AQAP Technical Roundtable—September 14, 2011 Meeting Summary

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

Time: 1:00 p.m. to 4:00 p.m.

Invited Participants (those in attendance highlighted)

Ruben Arceo, City of La Mirada
Steve Forster, City of La Mirada
Jill Griffiths, City of Long Beach
Wendell Johnson, City of Compton
Dorian Alcantar, City of Compton (Alternate)
Nelson Kerr, City of Long Beach (Alternate)
Steve Lefever, City of South Gate
David McDonald, Los Angeles County Regional Planning
Daniel Ojeda, City of Lynwood
Kevin Maggay, Port of Los Angeles
Lewis Pozzebon, City of Vernon
Evenor Masis, Los Angeles County Public Health
Robert Vasquez, Los Angeles County Public Health
Jon Leonard, TIAX
Susan Nakamura, South Coast Air Quality Management District
Jonathan Nadler, Southern California Association of Governments
LaDonna DiCamillo, Burlington Northern Santa Fe Railway

Alternates
Ian MacMillan, South Coast Air Quality Management District
Alison Linder, Southern California Association of Governments
Kathy Estrada, City of Long Beach
Carl Rosenbaugh, Alternate to Susan Ahn

Webinar
Susan Sturges, U.S. Environmental Protection Agency

Project Team

GCCOG: Jerry Wood, Karen Heit
Metro: Adrian Alvarez, Danielle Valentino, Sarah Jepson
ICF Team: Scott Broten, Arlene Rosenbaum (webinar), Susan DeSantis, Kristen Torres, Maria Yanez-Forgash, Elizabeth Hansburg, Jonathan Heller, Ed Carr, Andrew Papson

Agenda

I. Opening Comments and Introductions

Susan DeSantis, Arellano Associates

Ms. DeSantis welcomed the roundtable members and thanked them for their dedication and participation in this process to improve air quality in the Gateway Cities. She proceeded to lead the self-introductions.

II. Agenda Overview

Susan DeSantis, Arellano Associates

Ms. DeSantis provided an agenda overview. She noted that, in addition to several oral reports and presentations, the meeting was to include an in-depth discussion of the I-710 Health Impact Assessment (HIA) Noise chapter findings and preliminary recommendations. She described the time line for the participation framework, explaining that the I-710 products would be completed by the end of October so that they could be submitted to the I-710 EIR/EIS Team in early November. She noted that the Roundtable will focus its attention to the Health Impact Assessment during the month of October. This introduction was followed by a discussion of possible additional meetings and dates.

III. Oral Reports

A. Construction Phasing and Staging Emissions

Ed Carr, ICF

Mr. Carr began by outlining the key assumptions, the most important being the length of time to build, 17 years, and the breakdown of the construction process into segments. From this, Mr. Carr was able to develop an estimate of monthly emissions for each segment, and a sum total for the life of the project. Mr. Carr described the spreadsheet model used to estimate the construction vehicle emissions, specifically NO_X, based on the equipment used. He also described the PM10 and PM2.5 emissions generated by fugitive dust during the land clearing and grading at the start of construction. His recommendations included ways to reduce NO_X emissions by using newer construction equipment. To reduce PM10 and PM2.5 emissions, he recommended that construction take place in smaller work areas, thus disturbing the land in smaller pieces, and keeping the soil wet using water or surfactants to prevent it from becoming airborne.

Discussion: *Members expressed concern about concrete that may pile up at the work site. They asked if the projections of the PM10 and PM2.5 emissions included fugitive dust from construction debris. Mr. Carr responded that no, the model had not accounted for that. It was assumed that any construction debris would be removed. Susan DeSantis asked if it would have a significant impact on the construction emissions. Mr. Carr responded that, yes, if the concrete was not covered that it would produce a significant amount of dust. Ms. DeSantis suggested that the removal of construction debris could be added as a recommendation.*

In response to a series of member questions, Mr. Carr provided further explanation of surfactants such as calcium chloride that when applied to fine dirt bonds with the soil and

prevents it from becoming airborne when blown by the wind. Studies have shown fugitive dust can be reduced by 50% when watered every 4 hours and up to 74% when watered every 2 hours. He explained that surfactants should be used in areas that would not be disturbed for a longer period of time. For a period of a few days, dirt should be sprayed with water to prevent it from being blown into the air. He added that the amount and frequency of watering should be adjusted for the temperature, time of day, and humidity.

The group also discussed the construction time line. Adrian Alvarez shared that funding would be what ultimately dictates the construction schedule.

B. Noise Chapter of the I-710 Health Impact Assessment.
Jonathan Heller, HIP
There was discussion throughout this presentation.

Mr. Heller began by outlining how sound is measured and the notation used to describe it. He outlined FHWA and Caltrans' noise guidelines and used maps to illustrate the current noise measurements along the I-710 Corridor as measured by Caltrans.

Members asked for clarification on how and where the noise decibels were measured (as shown in the table in slide 8). Mr. Heller explained that these were guidelines from FHWA and Caltrans and that any such measurements would be taken at the evaluation location, such as a residential neighborhood, park, sports complex, library, or other point of interest. He explained that the noise as heard at any one location is a function of the force with which the sound is being produced at the source, the distance from the source to the location, and the physical barriers between the two.

Referring to the Caltrans noise measurements shown on the map on slide 12, members asked if these measurements were taken at peak times. Mr. Heller responded that, no, these were the averages of several 10 minute intervals taken in the middle of the day.

Resuming his presentation, Mr. Heller described the five health conditions that are linked with noise exposure using examples from public health literature: annoyance, sleep disturbance, heart disease, academic achievement, and hearing loss. He paused to answer members' questions on the findings of the Miedema studies (slide 16). He explained that the studies were a meta analysis of 20 to 30 studies in the literature that sought to quantify the findings of the relationship between noise exposure and health risks. Members expressed a desire to view the data as percentages of the population that would experience adverse health effects. Mr. Heller said that about 10% of the population would complain of annoyance and referenced the data in the PowerPoint presentation. Ms. DeSantis added that links to the health studies would be provided if the committee members would like to read further and reminded the group of the upcoming Technical Webinar on October 10 that would provide an opportunity to go into more detail on the HIA Chapters.

Ms. DeSantis called for other questions before Mr. Heller moved on to the Impact Analysis portion of his presentation. The group's discussion continued with questions regarding other sources of noise that would impact neighborhoods adjacent to the I-710. Mr. Heller noted that despite efforts to keep trucks off of residential streets, it still happens. The solution is to separate these uses, but in built out communities, this remains difficult.

In response to member questions regarding the data on current noise estimates, Mr. Heller explained how Caltrans reached these estimates, and in particular how the weighted day-night equivalent was reached. Mr. Heller answered that measurements taken between 10 PM and 7 AM are penalized 10 decibels to reach the 24-hour average. In other words, 10 decibels are added to the measurements between 10 AM and 7 AM when the 24-hour average is calculated. This is done because there is an expectation of quiet at night.

Mr. Heller continued his review of the Noise Impact Analysis. Mr. Heller said that his projections of the change in magnitude of noise emissions for each the building alternatives were hampered by the lack of noise modeling data available from Caltrans. He explained that the I-710 Early Action Report recommended sound walls as a way to reduce exposure to freeway noise, but at this point it is hard to predict because Caltrans has not yet formally made a decision on additional soundwalls. Mr. Heller reported that even if noise was reduced to 67 dBA by the soundwalls, there are still anticipated negative impacts on health. Despite the lack of available data, Mr. Heller was able to generally predict the impact (positive or negative) and severity of the health outcomes and to show the strength of the causal relationships as reflected in the literature.

Members asked why 67 dBA was chosen. Mr. Heller explained that this is the state and federal standard. Members then discussed the 67 dBA standard in relation to other city and county standards in the region. Mr. Heller explained that even when cities or the county has a stricter standard, the state standard applies to the proposed I-710 Freeway improvements. Lastly, he explained that Caltrans' goal is for the soundwalls to reduce noise by 5 decibels, but they have to balance that goal with the need to be cost effective.

Mr. Heller reviewed the Preliminary Recommendations. Mr. Heller recommended further analysis and noise modeling in the I-710 Corridor and using the results to predict changes in health outcomes. His recommendations also included land use planning and design mitigation techniques.

The group broke for 5 minutes. Upon return, they moved into the Roundtable Discussion.

IV. Roundtable Discussion on the Health Impact Assessment (HIA) Noise Effects

Ms. DeSantis drew the Roundtable's attention to the Noise Thermometer (slide 3), and focused the discussion initially on "What does noise mean to me?" Members felt that it was hard to understand the thermometer because the scale was logarithmic e.g. movement up the chart increased by powers of 10. Mr. Heller explained that the noise level depends upon the power emanating from the source of the noise, so a logarithmic scale is used to make the data easier to

interpret. Responding to member questions, Mr. Heller explained that there is a direct effect by the meteorology, specifically inversion layers, humidity, air quality, and physical barriers between the noise source and point of hearing.

Ms. DeSantis referred the Roundtable to the Caltrans and federal noise guidelines (slide 8). Members discussed the guidelines, and reviewed noise levels in their respective communities. TWG members reported that L.A. County has more sensitive noise level guidelines at 45 to 50 dBA for residential areas, 55 to 60 dBA in commercial areas, and 70 dBA in industrial areas. They also explained that if an area has a higher ambient noise than the exterior noise standard, then the ambient becomes the noise standard. Vehicle noise is exempt from the County noise ordinance.

The group proposed the idea of planting trees as a way to reduce noise. Other TWG members confirmed that, while this was a good recommendation, individual or small groups of trees do not significantly reduce noise exposure. Trees must be dense and clustered together to have a noise dampening effect. Nevertheless, this recommendation was included as one of the recommendations to improve air quality in the HIA.

Ms. DeSantis moved the group on to the next Roundtable discussion question on Existing Conditions, “Is the information contained in this map (slide 12) an accurate reflection of the existing conditions in your communities?” The group agreed that because urban areas have so many sources of noise that it is difficult to separate the I-710 noise from other commercial and vehicle activities. Mr. Heller confirmed that the measurements reflected on the map are general noise and do not separate out the noise effects from I-710. He further elaborated that the measurements were taken in 10 minute intervals of a 24-hour period at each point on the map, as is the standard practice. He also shared that new noise measurements and analysis are forthcoming from Caltrans in October.

Ms. DeSantis moved the group on to the discussion of the recommendations in the Noise chapter of the HIA (slide 26), asking for observations or additional recommendations for the Noise chapter. Members asked if the full utilization of Alameda Corridor should be included in the recommendations. Mr. Alvarez confirmed that the Caltrans noise model assumes that by 2035, Alameda Corridor will be used at 100% capacity. He reported that the I-710 traffic assumptions are that there are no SCIG & ICFT expansions at the ports and that the Hobart and rail yards to the east would be fully utilized by 2035.

Some members inquired about the use of the phrase “clean rail” as one of the recommendations, if this was an alternative to diesel powered locomotives, and if this technology is available today. Mr. Heller said that he anticipated that in 2035 such new rail technology would be available. He explained that the phrase was used to discourage simply transferring the impact of goods movement from noise to air quality. Because this technology is not currently available, there was consensus among the members to delete the word “clean” from the phrase and replace it with “state-of-the-art.”

At the conclusion of this discussion, Mr. Heller summarized the changes that would be made to the noise chapter of the HIA, and Ms. DeSantis requested any further comments or recommendations be submitted in writing and that they would be taken under advisement by the team. She also reminded the technical roundtable members of upcoming meetings and webinars where the recommendations could be further discussed.

V. Presentations

A. Near-Roadway Monitored to Modeling Final Comparison Report Findings

Ed Carr, ICF

Mr. Carr began by reviewing the purpose of this portion of the study, which is to compare the modeling used in the I-710 EIR/ EIS with observed air quality data. He explained which observed data set was used and the necessary adjustments made to the EIR/EIS model to enable the comparison. Mr. Carr explained how the statistical analysis generated scatter plots for NO_X and CO separately and Q-Q plots of both emission types in winter and summer seasons. The results of the analysis showed poor correlation, as is typical with these kinds of studies. The poor correlation most likely stems from the uncertainty of traffic volumes, specifically trucks. This uncertainty was remedied to some degree by a later comparison Mr. Carr ran of new weight-in-motion data and the EIR/EIS modeling. Mr. Carr explained that knowing the hourly truck volumes contained in weight-in-motion data made a big improvement in the model's correlation measure.

Discussion: *At the conclusion of this presentation, the group discussed the final product that will be submitted to the I-710 EIR/EIS in the form of a PowerPoint presentation. Ms. DeSantis explained that the full detailed reports would not be available until February 2012, to which some members expressed dismay. Mr. Alvarez responded by saying that the four technical tasks that will be submitted to Caltrans go above and beyond what is already included in the I-710 EIR/EIS.*

B. Ultrafine Particles Near Roadways

Ed Carr, ICF

This presentation was given as an introduction to familiarize Committee members with the properties of ultrafine particles found near roadways. It was not a study of the health impacts of ultrafine particles near the I-710 freeway. Mr. Carr reviewed the characteristics of ultrafine particles and processes that create them. He explained that vehicle exhaust pipes are the main source of ultrafine particles in an urban environment. In addition, heavy-duty diesel trucks emit significantly higher levels of emissions than light-duty trucks over the same distance. However, as the distance from the roadway increases, the level of ultrafine particles falls rapidly, reaching background levels within 200 to 300 meters in a downwind urban environment. Lastly, he reviewed ultrafine data specific to the L.A. region and proposed regulations and questions for further study.

Discussion: *At the conclusion, the members asked for more detail on the recommendation for local governments to restrict their transportation fleet. Mr. Carr explained that the regulation could be in two parts. First, local agencies could restrict where and how much "dirty vehicles"*

can travel. While this is not a current power of local governments, it could be explored for the future. Second, municipalities and other agencies could adopt low-emission vehicle standards for their own fleets.

VII. Public Comments

There were no public comments.

VIII. Wrap up and Next Steps

Ms. DeSantis briefed group on upcoming dates and the project's time line.

IX. Adjournment

The meeting adjourned at 4 PM.

Supplement on Characteristics of Surfactants Used to Control Dust Emissions

Suppressant Class	Suppressant Type	Products	Approach	Effectiveness	Residual Effects/ Contamination Issues	Application Frequency	Application Rate	Cost	Other Notes
Water	Water	Fresh, reclaimed, seawater	wet soil to bind surface particles	40-85% short term, no long-term	little to none. Some concern over reclaimed water use.	As needed.	As needed.	Varies with climate.	common for construction sites; typically cheapest in short term
Chemical Compound	Salts and Brines	CaCl2, MgCl2	hygroscopicity extracts water from air to bind surf particles	more effective than water if sufficient humidity. Reasonable values ~55-95% effective against fugitive dust. Duration of effectiveness <~ 3 months. Can also act as de-icing agent.	easily transported from surface to environment. Cl poisoning to flora/fauna, esp fish.	1-2 x/year	0.2-0.5 gal soln/yd2; CC typical = 0.5 gal/yd2 @ 20-40% soln by mass	~$60-280 / dry ton; $300-2000 / acre	most common dust suppressant in use. Note that Clarke Co, NV only allows MgCl2 use, only for periods < 1yr, and requires periodic watering and reapplication during that year.
Chemical Compound	Petroleum-based organics	Asphalt emulsions, cutback solvents, dust oils, modified asphalt emulsions, tars	physically agglomerate surface particles	~50-98%. good lifetime (~1yr) since do not evaporate or wash away readily.	risk of leaching of oils by rain, contamination by industrial byproducts, toxic&heavy metal contamination.	1 x/year	0.2-1.5 gal/yd2; CC typical = 0.5 gal/yd2 @ 1:4 dilution	~$800-5000 / acre	most toxic of all chemical suppressants.
Chemical Compound	Non-petroleum based organics	Vegetable oils, molasses, animal fats, ligninsulfonate, pine-oil emulsions	bind surface particles, high elasticity allows long duration, increased tensile strength of soil	~63-99% effective in short term. Subject to wash away due to moderate solubility.	solubility allows transport into hydro cycle. lign related to fish kills in high conc. but no relation to seed germination.	0.5-2 x/year; more if heavy rain	0.2-1.5 gal/yd2; 50% residual diluted 1:4, applied 5.1 gal/yd2; ligninosulfonate 1-2 dry lbs/yd2; CC typical = 0.5-1 gal/yd2 @ 1:1 dilution for lignins, 1 gal/yd2 @ 1:5 dilution for others	ligninsulfonate ~ $40 / dry ton; ~$300-800 / acre	may also reduce fungi and endotoxins. Ligninosulfonate found to be toxic to some animals. Suggested as most environmentally friendly suppressant. Clarke Co, NV only allows for traffic-area use.

Suppressant Class	Suppressant Type	Products	Approach	Effectiveness	Residual Effects/ Contamination Issues	Application Frequency	Application Rate	Cost	Other Notes
Chemical Compound	Synthetic polymers	Polyvinyl acetate, vinyl acrylic	bind surface particles in vinyl polymer structure	Expected high (no data); tends to break down from long-term moisture or freezing		every 2 years	0.5 gal/yd, diluted 1:9 with water; 0.01 gal/yd @ 1:20 (polybind acrylic), CC typical = 0.5 gal/yd2 @ 1:9 dilution	$700-6500 / acre (depends on type)	typically designed solely for suppression, and makeup is guarded as industrial secret. Little info.
Chemical Compound	Electrochemical products	Enzymes, highly ionic products (eg, NH4Cl), sulfonated oils	expell adsorbed water from soil, leading to increased compaction.	dependant upon soil mineralogy - only effective when specific minerals present.	sulfonated oil species have similar toxicity as other petrol-organics, long-term inability to establish vegetation after exposure.			$1200-4000 / acre	Depends on soil minerology.
Chemical Compound	Clay additives	Bentonite, montmorillonite (SiO4 & Al(OH)6)	agglomerates fine particles and increases soil tensile strength	only effective in warm, dry climates		every 5 years	1-3% by dry wt.		Only effective in dry climates.
Physical Cover	Mulch and fiber mixtures	Paper mulch with gypsum binder, wood fiber mulch mixed with brome seed, scrap paper with plaster of paris and water	form protective crust over soil rather than modify soil directly					$850-13500 / acre	do not hold up well for traffic use. Used mainly for wind erosion

Source: UNLV Times Beach, Dust Pallative Use in Clarke Co

Generally, petroleum-based compounds are the most toxic, followed by acrylic polymers, ligninosolfonates, and MgCl2. All suppressants increase runoff from the surface relative to untreated surfaces.

Least expensive is MgCl2, then ligninosolfonate, then petroleum resin and paper mulch w/ gypsum binder. Specific costs depend on brand names.

Typical application rate		
	low	**high**
Unpaved Roads		
liquid application rate	2.26 l/m2	4.53 l/m2
solid concentration	0.05 kg/l	0.12 kg/l
solids application rate	0.11 kg/m2	0.54 kg/m2
Vacant Lands		
liquid application rate	2.26 l/m2	4.52 l/m2
solid concentration	0.05 kg/l	0.12 kg/l
solids application rate	0.11 kg/m2	0.54 kg/m2
Source: UNLV Times Beach, T2-2		