

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT



Appendix I

Responses to Comments from Advisory Council Meeting

2016 AIR QUALITY MANAGEMENT PLAN



March 2017



Minutes for the 2016 AQMD Advisory Council Meeting Thursday, August 18, 2016

1. Welcome, Self-Introductions and Opening Comments

Dr. Philip Fine, Deputy Executive Officer of SCAQMD's Planning, Rule Development & Area Sources Division, called the meeting to order at 10:05 a.m. and asked for self-introductions of the AQMD Advisory Council members and SCAQMD staff attending the meeting in person. On the conference line was Advisory Council member Dr. Judy Chow, as well as staff from the California Air Resources Board (CARB) and California Office of Environmental Health Hazard Assessment (OEHHA). CARB and OEHHA joined the meeting as co-developers of the 2016 AQMP, Appendix I. Two Advisory Council members, Dr. Greg Osterman and Dr. John Froines, joined the meeting as listen-only participants.

Dr. Fine explained that the purpose of the meeting was to provide an in-person peer review forum to discuss Advisory Council comments on the Appendix I of the draft 2016 Air Quality Management Plan (AQMP or Plan). The Health and Safety Code 40471(b) requires SCAQMD to prepare a report on the health impacts of particulate matter air pollution in the South Coast Air Basin (SCAB). The state law requires this report to be prepared by SCAQMD in conjunction with a public health organization or agency, such as CARB and/or OEHHA. SCAQMD will respond to the comments received and a Public Hearing will be held at a later time. The Appendix I Public Hearing will be held in conjunction with the Public Hearing for the 2016 AQMP.

While the Health and Safety Code requires a report on the health impacts of particulate matter, the SCAQMD has included the health impacts of some other key pollutants found in the South Coast Air Basin.

2. Draft 2016 AQMP, Appendix I

Dr. Jo Kay Ghosh, Health Effects Officer in SCAQMD's Planning, Rule Development & Area Sources Division, explained the purpose and contents of Appendix I. She expressed the importance to include the health effects of ozone, in addition to particulate matter, since the SCAB is in extreme non-attainment for ozone. Other pollutants are included too, but in a brief, high-level summary format. It was explained that Appendix I is intended to be a summary of U.S. EPA reviews and reports which link air pollution to health effects, and to highlight recent key studies, with an emphasis on studies that have been conducted in the SCAB or California.

To date, the SCAQMD has received four written comments from two of the Advisory Council members, as well as seven written public comments.

INTRODUCTION & HEALTH EFFECTS OF AIR POLLUTION

Comments/Questions from AQMD Advisory Council and Staff Response

- One Advisory Council member commented there appeared to be wordsmithing from the 2012 AQMP document, with substantial uncertainty.
- Another Advisory Council member indicated that the intent or purpose was not laid out clearly. For it to be a useful public document, it would be useful to explain the proposed format and criteria of what is discussed.
- An Advisory Council member wanted to know how the Appendix I research reviews were selected, since there are many documents available. Staff explained that U.S. EPA goes through an extensive lengthy process to assess whether a pollutant has a causal, likely causal, etc. relationship with a health outcome.
- One Advisory Council member suggested more numeric, statistical correlation be presented, for example, to present information from some of the larger studies, especially for those who might not be familiar with statistics.
- The same Advisory Council member inquired about autism studies and whether these studies were factored into the write-up, especially the near-freeway impacts. Staff commented that we do attempt to discuss the many impacts of air pollution and we can be clearer on this point about near-freeway impacts.
- Another Advisory Council member reflected about what was presented at the 2012 Advisory Council meeting and what was anticipated from the current meeting. The Advisory Council member referenced a comment letter dated September 25, 2012, from Dr. Jonathan Samet, which referenced several points that are still relevant to the current Appendix I. Concern was expressed about SCAQMD's ability to prepare a comprehensive and up-to-date health effects review, specifically in the areas of scope, basis of review, consideration of the methodology, minimization of health impacts and desired definitive conclusion. Staff commented that SCAQMD does look at the comments received and includes the information that we are required to include to make this Plan useful to the public and stakeholders.
- An Advisory Council member inquired about PM_{2.5} and the relation to where the SCAB stands in compliance to the national standards. This information is not indicated in Appendix I. Staff commented that this information is included in Chapter 2 and Appendix 2 of the draft 2016 AQMP, we could include a reference to those sections in Appendix I.
- The same Advisory Council member commented regarding the socioeconomic impact in the Inland Empire, which has high poverty rates. This Advisory Council member commented that one of the impacts of this plan would be to force more people into poverty by cutting off job growth that would otherwise allow them to get out of poverty. Staff commented that this is a topic for the Socioeconomic Report, not Appendix I.

- One Advisory Council member recommended a sentence or summary comparison between the California and national air pollution standards, since they are different.
- Another Advisory Council member inquired about the context of the Health and Safety Code 40471(b) reference in the introduction and whether there are any requirements for other pollutants. Staff commented that particulate matter is a significant portion of the health risk and was specified in the Health & Safety Code because it was felt that the public should be made aware of the health risks of PM.
- An Advisory Council member referenced page I-17, and noted that it mentions that there is currently no federal or California standard for PM_{2.5-10}. Staff commented that when U.S. EPA initially identified PM_{2.5} as being a separate problem beyond PM₁₀, there was discussion to set separate standard for PM_{2.5} and PM_{2.5-10}. Eventually it was decided not to adopt a separate standard for PM_{2.5-10}.
- For consistency, one Advisory Council member suggested that the introduction could lay out thresholds from pollutant to pollutant, as to what matters and what this agency is going to provide in the report.

OZONE

Comments/Questions from AQMD Advisory Council and Staff Response

- An Advisory Council member requested clarification in Figure I-1 to what the line in the figure represented. Staff commented it is a summarization from the McDonnell 2007 paper, and a reference can be noted for clarity.
- One Advisory Council member noted on page I-4, in Table I-1, under weight of evidence there is a mention of limited or no human data available and noted this is iffy causality. Staff commented that definitions in the table are taken directly from U.S. EPA summaries as these are the definitions used in their causal determinations.
- The same Advisory Council member inquired if SCAQMD as a regulator is required, during the development of a plan or rule, to establish thresholds for inconclusive or suggestive data. Staff explained that as regulators we are required to adhere to the federal and state standards. When a regulatory program is formulated, it is designed to meet the federal and/or state standards. We can comment and weigh-in on the determination process, but once it becomes federal or state law we are obligated to meet the standards.
- Another Advisory Council member made the suggestion to not break up tables from page to page, this would make them easier to follow.
- An Advisory Council member suggested instead of using likely causal relationship, indicate significant enough to have caused impact on human health. Staff explained that these are the terms that U.S. EPA uses and defines, and we should use their definitions for consistency.

- The same Advisory Council member suggested including the definition of forced expiratory volume in one second (FEV1). Staff indicated that we could do this.
- An Advisory Council member noted that U.S. EPA is in midst of their review cycle for the new particulate matter (PM) document and perhaps the referenced material can be noted in the introduction. Staff commented that the outcome of this review is still a few years away.
- One Advisory Council member noted that the short-term and long-term exposures are primarily focused on respiratory effects and suggested that this should be noted in the introduction for continuity.
- An Advisory Council member inquired if Appendix I used studies relevant to Southern California. Staff indicated that the studies discussed were conducted in many different geographical areas, but the document highlights studies conducted in California or Southern California. However, studies conducted elsewhere, especially large scale studies, are still relevant to Appendix I.
- Another Advisory Council member noted that it might be helpful and informative to include studies from many geographical locations, especially those that include racial, ethnic or environmental justice areas that might not otherwise be explored, and not just limited to Southern California.
- The same Advisory Council member noted that there are areas throughout the document that reference highs and lows, not just in the ozone section. The Advisory Council member noted that these are squishy descriptors and it is better to be more descriptive and specific.
- An Advisory Council member commented that some of the charts are difficult to follow because they are created in color and printed in black and white. A suggestion was made to change color to shapes throughout the document.
- One Advisory Council member noted that it is important to have a section for sensitive populations for ozone-related health effects. People want to know who is sensitive, why might others be more sensitive and the potential factors contributing to sensitivity. The same Advisory Council member commented that the ozone section needs to be constructed so it is easy to understand and it might be useful to expand the section on sensitive populations, because people will want to know where this data comes from.
- The same Advisory Council member commented that the ozone summary should capture what is the state of knowledge, where we are at, identify the ranges of exposure, what are the outcomes, and how this has moved forward since the 2012 AQMP.
- Another Advisory Council suggested that in the beginning when ozone is introduced, provide a brief description of the sources of ozone in Southern California.

PARTICULATE MATTER

Comments/Questions from AQMD Advisory Council and Staff Response

- An Advisory Council member indicated that this section lists many different things that could be in PM_{2.5} and inquired if research has been done to determine which particulates are of less or of major importance in terms of causing the PM_{2.5} effects. Staff indicated U.S. EPA has dedicated a significant amount of resources researching this, with no clear conclusion.
- The same Advisory Council member indicated in the Inland Empire, where PM is often above the federal standard during Santa Ana wind conditions, what effect does this have on the measurements. Staff indicated that we measure particulate mass and we have sites that measure composition of particulate matter. This is further clarified in Chapter 2 of the draft 2016 AQMP.
- Another Advisory Council member inquired how much the composition varies from sub-region to sub-region. Staff commented it varies greatly, depending on the Western or Eastern Basin. This information can be found in Chapter 2 and Appendix II of the draft 2016 AQMP, but we can add a reference in Appendix I to this data. The same Advisory Council member indicated that this might be helpful to add this information to the sensitive populations for ozone-related health effects section as well, and include a reference to the spatial distribution of ozone impacts.
- One Advisory Council member noted that in listening to the comments there is an interest in what people have control over, versus what is completely out of their control. For example, what PM is coming from businesses versus what is coming out of the mountains. Maybe clarity is needed to distinguish the difference. Staff commented that this information is located in Chapters 2 and 3 of the draft 2016 AQMP.
- An Advisory Council member commented that there is a need to stay focused on what information the Appendix I is required to provide. It could be helpful to expand on the definition of health effects, further address the U.S. EPA requirements, and make it understandable so that it is clear to the average person reading the document.
- Another Advisory Council commented that when initially reading the document they thought it was a medical tool, which outlined the medical impacts. A suggestion would be to include a notation in the introduction that this is a medical or health reference, for information on exposure or other related information, and references can be made to the appropriate chapters.
- An Advisory Council member remarked that it is difficult to separate the health effects from the costs involved. Staff responded that we address the cost issue in other chapters. Appendix I addresses a particular purpose and requirement. The intent is not to argue the other issues of the AQMP in this Appendix.

- One Advisory Council member commented on the importance for the information to be presented accurately. This document should reflect what the current state of knowledge is on health effects from the referenced pollutants. Whether there is 100% certainty or absolute uncertainty, we are obligated to meet the federal standards. One can argue about the cost versus the health benefit, for example the cost of developing an approvable plan to attain the standards, versus the cost of not developing an approvable plan to meet the standards and what would happen to the region.
- Another Advisory Council member remarked that the Appendix I is intended to be a reference, and SCAQMD is trying to describe the state of literature as it exists. This document has attempted to capture the areas where the evidence is not well settled. U.S. EPA's terminology is at times highly cumbersome and not posed for a general audience. The information provided in this appendix is quantified and appropriate studies are referenced. We are trying to put some numbers to what the state of the research is, and we have an obligation to do the best job that we can.
- An Advisory Council member noted that for PM there is much more focus on direct references to specific studies, but the ozone information was more general. Either way of presenting of the information is fine, but a consistent approach would be better.
- The same Advisory Council member commented that in the PM section, page I-15 and in the first paragraph, a mention of toxicity should also be included.
- One Advisory Council member commented about U.S. EPA's ongoing PM review and indicated that the draft IRP is now available and will be finalized and available in Spring 2017. A reference to this could be included. Staff noted this is addressed in Chapter 8 of the draft 2016 AQMP.
- Another Advisory Council member inquired about the possibility of including a brief summary for Tables I-4, I-5 and I-6, to reflect that they show a range of impacts depending on the types of effects.
- Another Advisory Council member requested a definition of metabolic syndrome.

ULTRAFINE PARTICLES

Comments/Questions from AQMD Advisory Council and Staff Response

An Advisory Council member noted that the Integrated Review Plan (IRP) 2013 has information that could be relevant to include, as well as the PM Integrated Science Assessment (ISA) report. Staff commented that the ISA report is cited.

CARBON MONOXIDE

Comments/Questions from AQMD Advisory Council and Staff Response

- An Advisory Council member commented that even though the SCAB is in attainment for carbon monoxide, this pollutant is still relevant and should be included.

NITROGEN DIOXIDE

Comments/Questions from AQMD Advisory Council and Staff Response

- An Advisory Council member stressed the importance of this section because of the relation of nitrogen dioxide involvement in ozone and particulate formation, and suggested the possibility of switching the Carbon Monoxide and Nitrogen Dioxide sections.

SULFUR DIOXIDE

Comments/Questions from AQMD Advisory Council and Staff Response

No comments

LEAD

Comments/Questions from AQMD Advisory Council and Staff Response

- Staff noted that the SCAB is in attainment for lead, based on the measurements, but part of Los Angeles County is technically still in non-attainment until EPA officially recognizes attainment.

TOXIC AIR CONTAMINANTS

Comments/Questions from AQMD Advisory Council and Staff Response

- One Advisory Council member noted that it may be useful to include the MATES IV study. Staff commented that the last two paragraphs discuss the study and other MATES studies.

CONCLUSION

Comments/Questions from AQMD Advisory Council and Staff Response

- An Advisory Council member commented it was difficult to follow the logic of Figures I-15 and I-16, and why is this information included here. Staff explained that the figures reflect how these health studies lead to changes in standards, in a timeline format. Another Advisory Council member requested to have this staff explanation added to these figures.

REFERENCES

Comments/Questions from AQMD Advisory Council and Staff Response

No comments

ATTACHMENT – Publications from Health Related Research Projects Funded or Co-Funded by SCAQMD

Comments/Questions from AQMD Advisory Council and Staff Response

- An Advisory Council member inquired why it was necessary to include this information. Staff commented that this is historical information and to provide information on how these studies were funded and indicated a preface can be included to provide an explanation of how SCAQMD supports health research.

3. Other Business

Dr. Jo Kay Ghosh commented that Advisory Council members would be provided an extra week for written comments, with a new due date of August 26, 2016. An update was provided on how many comments have been received to date.

Dr. Philip Fine informed the council members that the comment period deadline for the draft 2016 AQMP is August 19th and a revised draft will be released in September 2016. There will be time provided for public comment and a draft final will be released in November 2016. The final 2016 AQMP will be presented to the Governing Board in December 2016.

4. Public Comment

Dr. James Enstrom expressed that he is one of approximately 40 scientists nationwide that are concerned about the Clean Air Act, how it has progressed (especially in California) and believes there is abuse that needs to be corrected. He brought a handout which was distributed to the Advisory Council members. The following areas of concern were noted by Dr. Enstrom.

- He expressed that there is abuse of the notion that fine PM causes premature death, and Dr. Shen's presentation on Tuesday was inappropriate in his mind.
- He commented that a clear explanation is needed on how it can be concluded that PM mortality can be translated into a calculation of premature deaths.
- He noted that the 2007 AQMP did not mention his research.
- He remarked the 2012 AQMP did not include his public comments, along with Dr. Jonathan Samet's comments.
- He noted that, since 2010, most of the studies referenced have been partially funded by AQMD and these reports need to be carefully examined.
- He stated that he has submitted for publication a document that undermines the entire Pope 1995 study, which did not use the best available fine PM evidence.
- He commented that California is the second lowest State for death rates. He further clarified that the SCAB has an even lower death rate than the State of California, and the city of Los Angeles is even lower.
- He expressed concern about the \$38 billion price tag for the 2016 AQMP and the related economic impact it will have.
- He referenced a letter from Daniel Nebert (distributed as a handout).

- He disagreed with the linear no threshold assumption, and stated that the effects do not go down to zero.
- He expressed that even if the U.S. EPA states a nationwide effect, there is no effect in California.
- He indicated that there is attainment in many parts of the Basin and this needs to be accounted for.

Bill LaMarr, Advisory Council member, referenced his 2012 letter to Dr. Jean Ospital, where he cites the research by Dr. Enstrom and other researchers and inquired why this research was not included. Staff commented that SCAQMD is obligated to summarize the available scientific evidence and the related health impacts. The U.S. EPA's ISA document is invaluable information, since it already includes research assessments. Staff indicated that they welcome others to point to any peer-reviewed publications, which the SCAQMD staff will assess for relevance to this document.

Dr. John Husing, Advisory Council member, inquired if SCAQMD has ever pushed back against U.S. EPA. Staff commented that this type of action would need to be a decision or position taken by our Governing Board.

5. Next meeting: TBD

Dr. Fine commented that the members would be polled after the revised draft Appendix I is available and it would be determined then if another Advisory Council meeting is necessary. At this point, we have satisfied the requirements of the Health & Safety Code for comments and peer review. The meeting adjourned at 12:30 p.m.

MEMBERS PRESENT (11)

Paul Avila, Paul Avila & Associates
Professor Ed Avol, University of Southern California
Dr. Judy Chow, Desert Research Institute - *conference call*
Curt Coleman, Curt Coleman & Associates
Dr. Afif El-Hasan, Kaiser Permanente
Sue Gornick, Western States Petroleum Association
Dr. John Husing, Economics & Politics, Inc.
Dr. Cameron Kaiser, Riverside County Department of Public Health
William LaMarr, California Small Business Alliance
Mary Ann Lutz, Lutz and Company
Dr. Emily Nelson, Health & Environmental Risk Consultant

MEMBERS PRESENT / Call-In, Listen-Only (2)

Dr. John Froines, University of California, Los Angeles
Dr. Greg Osterman, Jet Propulsion Laboratory

MEMBERS NOT PRESENT (2)

Erbie Phillips, LDG Sports Academy
Dr. Rhodes Rigsby, Loma Linda University

CONFERENCE CALL PARTICIPANTS FROM CARB & OEHHA

Dr. Alvaro Alvarado, CARB
Dr. Rupa Basu, OEHHA
Rachel Broadwin, OEHHA
Dr. Keita Ebisu, OEHHA
Brian Malig, OEHHA
Dharshani Pearson, OEHHA

SCAQMD STAFF (13)

Sam Atwood, Media Manager
Barbara Baird, Chief Deputy Counsel
Teresa Barrera, Senior Deputy District Counsel
Dr. Shah Dabirian, Program Supervisor
Dr. Philip Fine, Deputy Executive Officer
Dr. Jo Kay Ghosh, Health Effects Officer
Priscilla Hamilton, Air Quality Specialist

Michael Krause, Planning and Rules Manager
Dr. Anthony Oliver, Air Quality Specialist
Ann Scagliola, Administrative Secretary
Dr. Elaine Shen, Program Supervisor
Jacob Steins, Governing Board Intern
Dr. Jillian Wong, Planning and Rules Manager

**RESPONSES TO COMMENTS ON APPENDIX I RECEIVED DURING
THE ADVISORY COUNCIL MEETING ON AUGUST 18, 2016**

Response to Advisory Council Comments received during the August 18, 2016 Advisory Council Meeting

Response to Advisory Council Minutes Comment 1

Appendix I is written to provide a summary of the health effects of these air pollutants, using relatively non-technical language. The summary is consistent with the content in the references cited in Appendix I. It is important to note that the U.S. EPA uses a weight of evidence approach in their causal assessments, and only when the weight of evidence is sufficient do they conclude that a pollutant is causally related to a health outcome.

Response to Advisory Council Minutes Comment 2

The Introduction and Health Effects of Air Pollution sections have been expanded to clarify the purpose of the document.

Response to Advisory Council Minutes Comment 3

Appendix I summaries are primarily based on the most recent available U.S. EPA Integrated Science Assessment (ISA) on that pollutant. Because some of these ISAs are several years old, a supplemental literature search was conducted to identify more recently published scientific papers, and those papers provided additional information for Appendix I. Text has been added to Appendix I to clarify how these sources were selected.

Response to Advisory Council Minutes Comment 4

Numerical information is presented in the document, for example, when describing the percent increase or decrease in risk of a certain health outcome, or other health metric. The text in Appendix I has been clarified to include more numerical definitions where possible, and to add descriptions about the figures, which provide a visual representation of the studies' numerical results.

Response to Advisory Council Minutes Comment 5

Text has been added to clarify that NO₂ studies could be a study of near-road impacts on health outcomes.

Response to Advisory Council Minutes Comment 6

Appendix I already describes the legal requirement for SCAQMD to provide this summary document. To clarify, the SCAQMD staff are not conducting scientific reviews to ascertain whether a pollutant causes or does not cause any health effects. Instead, Appendix I document is a summary of the U.S. EPA's causal determinations, and presents a summary of some of the studies reviewed by U.S. EPA in their assessments, as well as some more recent literature. In addition, Appendix I has changed substantially since the 2012 Appendix I; one of the changes is the expanded description of the methodology used to put together this summary.

Response to Advisory Council Minutes Comment 7

Text has been added to Appendix I to note that this information can be found in Chapter 2 and Appendix II.

Response to Advisory Council Minutes Comment 8

These topics are addressed in the Socioeconomic Report.

Response to Advisory Council Minutes Comment 9

A sentence has been added comparing the current California and federal PM2.5 standards.

Response to Advisory Council Minutes Comment 10

As discussed in the Advisory Council meeting, particulate matter is a significant portion of the health risk and was specified in the Health & Safety Code because it was felt that the public should be made aware of the health risks of PM.

Response to Advisory Council Minutes Comment 11

As discussed in the Advisory Council meeting, when U.S. EPA initially identified PM2.5 as being a separate problem beyond PM10, there was discussion to set separate standards for PM2.5 and PM2.5-10. Eventually it was decided not to adopt a separate standard for PM2.5-10. The PM standards are described briefly in Appendix I.

Response to Advisory Council Minutes Comment 12

Text has been added to the Health Effects of Air Pollution section clarifying that the focus will be on health endpoints that are high on the causal determination scale, while other health effects may be mentioned briefly.

Response to Advisory Council Minutes Comment 13

A sentence has been added in the caption to Figure I-1 to clarify this point.

Response to Advisory Council Minutes Comment 14

The definitions in this table are taken directly from the U.S. EPA summaries, as these are the definitions used in their causal determinations.

Response to Advisory Council Minutes Comment 15

The SCAQMD is required to adhere to the federal and state standards. When a regulatory program is formulated, it is designed to meet the federal and/or state standards. Staff can comment and weigh-in

on the determination process, but once it becomes federal or state regulation, we are obligated to meet the standards.

Response to Advisory Council Minutes Comment 16

All tables were formatted so that they are not split across pages.

Response to Advisory Council Minutes Comment 17

For consistency, Appendix I uses the U.S. EPA terminology for the causal determinations.

Response to Advisory Council Minutes Comment 18

Text has been added to clarify that FEV1 is defined as the forced expiratory volume in 1 second, which is a measure of lung function.

Response to Advisory Council Minutes Comment 19

The most recent U.S. EPA Integrated Science Assessment for Particulate Matter was conducted in 2009. While a new U.S. EPA review is underway, the final document from this review will likely not be available for several years, so Appendix I utilizes the 2009 review as the most recent review, and supplements this information with the results of a literature search used to identify more recently published studies.

Response to Advisory Council Minutes Comment 20

Text has been added to the introduction of the Ozone section to specify that short-term and long-term ozone exposures are linked to respiratory effects. Text has also been added to the beginning of the Short-Term Ozone Effects and Long-Term Ozone Effects sections to indicate that respiratory effects are high on the causal determination scale.

Response to Advisory Council Minutes Comment 21

Text has been added to the Health Effects of Air Pollution section clarifying that we are discussing the Southern California and California studies, as well as some key studies conducted in other locations.

Response to Advisory Council Minutes Comment 22

Text has been added to the Health Effects of Air Pollution section to indicate that studies conducted in other locations still provide critical information that is pertinent to advancing the scientific understanding of the health effects of air pollution, including effects on our local population.

Response to Advisory Council Minutes Comment 23

Text has been added to Appendix I to quantify these terms as appropriate.

Response to Advisory Council Minutes Comment 24

These figures are derived directly from the EPA documents and the staff is not able to alter the figures easily.

Response to Advisory Council Minutes Comment 25

The section has been edited to reflect the evidence as presented in the 2013 ISA for Ozone, and a table was added to further detail the factors and the evidence classifications in the ISA document.

Response to Advisory Council Minutes Comment 26

A summary of the updates in causal determinations for respiratory effects, cardiovascular effects, and mortality was added to the summary section. In addition, more detail about the specific types of respiratory and cardiovascular endpoints studied were added to this section.

Response to Advisory Council Minutes Comment 27

AQMP Chapter 3 discusses the emissions inventories and the relative contributions by source category for each criteria pollutant. A brief explanation has been added in Appendix I referring the reader to Chapter 3 of the draft 2016 AQMP for information on ozone precursor sources.

Response to Advisory Council Minutes Comment 28

The document already mentions some of the studies examining specific PM constituents and sources in the Short-Term PM Health Effects section, and text has been added in the Long-Term PM Health Effects section to briefly describe the findings in the most recent ISA for PM. Since the question of constituent-specific toxicity has been a focus of U.S. EPA's efforts in recent years, the ISA for PM that is currently in development will likely include a summary of the studies conducted recently addressing this question.

Response to Advisory Council Minutes Comment 29

The SCAQMD operates monitors that measure particle mass, and some monitors that measure composition of PM. This is further clarified in Chapter 2 of the draft 2016 AQMP.

Response to Advisory Council Minutes Comment 30

Text has been added to the PM section to state that the composition can vary across sub-regions, and refers the reader to Chapter 2 and Appendix II of the draft 2016 AQMP for additional information about the spatial differences in PM composition. Text has also been added to the Ozone section to refer the reader to the draft 2016 AQMP Chapter 2 for a description of the spatial distribution of ozone in the SCAB.

Response to Advisory Council Minutes Comment 31

This information is provided in the Chapters 2 and 3 of the draft 2016 AQMP.

Response to Advisory Council Minutes Comment 32

Text has been added to the Introduction and Health Effects of Air Pollution sections to further describe the purpose of Appendix I and the approach in summarizing the health effects.

Response to Advisory Council Minutes Comment 33

Text has been added to Appendix I to clarify the purpose of this document, and also to refer the reader to other chapters or appendices of the draft AQMP document regarding other aspects of air pollution exposure or distribution that are best described in those sections

Response to Advisory Council Minutes Comment 34

Appendix I document is a summary of the health effects of air pollution; it is not the purpose of this Appendix to discuss costs. The Socioeconomic Report provides an evaluation of the costs and benefits associated with the Plan.

Response to Advisory Council Minutes Comment 35

The document is written to accurately reflect the current state of knowledge of the health effects of these pollutants.

Response to Advisory Council Minutes Comment 36

The staff agree that Appendix I is a summary of the state of the literature as it exists, and the causal determinations as assessed by U.S. EPA.

Response to Advisory Council Minutes Comment 37

More specific references and discussion of individual studies were added to the Ozone section, to make it more consistent with the PM section. The staff believe the discussion of the key studies in the PM section is quite relevant, since these studies are frequently referenced, and provided important evidence in the causal determination for PM health effects.

Response to Advisory Council Minutes Comment 38

The sentence has been modified accordingly.

Response to Advisory Council Minutes Comment 39

Text has been added to note that U.S. EPA is preparing an ISA as part of the review of the federal PM standards, and that the process is described briefly in Chapter 9 of the draft 2016 AQMP.

Response to Advisory Council Minutes Comment 40

Text has been added to summarize what these figures show.

Response to Advisory Council Minutes Comment 41

A definition has been added to the text.

Response to Advisory Council Minutes Comment 42

Text has been added to note that U.S. EPA is preparing an ISA as part of the review of the federal PM standards, and that the process is described briefly in Chapter 9 of the draft 2016 AQMP.

Response to Advisory Council Minutes Comment 43

The staff have noted the comment and continue to include the summary of health effects of carbon monoxide in Appendix I.

Response to Advisory Council Minutes Comment 44

The sections have been reordered accordingly.

Response to Advisory Council Minutes Comment 45

Text has been added to refer the reader to the draft 2016 AQMP Chapter 2 for a description of the attainment status for lead.

Response to Advisory Council Minutes Comment 46

Appendix I already describes the MATES IV main study results in the Toxics section.

Response to Advisory Council Minutes Comment 47

Text has been added to this section to describe that the role of health studies in the process of setting federal air quality standards, and to refer the reader to Chapter 8 of the draft 2016 AQMP for a description of the NAAQS process

Response to Advisory Council Minutes Comment 48

A preface has been added to the attachment.

Response to Public Comment received during the August 18, 2016 Advisory Council Meeting

Response to Public Comment 1

See Response to Comment Letter #1