoning a permitting, to minimize incompatible land uses and DPM exposure, and to retrofit existing buildings and heating/venting and air conditioning (HVAC) systems to reduce DPM exposure and improve indoor air quality.
- Table 4 reported on their assessments of the potential new measures to reduce NOx emissions. This group rated as most important the use of low and zero-emission technologies in watercraft, TRUs, construction equipment, and on-road vehicles. The group also suggested a new measure to work with utility companies to promote the use of energy efficient technologies.
- Note: The California Air Resources Board submitted comments on New Measures and requested that they be added to the official record. See Attachment A.

VI. Announcements

At the conclusion of the report-outs, Ms. DeSantis reminded the meeting attendees of the date of the upcoming webinar in November and invited all present to participate.

VII. Public Comments

There were no public comments.

VIII. Next Steps and Wrap Up

Ms. DeSantis thanked the participants for coming and for bringing their insights and expertise to the roundtable discussions.

Adjournment

Ms. DeSantis adjourned the meeting at 8:00 p.m.



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Attachment A

Air Quality Action Plan (AQAP) New Measures Workshop October 10, 2012

Comments Received by Renee Littaua, California Air Resources Board

Thanks for giving us the opportunity to comment on the new measures for longer-term (~2035) air quality improvement. We support the Gateway Cities advocacy role for stronger ARB and SCAQMD measures. ARB, SCAQMD and SJVAPCD in fact just completed a joint air quality visioning effort to consider what types of new measures would be necessary to achieve the criteria pollutant and GHG targets through 2050 that we are required to meet under the federal Clean Air Act and state legislative requirements. To achieve the kinds of transformative technologies needed to meet these requirements will require a coordinated vision, and federal, state, regional and local cooperation.

As a broad comment, many of your slides list an advocacy role for GCCOG and we support that, but as we discussed Monday we would like to see a stronger delineation of measures where GCCOG members can take direct action. Measures should not be limited to early action measures or the sustainable community strategies, but are also important for longer-term measures and should be included with the other new measures.

Measures should include actions involved in local land use planning, transportation system improvements, and travel demand management. Ensuring that public health and air quality are considered as part these areas will set the stage to minimize population exposure now and in the future.

A few examples of action that should be considered are (but not limited to):

- Considering population exposure when making zoning changes.
- Including public health considerations in leases or permits.
- Locating sensitive receptors away from freeways or heavy industrial sources.
- Carefully considering the impacts of truck routing, and placement of warehouses and industrial facilities.
- Providing a larger buffer zone around airports and other facilities.
- Requiring low emission equipment for public construction contracts, public vehicles and equipment and in contracts for city services (e.g. waste collection vehicles, transit services, landscaping services.)

We also encourage the GCCOG to work collectively with us to craft a Memorandum of Understanding whereby the GCCOG member cities would work locally to enforce truck idling restrictions.

Also note, on slide 35, we recommend “Bonnet on vessel stack to reduce emissions at berth” in lieu of “Advanced Maritime Emissions Control System (AMECS)”, as AMECS is proprietary and there is a competing manufacturer of this type of equipment.

State employee travel is limited now, and unfortunately we are not able to attend this evening’s workshop, but we appreciate the chance to provide comments and to participate in this important project.

Attachment B

New Measures to Improve Air Quality—Goal 1: Further Reduce PM2.5

PM2.5 contributes to negatively to cardiopulmonary health. By 2035, the average PM2.5 concentration in the Gateway Cities will decrease by 21% from 2009 levels and 46% of PM2.5 will be secondary PM, which is not able to be addressed by PM2.5 control measures. However, by reducing NOx, secondary PM is also reduced (co-benefit).

Priority*	Reduction Measures	Notes
Area Source Reduction Measures		
1	<p>A1. Reduce emissions from char-broiling.</p> <ul style="list-style-type: none"> Require new and/or existing medium to large volume restaurants with under-fired charbroilers to install control devices. Applies to “open grill” charbroiling, not conveyer belt charbroilers (e.g., Burger King), which are already controlled. Control technologies current being developed and evaluated. 	<p>Concern over monitoring and compliance. Possible solution:</p> <ul style="list-style-type: none"> Add to health inspector duties. Add to code enforcement officer duties. Educate public about issue, provide reporting hotline like 1-800-CUT-SMOG.
2	<p>A2. Reduce emissions from wood combustion (fireplaces & stoves).</p> <ul style="list-style-type: none"> Implement Oregon standards for fireplaces and wood stoves: If selling or purchasing a home with a woodstove or fireplace insert, must ensure the woodstove is certified prior to sale of the home. 	<p>Other strategy implementation options:</p> <ul style="list-style-type: none"> Provide funds/assistance for people to replace wood fireplaces with natural gas fireplaces. Provide funds/incentives to retire or cap chimneys. <p>Explore the use of duraflame logs vs. wood? Which is better?</p>
3	<p>A3. Reduce emissions from wood combustion (area sources).</p> <ul style="list-style-type: none"> Current AQMD Rule 445 restricts residential wood burning. Expand no-burn during episodic days by reducing mandatory wood burning curtailment forecast threshold from 35 µg/m³ to 30 µg/m³. 	<p>Group considered this to be a small source. Perhaps residential fire pits? BBQs? Bonfires?</p> <p>Group not sure this is a big problem in GCCOG, not seen by the table members.</p> <p>Group would need more information on this problem, is it seasonal?</p> <p>Considered low priority.</p>

1	<p>A4. Reduce emissions from building construction and demolition</p> <ul style="list-style-type: none"> • Use best management practices to better control construction/demo dust, such as: <ul style="list-style-type: none"> ○ Apply water to disturbed soils after demolition is completed or at the end of each day of cleanup. ○ Apply dust suppressants (e.g., polymer emulsion) to disturbed areas upon completion of demolition. 	<p>Implementation options:</p> <ul style="list-style-type: none"> • Requirements for street sweeping frequency can be added to city specs. <p>For watering strategies, can reclaimed water be used instead of fresh water?</p> <p>What about weed control in the overflow embankments of the LA river? It seems that they cut back the weeds, releasing clouds of dust. Can this be controlled?</p>
<p>Mobile Source Reduction Measures: Reduce Automobile PM2.5</p>		
1	<p>A5. Reduce VMT through Transportation Demand Management.</p> <ul style="list-style-type: none"> • Improve/expand public transit. • Improve/expand bicycle and pedestrian infrastructure. • Promote ridesharing (carpool, vanpool). 	<p>Strong support for these measures.</p> <p>Additional TDM strategies:</p> <ul style="list-style-type: none"> • Parking controls / limitations. • Transit oriented development. • Improving road quality so it is friendlier to active transportation. • Additional incentives to not use a car. • Improve end-to-end mobility when using transit like a bus line. • Support affordable housing so people can live near where they work, reducing VMT.
1	<p>A6. Improve traffic flow and mobility through Transportation System Management and congestion relief.</p> <ul style="list-style-type: none"> • Highway operations. • Signal timing. • Traveler information. • Bottleneck relief through capacity additions. 	<p>This strategy considered a high potential, since there are so many freeways and arterials that pass through the cities. However, there are tradeoffs in reducing congestion and adding pedestrian facilities, such as additional walk time at intersections.</p>

1	<p>A7. Accelerate zero and near-zero emission vehicle adoption.</p> <ul style="list-style-type: none"> • Support electric vehicle infrastructure deployment—both residential and public charging. • Cities lead by example. 	<p>Implementation options:</p> <ul style="list-style-type: none"> • City contract requirements for trash trucks, street sweepers. • Opportunities with city fleets; charging stations on city-owned properties. • Expanded “clean cars for clunkers” program to more rapidly turn over old vehicles. • Provide information and incentives to local residents. <p>Additional research needed on the costs and benefits of clean vehicles for GCCOG residents.</p>
<p>Entrained Road Dust</p>		
2	<p>A8. Expand street sweeping.</p> <ul style="list-style-type: none"> • Owner or operator of a paved public road on which there is visible accumulations shall begin removal of such material through street cleaning within 72 hours of notification. • Has 16% PM control efficiency on local roads and 26% control efficiency on arterial and collector streets. • AQMD Rule 1186 requires local governments to procure certified street sweepers for new equipment purchases or new street sweeping contracts. 	<p>Cities can expand the frequency of street sweeping, although it is an additional expense.</p> <p>Some areas such as industrial parks do not appear to be swept very often; perhaps increased sweeping in these areas would reduce road dust.</p> <p>A reporting mechanism is needed where residents can identify areas that need sweeping.</p> <p>This is an expensive measure, because it requires ongoing costs for more service, rather than a single up-front cost.</p> <p>For cities with a zero-waste (or a low % waste) policy, street sweeping debris can contribute to this goal.</p>
1	<p>A9. Require installation of pipe-grid trackout-control device to reduce mud/dirt trackout from unpaved truck exit routes.</p> <ul style="list-style-type: none"> • Allows mud/dirt to drop off vehicle before leaving site. • Applies to any business or public facility with an unpaved access route to public roads. • Has 80% PM10 control efficiency. 	<p>A9, A10, and A11 discussed in one block since they are similar. Construction sites could be addressed through a requirement similar to a SWPP Plan, which protects drainage. Perhaps it is possible to connect construction dust to the SWPP.</p> <p>Expand these construction strategies to industrial sites as well. These strategies were considered easy to implement.</p>
1	<p>A10. Near construction sites, all streets shall be swept once a day if visible soil materials are carried to adjacent streets.</p> <ul style="list-style-type: none"> • Applies to road or building construction. • Could be combined with other measures. 	

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- 1 A11. For construction sites, install wheel washers and wash trucks and equipment leaving the site.
- Best if truck washing area is on a paved access road.
 - Considered to be 40–70% effective in controlling emissions.

Additional Measures from Participants

Develop affordable housing and local jobs to reduce VMT.

*Rankings

1 = Top Priority

2 = Secondary Priority

3 = No new analysis

Attachment C

New Measures to Improve Air Quality—Goal 2: Further Reduce DPM

DPM contributes increases the risk of cancer. By 2035, the average DPM air concentration in the Gateway Cities decreases 79% from 2009 levels, and 63% of DPM will be from diesel on-road vehicles (primarily trucks).

Priority score (average of four participants)	Reduction Measures	Notes
Truck		
1	<p>B1. Economic incentives, regulations, and implementation for zero emission port trucks.</p> <ul style="list-style-type: none"> • Technology under development for battery-electric Class 8 (tractor-trailer) trucks; not yet commercially available. • Support from ports’ Technology Advancement Program. • Higher purchase price than diesel trucks, so deployment will require incentives. • Gateway Cities can collaborate with other agencies. 	<p>Gateway Cities can lobby for this. Ports are the one to implement, with support from AQMD and ARB.</p> <p>Should add hydrogen fuel cell trucks, which are currently being explored by port and Vision Motor Corp.</p>
1.25	<p>B2. Economic incentives for low emission trucks in Gateway Cities communities: electric, LNG, CNG, etc.</p> <ul style="list-style-type: none"> • Natural gas and hybrid-electric trucks currently available (10–30% emission reduction). • Battery and plug-in hybrid electric under development (30–100% emission reduction). • Higher purchase price than diesel trucks, so deployment will require incentives. 	<p>Ports have the cleanest trucks, so makes sense to focus on the non-port trucks operating in the sub-region.</p> <p>GCCOG role can be education about grant opportunities.</p> <p>Need R&D.</p> <p>Also consider new truck engine combustion efficiency technology and retrofits. Like VATTS, Miracle Mile. Solutions successfully tested, now going through CARB certification.</p>
1.75	<p>B3. Continue local government purchase of alternative-fuel HDVs (refuse trucks, other heavy vehicles).</p> <ul style="list-style-type: none"> • AQMD rules already require low emission vehicles for new public fleet vehicles (street sweepers, refuse trucks, light duty, heavy duty, school buses). 	

Priority score (average of four participants)	Reduction Measures	Notes
	<ul style="list-style-type: none"> Incentive funding from AQMD MSRC, CEC, others. 	
1.75	<p>B4. Invest in alternative fuel infrastructure for trucks (primarily natural gas or electric charging).</p> <ul style="list-style-type: none"> Cost of a new CNG or LNG fueling station can be from \$300,000 to \$5 million. EV charging can help extend all-electric range of plug-in hybrid electric trucks. 	<p>Need to give private sector incentives to develop fueling infrastructure. GCCOG role is to lobby state and feds. Add hydrogen fueling stations, for fuel cell vehicles.</p>
2	<p>B5. Implement a heavy-duty truck inspection and maintenance (I&M) program.</p> <ul style="list-style-type: none"> Currently no statewide I&M program for heavy-duty trucks (unlike autos). Uncertainty regarding durability of emission control systems to meet 2007/10 HDV standards. 	<p>CARB is implementer. This must include HFC leakage for AC units.</p>
2.25	<p>B6. Enhanced anti-idling enforcement & regulation.</p> <ul style="list-style-type: none"> CARB rules limit idling to 5 minutes; anecdotal information suggest non-compliance. Current rule enforced primarily through the CARB inspection program. Enforcement can be delegated to local police. 	<p>CARB offers training for enforcement. Begg the question—why are trucks idling? Can we remove their need to idle?</p>
1.75	<p>B7. Outreach and education to encourage proper truck engine maintenance.</p> <ul style="list-style-type: none"> Malfunction of engine or emission control system can dramatically increase emissions. Uncertainty regarding durability of emission control systems to meet 2007/10 HDV standards. Outreach should target small fleets and owner-operators. 	

Priority score (average of four participants)	Reduction Measures	Notes
1.75	B8. Improve mobility & goods movement efficiencies. <ul style="list-style-type: none"> • System efficiency will limit congestion and idling of trucks and trains. • Efficient intermodal connections are key to maximizing use of rail for long-distance freight. • SCAG's 2012 RTP includes an East-West Freight Corridor. 	
2	B9. Early action projects: anti-idling, warehouses, truck technology. <ul style="list-style-type: none"> • Documented in AQAP Early Action Report. • Focuses on short-term strategies for local governments in 6 areas: <ul style="list-style-type: none"> ○ Reduce truck idling. ○ Implement clean construction equipment and strategies. ○ Reduce exposure of sensitive receptors to diesel exhaust. ○ Reduce emissions at warehouses and distribution centers. ○ Maximize cleaner transportation technology. ○ Implement air quality monitoring along the I-710 corridor. 	
2	B10. Analyze DPM hot-spots for focused measures that would most benefit these areas	
Rail Lines		
2	B11. Accelerate introduction of Tier 4 passenger and freight locomotives (near to mid-term). <ul style="list-style-type: none"> • Tier 4 is the most stringent current emissions standard for locomotives. • Available beginning 2015. • 80% lower NOx and PM2.5 emissions than current (Tier 3) 	Railroads think this is longer term. Manufacturers are having a hard time making Tier 4 compliance locos by 2015.

Priority score (average of four participants)	Reduction Measures	Notes
	locomotives.	
2.25	B12. Electrify the rail system <ul style="list-style-type: none"> • Longer-term strategy • Could eliminate most line-haul locomotive emissions • High cost; potential impacts on railroad operations 	Focus on electrifying the Alameda Corridor. Also, support R&D for maglev train—American Maglev Technology, Inc.
2.25	B13. Promote advanced battery technology locomotives <ul style="list-style-type: none"> • GE hybrid technology (in R&D stages) or battery-electric “tender” car. • Could be transition to longer-term zero emission rail system. 	
Off-Road Other		
2	B14. Require low-emission equipment for public construction contracts. <ul style="list-style-type: none"> • Similar to Metro’s Green Construction Policy. • Emissions performance standards for off-road and on-road equipment used in publicly-funded construction projects. 	Port of LA has Sustainable Construction Guidelines—good model. Like PoLA guidelines, any policy needs to have “tiers”, so that if cleanest equipment is not available, contractor can go with a next best option without being penalized. Need to recognize that this raises the cost of construction, so may not be tenable for local governments. Conditional Use Permits often require low noise equipment, which may result in low emission equipment too. Should require electric equipment where feasible.
1.5	B15. Best management practices for construction sites. <ul style="list-style-type: none"> • Construction equipment idling limits. • Equipment maintenance. 	
2.25	B16. Alt fuels (electric, LNG, CNG) for port cargo handling equipment. <ul style="list-style-type: none"> • Under ports’ Clean Air Action Plan and CARB rules, all equipment will meet on-road or Tier 4 standards by 2014. • Install Electric Rubber Tire Gantry (RTG) cranes (60-80% emission 	Should rephrase as “Alt fuels and technologies”. These are often required through the EIR process, for port projects. Need on-site monitoring for compliance.

Priority score (average of four participants)	Reduction Measures	Notes
	<p>reduction vs. diesel).</p> <ul style="list-style-type: none"> Pursue hybrid electric, hydraulic hybrid, and battery electric yard hostlers. 	
Watercraft		
2	<p>B17. Expand use of shore power.</p> <ul style="list-style-type: none"> Under ports’ Clean Air Action Plan and CARB rules, container, cruise, and reefer vessels must use shore power (50% by 2014, 70% by 2017 and 80% by 2020). Could be expanded to remaining container, cruise, and reefer vessels (infrequent callers) or other vessel types. Requires infrastructure at berths and vessels equipped to plug in. 	<p>Difficult to expand this beyond current regulations because some ships cannot accept electrification. Also, electrifying ships is a huge cost investment for vessel lines, so not practical for infrequent callers.</p>
1.75	<p>B18. Deploy Advanced Maritime Emission Control System (AMECS).</p> <ul style="list-style-type: none"> Intake bonnet to capture stack emissions from an OGV while at berth. Successfully tested at PoLB in 2008–09. Alternative to shore power, for infrequent callers. 	<p>Benefit is that this will capture all emissions, including boilers; shore power does not do this. Current being tested at PoLA on a marine bulk ship.</p>
1.75	<p>B19. Repower, replace port harbor craft to cleaner engines.</p> <ul style="list-style-type: none"> Repower harbor craft with Tier 4 engine when available (2014+) Support alternative fuels and advanced technology tugs (e.g., hybrid-electric). 	
2	<p>B20. Electric dredges.</p> <ul style="list-style-type: none"> Require use of electric equipment for any port dredging. Condition for Pier 300 Container Terminal Expansion. 	
Railyards		
2	<p>B21. Reduce locomotive idling at railyards.</p> <ul style="list-style-type: none"> ARB 2005 railyard agreement includes statewide locomotive idling-reduction program. 	<p>Very large portion of locomotives already have idle reduction devices.</p>

Priority score (average of four participants)	Reduction Measures	Notes
	<ul style="list-style-type: none"> Achieve further reductions through training and technology, such as automatic engine start-stop (AESS) device. 	
1.75	<p>B22. Low-emission railyard equipment.</p> <ul style="list-style-type: none"> ARB 2010 Commitments will reduce DPM at BNSF Hobart, UP Commerce, and UP ICTF/Dolores—85% reduction by 2020 compared to 2005. Expand measures to other railyards in or near Gateway Cities (Watson, LATC). Emission controls and/or alternative fuels for yard hostlers, side picks, top picks, cranes, etc. 	Need to add ALECS (Advanced Locomotive Emission Control System). Successfully tested at BNSF yard in 2006.
Additional Measures from Participants		
	Local government land use controls to minimize incompatible land uses and exposure (zoning, permitting).	This is something local governments can do.
	Building and HVAC system retrofits to improve indoor AQ and reduce exposure.	This is something local governments can do.

Attachment D

New Measures to Improve Air Quality—Goal 3: Further Reduce NOx

The average concentration of NOx will decrease by 65% in 2035. The primary sources of NOx will be Watercraft, On-road vehicles, which encompasses freeway and non-freeway vehicular traffic, and Other Off-road, which is primarily construction equipment.

Priority*	Reduction Measures	Notes
Watercraft		
2 Easy to implement	<p>C1. Continue Vessel Speed Reduction program.</p> <ul style="list-style-type: none"> Voluntary reduction in ship speeds near ports. Distance expanded to 40 nm in 2009; carries with 90% compliance receive dockage fee reduction. Compliance in 2010 was >90% for 20 nm threshold, 70% for 40 nm threshold. 	<p>Do not limit incentives to fee reductions.</p> <p>Advocate for improvements in the quality of fuel that vessels use.</p>
1 Moderately hard to implement	<p>C2. Install clean engine technologies.</p> <ul style="list-style-type: none"> Focus on retrofitting existing ships with emission control technologies. Examples include: slide valves, selective catalytic reduction (SCR), exhaust gas recirculation (EGR), fuel water emulsion. 	<p>Advocate for improvements in the quality of fuel that vessels use.</p> <p>Look for a demonstration project as an intermediate step.</p> <p>Explore new technologies available for use by ships.</p>
Transportation Refrigeration Units		
1 Easily implemented in newly manufactured refrigeration units; hard to retrofit existing ones.	<p>C3. Replace with low/zero emission alternatives.</p> <ul style="list-style-type: none"> All-electric-powered refrigeration (for TRUs when stationary). <p>Cryogenic refrigeration (uses liquid nitrogen or liquid CO₂ as a cooling agent).</p>	<p>Consider these recommendations for both trucks and rail.</p> <p>All electric refrigeration for transport refrigeration units requires installation of infrastructure.</p> <p>Implementation mechanism could be new building code requirements for newly built and incentives to retrofit.</p>
Construction Equipment		

1 Ranges from easy to hard	<p>C4. Advocate for low- and zero-emission construction equipment (electrified, natural gas).</p> <ul style="list-style-type: none"> • Technology still in infancy—more options expected in 5-10 years. • Local government contracting preferences. 	<p>Need to clarify the meaning of “low emission” as soon as possible.</p> <p>Implementation mechanism could be through CEQA to encourage mitigation.</p> <p>Evaluate other agency policies and compile best management practices for cities to consider (GCCOG).</p> <p>Analyze specific local government contracting preferences/practices and promote them to cities for implementation.</p>
On-Road Vehicles (cars and trucks)		
1 Easy	<p>C5. Advocate for zero and near-zero emission vehicles.</p> <ul style="list-style-type: none"> • Support electric vehicle infrastructure deployment—both residential and public charging. <p>Cities lead by example.</p>	<p>Create incentives to support installation of electric vehicle infrastructure such as putting in local charging stations for both residential and commercial.</p> <p>Implementation mechanism could be to change the building codes/standards to include vehicle charging stations.</p> <p>Cities should lead by example and implement electric vehicles in their own fleets.</p> <p>Explore partnerships with So Cal Edison.</p>
Area Sources		
2 Moderate	<p>C6. Reduce NOx from residential water heaters and space heaters.</p> <ul style="list-style-type: none"> • AQMD rules currently set limits on NOx emissions for new heaters sold. <p>Further reductions may be possible using advanced low-NOx burners.</p>	
2 Moderate	<p>C7. Reduce NOx from commercial heaters.</p> <ul style="list-style-type: none"> • AQMD rules currently set limits on NOx emissions for new equipment sold. <p>Further reductions may be possible using advanced low-NOx burners.</p>	
Additional Measures from Participants		
Did not rate	<p>C8. Work with utility companies to promote emergency efficient technology.</p>	

*Rankings

1 = Top Priority

2 = Secondary Priority

3 = No new analysis

Attachment E

New Measures to Improve Air Quality—Goal 4: Further Reduce Other Cancer-Causing Pollutants (Non DPM)

In 2035, On-road vehicles (freeway & non-freeway) are 56% of cancer risk, and 92% of point source risk is due to arsenic. An HRA is currently underway to further analyze health impacts.

Priority*	Reduction Measures	Notes
Chromium		
Did not rank	D1. Reduce automobile VMT <ul style="list-style-type: none"> See measure A5. 	Group did not consider this measure because it was the same as A5.
3	D2. Alternative coating materials for spray coating operations. <ul style="list-style-type: none"> Public education to encourage use. Encourage additional research on alternative coating materials. 	City of Southgate has several “mom ‘n pop” coating operations; difficult to implement this measure.
1 For proximity	D3. Encourage alternative materials. <ul style="list-style-type: none"> Trivalent chromium for some applications for chromium electroplating operations or chromic acid anodizing operations. Public education to promote existing technologies. Research to identify additional substitutes. 	<p>The relevance/application of this measure is dependent on proximity of individual coating operations to sensitive receptors.</p> <p>Only effective if point source is close by; ex: recently a high school was built next to a chrome plating operation.</p> <p>Role of GCCOG should be to advocate for inspection and enforcement of facilities near sensitive receptors</p>
1 For proximity	D4. Increase stringency of Rule 1469 for chromium electroplating operations or chromic acid anodizing operations. <ul style="list-style-type: none"> Increase stringency of rule for smaller operators. Examine the feasibility of further controls on large operators. 	Role of GCCOG should be to advocate for inspection and enforcement of facilities near sensitive receptors.

Priority*	Reduction Measures	Notes
Reducing Butadiene & Benzene through VOC reductions—Other Off-road Equipment		
2	<p>D5. Lawn and garden equipment exchange program for the public.</p> <ul style="list-style-type: none"> • Encourage high efficiency and low emissions equipment. • Provide incentives to encourage electric over gasoline equipment (mowers, leaf blowers, etc.) 	<p>This is already being addressed by other regulators; ex: City of Santa Monica has a ban of leaf blowers.</p> <p>Should be left to regulation by local jurisdictions, city ordinances.</p> <p>GCCOG should develop support to cities in the form of information (sample ordinance), but should leave it to the individual cities to decide if they want to adopt it or not.</p>
2	<p>D6. Incentives in government lawn maintenance contracts for clean equipment.</p> <ul style="list-style-type: none"> • Encourage high efficiency and low emissions equipment. • Electrify equipment where possible. 	<p>Similar to above:</p> <p>Should be left to individual cities to decide if they want to move to the electrification of maintenance equipment used by city contractors/city workers.</p>
1	<p>D7. Reduce fugitive emissions by applying leak detection and repair programs to areas currently not covered by existing rules.</p> <ul style="list-style-type: none"> • Includes harbor vessels and oil drilling operations. • Could incorporate a recently developed advanced optical gas imaging technology to detect leaks (Smart LDAR) to more easily identify and repair leaks. • Examine further improving the collection/control efficiency of existing control systems. 	<p>Applicable to non-point sources; e.g., gas station (?).</p> <p>Is already regulated by state and regional agencies.</p> <p>Enforcement needs to be done statewide so as not to reduce the competitiveness of individual businesses; e.g., if a lower price can be found across city/county line where regulations are not in place/enforced.</p>
Reducing Butadiene & Benzene through VOC reductions—Aircraft		
3	<p>D8. Reduce holding times for all jet aircraft.</p> <ul style="list-style-type: none"> • Large aircraft have the greatest emissions levels. • Reducing their wait times reduces on-ground aircraft emissions. 	<p>FAA has jurisdiction here; therefore difficult to regulate at local/regional level.</p> <p>Efforts should focus on removing receptors from the source.</p> <p>GCCOG could recommend to the cities/local jurisdictions removal of receptors using zoning changes, local ordinance tools.</p>

Priority*	Reduction Measures	Notes
3	D9. Re-directing the exhaust from pre-flight run-up tests. <ul style="list-style-type: none"> • Exhaust can be redirected to reduce exposure of neighboring populations. • Effectiveness of this measure is related to site specific features. 	Butadiene is from piston aircraft. Useful as proximity to sources necessitates/dictates.
2	D10. Limiting traffic for “large commuter” (>41,000 lbs) aircraft. <ul style="list-style-type: none"> • The largest aircraft have the greatest emissions levels. • Implementation would likely be difficult. 	FAA has jurisdiction here; therefore difficult to regulate at local/regional level.
2	D11. Increase the width of the blast fence. <ul style="list-style-type: none"> • If airport is near residential areas, limiting exposure can reduce health risks. • Effectiveness is dependent on airport site specific features such as proximity of residential areas and other receptors. 	FAA has jurisdiction here; therefore difficult to regulate at local/regional level. This is an issue because there are a large number of airports in the vicinity of the Gateway Cities.
Reducing Arsenic from Point Sources		
1	D12. Reduce arsenic emissions from glass manufacturing. <ul style="list-style-type: none"> • Develop new AQMD rule for glass manufacturing. • Advocate for stricter national standards for arsenic from glass manufacturing. 	These are point sources, easy to identify, and an easy target. This Measure should evaluate the current AQMD regulations and determine if more can be done; i.e., does the technology exist to manufacture glass with fewer emissions.
1	D13. Require location of sensitive receptors further away from major sources of arsenic emissions. <ul style="list-style-type: none"> • Locate new sensitive sites (schools, hospitals, nursing homes) further away from sources of arsenic emissions. • Sources include: municipal and hazardous waste incineration, metal smelting, glass manufacturing. 	This measure needs to be pursued in reverse. Move the sources of arsenic emissions away from the sensitive receptors.

Priority*	Reduction Measures	Notes
Additional Measures from Participants		
1	D14. Provide/share existing data bases of industrial pollution sources, such as information from SCAQMD, with the cities in which they are located. This could be a role for the Gateway Cities COG.	Cities do not have the resources to know exactly what industries are in their cities; some have been there for a long time. AQMD has a list of the operations that have permits; these lists need to be shared with cities so that cities can “stay on top” of monitoring them.
2	D15. Cities could pool resources to verify and enhance the accuracy of data regarding point source pollutants. This may be a role for the COG.	Cities do not have the resources to do this alone.
2	D16. Advocate for comprehensive standards for all air quality pollutants to encompass those for which there is not current regulation/ standards. Also advocate for testing of new technologies prior to introducing them to the market.	Example given was that NGVs give off formaldehyde from the incomplete combustion of natural gas. This was not considered when natural gas engines were introduced. They may not actually be cleaner. This measure should be researched and explored.
*Rankings		
1 = Top Priority		
2 = Secondary Priority		
3 = No new analysis		