

AGENDA  
AIR QUALITY ADVISORY COMMITTEE\*  
**TUESDAY October 28, 2014**  
10:00 a.m. - 12:00 noon  
East-West Gateway Board Room

- I. Call to Order**
  - Michael Coulson, Chair, East-West Gateway Council of Governments
  - A. Minutes of September 16, 2014 Meeting
  
- II. Alternative Fuels for Air Quality Implementation and Planning**
  - ICF International
  
- III. Greenhouse Gas Inventory Project**
  - John Posey, Ph.D., East-West Gateway Council of Governments
  
- IV. 2014 Ozone Season**
  - Michael Coulson, East-West Gateway Council of Governments
  
- V. American Fuel Group Report**
  - St. Louis Regional Clean Cities Program
  
- VI. Update Activities of the States**
  - Illinois Environmental Protection Agency
  - Missouri Department of Natural Resources
  
- VII. Other Business - Next Meeting Date January 27, 2015**
  
- VIII. Adjournment**

\*Please note that this meeting will serve as a part of the Inter-Agency Consultation Process as detailed in the Missouri Transportation Conformity SIP.

MINUTES  
AIR QUALITY ADVISORY COMMITTEE  
Tuesday, September 16, 2014  
East-West Gateway Board Room

Members Present:

Michael Coulson, Chair, East-West Gateway Council of Governments  
Michael Zlatic - St. Louis County Health Department  
Joe Winkelmann - Missouri Department of Natural Resources  
Jack Fishman - St. Louis University  
Mike Henderson, Missouri Department of Transportation  
Betsy Tracy - Federal Highway Administration IL  
David Bloomberg - Illinois Environmental Protection Agency  
Chris Schmidt - Illinois Department of Transportation  
Susannah Fuchs - American Lung Association (telephone)

Others Present:

Emily Andrews - USGBC-Missouri Gateway Chapter  
Lenora Fisher - Citizens for Modern Transit  
Joe Gray - Illinois Department of Transportation, District 8  
Amy Funk - Metro East Community Air Project  
Kevin Herdler - St. Louis Regional Clean Cities Program  
Curtis Jones - Illinois Department of Transportation  
David Shanks - Boeing  
Kevin Jemison - Illinois Department of Transportation, District 8  
Rafael Gonzalez - Madison County Transit/RideFinders (telephone)  
Amy Bhesania - U.S. Environmental Protection Agency Region 7 (telephone)

Staff:

Jim Wild                      Mary Grace Lewandowski      John Posey      David Wilson  
Carol Lawrence              Gary Pondrom

- I.      Call to Order  
        - Michael Coulson, Chair, East-West Gateway Council of Governments

The meeting of the Air Quality Advisory Committee (AQAC) was called to order by Chair Michael Coulson, East-West Gateway Council of Governments (EWG). The minutes of the July 29, 2014 AQAC meeting were approved as circulated. Mr. Coulson, EWG, introduced the new director of the Community Planning Department, Mary Grace Lewandowski. She was a Manager in EWG's Corridor and Long Range Transportation Planning section and previously worked on Transportation Improvement Program (TIP) and Conformity Determination at the Metropolitan Planning Organization in Birmingham Alabama.

II. St. Louis Green Building Council Activities and Programs  
- Emily Andrews, USGBC- Missouri Gateway Chapter

The vision of the U.S. Green Building Council (USGBC)-Missouri Gateway Chapter is to create and restore buildings and communities that will regenerate and sustain the health and vitality of a community. Many people think of the Green Building Council (GBC) as a trade association but this group exists to serve a mission and not necessarily our members. This mission is to initiate, develop and accelerate implementation of green building concepts, technologies and principles that promote environmentally responsible, prosperous and healthy places to live and work. The Missouri Gateway Chapter has over 500 members.

One strategic activity of the Missouri Gateway Chapter is Green Building Leaders of the Future. Last year the Chapter launched the Green School Quest in which volunteer “Green” mentors were paired up with K-12 schools to implement low or no cost sustainability projects. During the 2013-2014 school year, 24 schools submitted projects and approximately 2,000 students, parents, teachers and community members were involved. Projects ranged from water and energy use audits to installation of rain barrels to initiating an anti-idling campaign. In the Green Shadow Program, a college student is paired with a professional in the field for one day. The Chapter also works with official USGBC student groups at Maryville University, Lewis and Clark Community College, Southeast Missouri State University and University of Missouri. The Chapter is working with students at Drury College, Southwestern Illinois College, Washington University and Missouri University of Science and Technology. The Chapter also offers Leadership in Energy and Environmental Design (LEED) rating system exam preparation courses and assistance to individuals to maintain their LEED credentials.

The Missouri Gateway Chapter is involved in a number of community projects and outreach and advocacy efforts. In the Regional Environmental Internship program, interns are provided to municipalities to do greenhouse gas inventories and prepare climate action plans. For six months, 30 volunteers from the Chapter teamed up with Forest Park Forever to evaluate operation and maintenance activities at the Forest Park Visitor’s Center and to implement LEED practices. In 2012 the Missouri Gateway Chapter and the St. Louis Regional Chamber launched a High Performance Building Initiative to increase the “greening” of existing buildings. Out of the High Performance Building Initiative came the 25% by 20 Energy Benchmarking campaign. The 25% by 20 title comes from a goal in the City of St. Louis’ sustainability plan to reduce energy use by 25 percent by 2020. There are a number of mandatory energy benchmarking campaigns underway in cities like New York, Chicago, Minneapolis and Philadelphia where buildings over 50,000 square feet are required to regularly benchmark their energy use. The Missouri Gateway Chapter also works with advocacy groups, non-profits, congregations and local governments. The Chapter partnered with the Missouri chapter of Interfaith Power and Light to provide energy audits to local congregations.

Some of the actions covered by the LEED rating system are building design and construction (school, homes, retail, government), operation and maintenance of existing buildings, interiors and neighborhood development. This summer LEED Version 4 (v4) was passed by the USGBC membership and is now available to be used. LEED v4 raises the bar and has much stricter energy performance requirements and a stronger focus on climate change and human health. The aim is to build better buildings for all people.

Mr. Winkelmann, Missouri Department of Natural Resources (MoDNR), said that the Lewis and Clark State Office Building in Jefferson City, MoDNR Headquarters, is the only LEED platinum certified state office building in the U.S. Mr. Henderson, Missouri Department of Transportation (MoDOT), asked if there were additional costs for a project to be LEED certified. Ms. Andrews, USGBC-Missouri Gateway Chapter, said that it depends upon how a project is budgeted. There can be up-front costs. Need to continue to educate building professionals, building owners and contractors that there will be more savings in operation and maintenance and not in capital costs.

Mr. Coulson, EWG, asked if St. Louis is considered a leader in green building. Ms. Andrews, USGBC-Missouri Gateway Chapter, said that at one time, area was in the top ten for buildings but since land for development is available and water is available there is not as much incentive to build green. Green building still occurs and there are a lot of contracting and design firms which are local and national leaders.

Ms. Funk, Metro East Community Air Project, said that she has heard that some school districts are receptive to LEED but are reluctant to participate in something like the Green Schools Quest because it may highlight problems they cannot afford to fix. Ms. Andrews, USGBC-Missouri Gateway Chapter, said that the Quest is a voluntary program.

### III. St. Louis Climate Group

- Jack Fishman, Ph.D., St. Louis University

- John Posey, Ph.D., East-West Gateway Council of Governments

Mr. Coulson, EWG, announced that today is International Preservation of the Ozone Layer Day.

Mr. Fishman, St. Louis University (SLU), said that in 2012 Trudy Busch Valentine wrote a guest commentary in the St. Louis Post-Dispatch about how she would like to see St. Louis take a leadership role in the environmental movement. For the last couple of years a local group called the Climate Reality - St. Louis have been meeting. They are trying to educate the public on climate change. On August 24 the group held a panel discussion on creating the political will for climate leadership in St. Louis. Approximately 100 people were in attendance. The group is now investigating the possibility of the St. Louis region hosting a meeting of international stature focused on climate change. Objectives and action items were identified.

Based on readings from the Mauna Loa Observatory, since 1960 average monthly level of atmospheric carbon dioxide (CO<sub>2</sub>) have increased from 310 parts per million (ppm) to 400 ppm. In April 2014, the monthly average went over 400 ppm for the first time. Emissions of other greenhouse gases (methane, carbon monoxide, nitrous oxide) are following the same curve. They have similar patterns. A growing number of scientists now say we are living in a new geological epoch, the Anthropocene. A brief animated film “Welcome to the New Anthropocene” describing this epoch was shown. This epoch is dominated by human activity. Pressure on the planet has created unprecedented destabilization but humanity’s creativity, energy and industry offer hope.

Tropospheric ozone, another trace greenhouse gas, is the focus of Dr. Fishman’s research to highlight the Anthropocene. In the late 19<sup>th</sup> century tropospheric ozone levels were 10 ppm. In the last 150 years, concentration levels have tripled and the trend is continuing. Ozone reacts with other chemicals in the leaves of plants to form tissue-destroying oxidants which can cause a variety of

problems. Many common plants (including agricultural crops) present symptoms of ozone damage at today's background concentrations (40 parts per billion or ppb). As a way to visually demonstrate impact on certain types of vegetation because of global increases in trace gases, SLU has coordinated the installation of ozone gardens in the St. Louis area. The first ozone garden was established in Forest Park in 2012. There are now ozone gardens at Grant's Farm in St. Louis County and on the campus of Southwestern Illinois College. A report on the Ozone Garden concept was accepted for publication in the August 2014 issue of the Bulletin of the American Meteorology Society. Ozone gardens are a way to understand the concept of what is happening to the planet.

From the August meeting, have begun to investigate the possibility of St. Louis leading an international meeting focusing on the Anthropocene. One approach would be to have a technical conference working through the National Academy of Science and modeled after the December 2014 Crutzen Conference on "The Anthropocene". Another approach would be a technical/societal workshop using guidelines from the Pontifical Academy Society Conference held in Rome in May 2014. The theme of this workshop was "Sustainable Humanity, Sustainable Nature, Our Responsibility". Dr. Fishman has begun a conversation with the Climate Advisor to Pope Francis to see if there is interest in setting up a conference looking at climate change and its effect on humanity. Perhaps such a conference could be hosted by SLU in 2018 (SLU's bicentennial).

Dr. Posey, EWG, said that he prepared the Climate Change in St. Louis: Impacts and Adaptation Options article for the International Journal Climate Change: Impacts and Responses 5 (2). In it, different climate models, different down-scaling techniques (from national level to regional) for different greenhouse gas emissions scenarios were examined. Looked at how St. Louis area emissions are projected to change by 2040-2070 compared to 1970-2000 emissions.

To set the historical context, mean annual temperatures by decade from 1875 to the present were reviewed. There is a slight positive trend and this trend has accelerated sharply in the last 30 years. The last 25 years are the warmest consecutive 25 years on record for St. Louis area. In addition, observed an increase in the number of extreme heat days (95° or more). Before 1980 the average number of extreme heat days was 13.6 but since 1980 the average number has increased to 16.1. There is a noticeable upward trend in annual precipitation from 1938 to 2013. Pre 1980, the mean annual precipitation was less than 38 inches. Since 1980, it is a little over 40 inches a year. The six wettest years on record have occurred since 1980. Cautious about attribution, but there appears to be some evidence that St. Louis is getting warmer and wetter.

In this paper, looked at projections from different models, down-scaling techniques and emission scenarios. The following models and associated data sets were reviewed: NARCCAP A2 (Business as Usual) scenario; USGS A2 (Business as Usual) scenario; and USGS B1 (optimistic will be lower emission rate) scenario. NARCCAP uses down-scaling uses regional climate models to down-scale projections from the national model to the local scale. The USGS approach uses statistical down-scaling. On average NARCCAP A2 and USGS A2 show temperatures rising by mid-century 2.5°. And under B1 increase projected to be around 1°. There is more variability in precipitation estimates. Most model runs showed a continued increase in annual precipitation by mid-century. General consensus was that precipitation was expected to increase in the winter and spring (contribute to rising risk of riverine flooding). The greatest uncertainty was in the summer months. Climatologists have indicated that summer precipitation in the St. Louis area is the hardest to predict.

The National Oceanic and Atmospheric Administration (NOAA) in a 2013 report prepared maps showing projected temperature and precipitation changes in the Midwest based on these model ensembles. Summers in St. Louis are projected to be warmer. The entire Midwest is projected to have more precipitation in the winter and spring. For St. Louis region can anticipate that there would be an impact on stormwater management, particularly with an increase in flooding frequency and severity.

Dr. Posey is currently working on a paper which will be published in St. Louis Currents in 2015. In this paper, examining Metropolitan St. Louis Sewer District (MSD) sewer overflow information on those days with more than one inch of precipitation. How the St. Louis area is responding to these changes is also being reviewed. Normally, the response to climate change has been either mitigation (working on the greenhouse gas side) or adaptation (anticipating changing conditions and adapting to them). Dr. Posey is proposing that there be a third category, restoration. Restoration speaks to the importance of trying to undo some of the damage that we have done. Actions can range from floodplain preservation being done by Ducks Unlimited in the Missouri-Mississippi confluence to some Missouri Department of Conservation micro-grants for redevelopment of prairie on small parcels to green infrastructure. A number of good things are occurring but need to do more of them.

EWG and SLU submitted a grant proposal to the Federal Highway Administration (FHWA) for a project which would help develop our capacity/ability to do greenhouse gas inventories and model transportation-related emissions. FHWA still has a few questions but is positive about the proposal.

Mr. Schmidt, Illinois Department of Transportation (IDOT), announced that at the IDOT Fall Planning Conference on October 9-10 in Bloomington Dr. Posey will be on a panel discussing how local communities can better adapt to climate change.

- IV. EPA's Response to States' Designation Recommendations for 2012 Annual PM<sub>2.5</sub> Standard (120-Day Letter)
- David Bloomberg, Illinois Environmental Protection Agency
  - Joe Winkelmann, Missouri Department of Natural Resources

In August, U.S. Environmental Protection Agency (USEPA) sent each state a letter describing what areas USEPA plans to designate as Attainment, Non-Attainment or Unclassifiable for the 2012 annual fine particulate (PM<sub>2.5</sub>) National Ambient Air Quality Standard (NAAQS). The states then have 120 days to prepare a response for USEPA if they are in disagreement with USEPA's recommendations. USEPA recommended that the majority of Missouri be classified as Unclassifiable/Attainment and the St. Louis area be classified as Unclassifiable. USEPA recommended that all of Illinois be classified as Unclassifiable.

The recommendations for the Missouri portion of the St. Louis area and Illinois is the result of a laboratory audit conducted by USEPA. Illinois EPA has a contract with the Cook County environmental lab to perform analysis of statewide PM<sub>2.5</sub> filter samples. In USEPA's audit of the Cook County lab, it was determined that for 2011-2013 data, 61 percent of the samples analyzed did not meet criteria for proper analysis (correct humidity, correct temperature, sample holding time before being weighed) or the Cook County lab was not keeping the proper records to show they were meeting these analysis standards. Because of this it was not possible for USEPA to validate Illinois'

2011-2013 PM<sub>2.5</sub> monitoring data and make designations for the 2012 PM<sub>2.5</sub> standard. It is as if the state had no PM<sub>2.5</sub> monitoring data. Two counties in northwest Indiana and the St. Louis area counties in Missouri have been linked to Illinois. USEPA is going to designate all of Illinois and the “linked” Indiana and Missouri counties as Unclassifiable. Permitting and other implications are still being reviewed and discussed with USEPA Region 5.

Missouri had tried to make case that all counties in Missouri were in attainment because none of their monitors showed non-attainment and Missouri was not contributing to violations in Illinois. USEPA determined that Missouri and Illinois areas are linked and as they do not know what the Illinois monitors would have shown, St. Louis area Missouri counties are considered to be Unclassifiable as well. Normally, if all monitors in an area are in attainment or if the area does not have any monitors and USEPA has no reason to believe there is non-attainment, then such areas is classified by USEPA as Unclassifiable/Attainment. With Unclassifiable, a state can start collecting validated data. After three full calendar years worth of data is collected, USEPA can, if they wish to, make determination that an area is in attainment or non-attainment. If USEPA had designated all of Missouri Unclassifiable/Attainment as recommended and later on there was new data suggesting non-attainment, USEPA would have to follow a more complicated process to show that an area has gone from one designation to another. Recently the Sierra Club asked USEPA to do this in a number of areas based on ozone data from the 2012 summer and USEPA declined.

Illinois EPA, USEPA Region 5 and Cook County have been working on this issue for the past several months and are moving forward. As of mid-July the Cook County lab is providing valid data. For designation purposes, probably will have to use 2015-2017 data which will not be certified as valid until 2018. Right now, the states are working under the 2012 annual PM<sub>2.5</sub> NAAQS. Under the Clean Air Act Amendments (CAA) of 1990, NAAQS are to reviewed every five years. It is possible that there could be a new PM<sub>2.5</sub> standard before Illinois even has valid data or there may not be a designation for the 2012 standard. The Metro East only has one monitor, Granite City, showing violation. US Steel-Granite City Works is installing a control device now. In addition, background levels of PM<sub>2.5</sub> are expected to go down across the country. Even when the 2012 PM<sub>2.5</sub> standard was finalized, USEPA said that with the exception of a few places in California, they did not expect any states to have to make new rules. Because of existing federal rules and other expected federal rules, background levels are going down.

Mr. Coulson, EWG, asked if USEPA oversees monitoring. Mr. Bloomberg, Illinois EPA, said that USEPA approves the monitoring network and does a laboratory audit once every three years. Other states had similar lab problems and had areas identified as unclassifiable.

Mr. Winkelmann, MoDNR, said that USEPA has indicated that the Unclassifiable/Attainment designation is typically given to areas likely attaining the NAAQS and likely not contributing to a violation of the standard in another area. Unclassifiable indicates that USEPA does not know whether an area is attainment or is contributing to a nearby violation. The Missouri side is attaining the 2012 annual PM<sub>2.5</sub> standard based on clean data. MoDNR strongly argued that Missouri was not contributing to violations in Illinois and now that can not be determined. In the USEPA Missouri technical support document, it was stated that if not for these monitor irregularities they would have designated St. Louis area as Non-Attainment because USEPA felt there was contribution from Missouri. As far as CAA obligations, Unclassifiable and Unclassifiable/Attainment have different mandatory State Implementation Plan (SIP) requirements. USEPA always has discretion to do

another round of designations under any NAAQS but often do not use that discretion. USEPA stresses that it may revisit/re-evaluate classifications after three years of valid data. A final decision on the USEPA designations is expected to be made in December 2014. It is unclear what, if any, additional information Missouri can provide without valid data from the Illinois side.

Mr. Bloomberg, Illinois EPA, observed that for all intent and purpose, Unclassifiable/Attainment is the same as Attainment. Mr. Winkelmann, MoDNR, said that in the USEPA Illinois Technical Support Document, the possible extent of the non-attainment area and splitting the area was discussed. However, any decision on the size of the non-attainment area will have to wait until there is valid data and if there is a re-evaluation. Mr. Bloomberg, Illinois EPA, said that Illinois had planned to submit a letter recommending a change in the size of the non-attainment area, but that did not happen. He added that a redesignation to attainment request/Maintenance SIP for the 1997 annual PM<sub>2.5</sub> standard has not been submitted to USEPA due to ongoing modeling issues and enforceability issues. It is unclear when these items would be submitted.

Mr. Henderson, MoDOT, asked what is the cause of decreasing background level of PM<sub>2.5</sub>. Mr. Bloomberg, Illinois EPA, said that PM<sub>2.5</sub> is a mix of solid particles and gases formed from chemical reactions in the atmosphere. Federal regulations in place and in the future reducing sulfur dioxide (SO<sub>2</sub>) and oxides of nitrogen will bring the background level of PM<sub>2.5</sub> down. The impact on Illinois monitors of any controls (for SO<sub>2</sub>) made on the Missouri side would also help. This is another reason that no one saw a problem with the monitor values. It is the opinion of Mr. Bloomberg that the monitored values were close to reality. If the data can not be validated, then it does not matter.

V. American Fuel Group Report  
- St. Louis Regional Clean Cities Program

Mr. Herdler, St. Louis Regional Clean Cities program (SLCC), said that SLCC and Kansas, Iowa, Nebraska and Missouri received a grant from the U.S. Department of Energy (DOE) for an Alternative Fuel Implementation project. A consultant developed a methodology using MOVES model to evaluate the air quality impact/emission reduction of alternative fuel vehicles. The purpose is to see results of integrating alternative fuels into the vehicle mix and see what the outcomes could be. A pilot project was conducted using St. Louis base year information. The consultant also prepared a webinar and has presented it twice. Planning to hold the third webinar at the October AQAC meeting. As part of this project, Mr. Herdler developed training materials for code enforcement personnel and first responders about alternative fuels. A conference on this activity is planned for the end of October in Kansas City.

SLCC has received a Clean Diesel grant from MoDNR to do another tugboat engine replacement and to replace six school buses in the Jefferson R-VII and the DeSoto school districts. SLCC is working on a grant proposal for emergency vehicles and alternative fuels in which Kirkwood would serve as a pilot project. The 20<sup>th</sup> anniversary of SLCC is in November and a celebration is planned.

VI. Update Activities of the States

- Joe Winkelmann, Missouri Department of Natural Resources
- David Bloomberg, Illinois Environmental Protection Agency

Mr. Winkelmann, MoDNR, said that the Missouri Air Conservation Commission (MAC) will meet on September 25 in Kansas City. He gave an update on the Air Pollution Control Program fee process. There was agreement from stakeholders to increase emission fee from \$40 a ton to \$48 a ton. At a September 2 MACC meeting, the MACC gave approval for the APCP to move forward with preparing rule-making. That way the MACC can adopt it in December 2014. Rule-making has to be completed by the end of 2014 so that the legislature has a full session (in 2015) to review the rule before it can become effective in January 2016. No consensus was reached on increasing the fees for permit processing and asbestos registration. Process of stakeholder discussions on the asbestos fees and permit processing fees will have to be reconvened. The Stage II Vapor Recovery Rule was adopted by the MACC at their August 28 meeting and should be published in the October 1 Missouri Register, making it final.

Mr. Bloomberg, Illinois EPA, said that the Monitoring Section is now part of the Planning Section. The 2015 annual monitoring plan is now out on public notice and is available on the Illinois EPA website. The statewide ozone precursor inventory was on public notice and has been submitted to USEPA Region 5. Marginal ozone non-attainment areas are required to submit such an inventory.

VII. Other Business

Ms. Funk, MECAP, announced that the fourth Metro East Air Quality Forum will be on October 17 at the Caseyville Community Center.

Mr. Zlatic, St. Louis County, announced that on September 17 representatives from energy groups will be speaking at the St. Louis Regional Chamber. It is a follow-up to the presentation by USEPA Regional Administrator Region 7 on the proposed Clean Power rule.

Mr. Wilson, EWG, announced that on September 18 EWG, in conjunction with the Missouri History Museum and STL250, is hosting a discussion on transportation issues in the future at the History Museum. Flyers were distributed for: EWG's Outstanding Local Government Achievement Awards (OLGAs); and a course on the fundamentals of planning and zoning co-sponsored by EWG, the St. Louis Chapter of the American Planning Association and the University of Missouri St. Louis.

The next meeting of the AQAC was scheduled for October 28, 2014. There being no other business, the meeting of the Air Quality Advisory Committee was adjourned.