Air Quality and Conformity 101

April 26, 2023

EAST-WEST GATEWAY
Council of Governments
Creating Solutions Across Jurisdictional Boundaries

“Clean air is not an aesthetic luxury, it is a public health necessity.”

- Douglas M. Costle, USEPA Administrator 1977 - 1981

Children playing at CityGarden

EAST-WEST GATEWAY
Council of Governments
Creating Solutions Across Jurisdictional Boundaries

Ground Level Ozone
Transportation-Related Pollutant of Concern

- Ozone is formed when hydrocarbons (VOC) and nitrogen oxides (NO_x) from vehicle exhaust and other industrial processes have a chemical reaction with oxygen in the lower atmosphere
- Weather influences – strong sunshine, low wind speed, temperature 85° +
- Carried by wind

- Ozone affects everyone but has the most impact on children and the elderly
- High levels can cause headaches, fatigue and eye, nose and respiratory tract irritation
- Prolonged exposure can aggravate chronic heart disease and chronic respiratory ailments, like asthma

https://www.cdc.gov/climateandhealth/effects/air_pollution.htm

East-West Gateway
Council of Governments
Creating Solutions Across Jurisdictional Boundaries

Community Planning and Transportation Air Quality Activities at East-West Gateway

- Work with Illinois and Missouri environmental and transportation agencies on strategies to reduce transportation-related emissions
- Coordinates Ozone Data Sharing Project
  - Acts as clearinghouse for Illinois and Missouri ozone monitor data
- Facilitates the Air Quality Advisory Committee
- Performs Transportation Air Quality Conformity Determination to ensure that transportation programs and projects do not have a negative impact on air quality
  - Facilitates federal, state and local transportation and air quality peer group - Inter Agency Consultation Group
- Administers competitive Congestion Mitigation Air Quality (CMAQ) program which provides federal transportation funds for local projects which will help reduce congestion and improve air quality

<u>Missouri Monitors</u>
Arnold West
Blair St.
Maryland Hts
Orchard Farm
Pacific
West Alton

<u>Illinois Monitors</u>
Alton
East St. Louis
Maryville
Wood River

USEPA's Air Quality Index

- The Air Quality Index (AQI) tool informs people about air pollution levels and associated health impacts that uses color-coded categories to represent different levels of health concerns

Air Quality Index					
Good	Moderate	Unhealthy for sensitive groups	Unhealthy	Very Unhealthy	Hazardous
0 ↔ 50	51 ↔ 100	101 ↔ 150	151 ↔ 200	201 ↔ 300	301 ↔ +

- East-West Gateway uses the tool to convert the highest eight-hour ozone average from a monitor to a standardized value from 0 to 500 with 100 being equal to the 2015 standard

St. Louis Region AQI Calendar for June 2022

EAST-WEST GATEWAY
Council of Governments
Creating Solutions Across Jurisdictional Boundaries

St. Louis Region and USEPA Ozone Standard

- USEPA first set a standard for ozone in 1979. Later strengthened in 1997, 2008 and 2015. 2015 standard is 70 parts per billion (ppb)
- Attainment occurs when 3-year average of 4th highest annual 8-hour average for <u>each</u> monitor in a non-attainment area is $\leq$ 70 ppb
- In November 2022, the St. Louis Region was reclassified from a Marginal to a Moderate ozone nonattainment area
  - Based on 2018 -2020 monitoring data, the St. Louis region did not attain the 2015 ozone standard by the Marginal nonattainment area deadline of August 4, 2021

USEPA's Designated Ozone Non-Attainment Areas

Classification	Number
Extreme	2
Severe	3
Serious	5
Moderate	23
Marginal	12
Marginal (Rural Transport)	1
Total	49

East-West Gateway
Council of Governments
Creating Solutions Across Jurisdictional Boundaries

Overview of CAA Ozone Nonattainment Area Planning & Control Requirements by Classification

	NSR Offset Ratio	Major Source Threshold
EXTREME	1.5 : 1 Extreme	10 tpy
SEVERE	1.3 : 1 Severe	25 tpy
SERIOUS	1.2 : 1 Serious	50 tpy
MODERATE	1.15 : 1 Moderate	100 tpy
MARGINAL	1.1 : 1 Marginal	100 tpy

As move up in classification, planning requirements are cumulative and there are more restrictive New Source Review Permit offset requirements and major source emission thresholds for these requirements

Planning Requirements for States Marginal & Moderate Non-Attainment Areas

- **Requirements unique to Marginal area**
- Conduct emissions inventory
- Have major point sources (100 tpy) report their emissions annually
- New Source Review (NSR) permit program for new or modified existing point sources
- NSR offset rate for new major point sources is reduction of 1.1 tons existing emissions for every 1 ton of new emissions
- 2018 – 2020 monitoring data to show attainment for all monitors
- Attainment date – August 3, 2021

- **Requirements unique to Moderate areas**
- Marginal planning requirements
- Additional SIPs are to be prepared and examination of current permit process
- Demonstration that I/M program in place meets requirements of a Basic I/M program
- Contingency measures for failure to attain
- NSR offset rate for new major sources of 1.15 tons of existing emissions for every 1 ton of new emissions (up from 1.1 tons)
- 2021 – 2023 monitoring data to show attainment for all monitors
- Attainment date – August 3, 2024

Multi-faceted Approach to Improve Ozone Levels

- Vehicle technology improvements
- Cleaner burning gasoline
- Illinois and Missouri vehicle emissions testing programs
- Transportation projects to reduce congestion
- Ridesharing program and MetroLink
- Controls on industry and power plants
- Individual behavior decisions
- Still work to be done

EAST-WEST GATEWAY
Council of Governments
Creating Solutions Across Jurisdictional Boundaries

Transportation Air Quality Conformity

- Transportation projects must be analyzed to determine that they meet requirements of (conform to) state air quality ozone plans and do not worsen air quality
  - Designed to make sure that federal transportation investment is consistent with goals contained in Missouri and Illinois State Implementation Plans to achieve/maintain ozone standards
- Process to follow comes from EPA Conformity Regulations, 40 CFR Part 93
- Conducted by East-West Gateway Community Planning and Transportation staff with assistance of the Inter Agency Consultation Group peer committee
- Final conformity determination is made by FHWA and FTA
  - EPA provides input on whether Gateway's initial determination and associated documentation meets requirement set out in their regulations

Air Quality Conformity Determination Process

- Computer modeling is used to evaluate and document the impact of proposed transportation activities contained in the Transportation Improvement Program (TIP)/Long Range Transportation Plan (LRTP)
- Performed for the 2008 ozone standard (area is in maintenance for) and 2015 ozone standard (area is in nonattainment)
- For each of the years selected to be analyzed, VOC and NO_x emissions estimated to occur as result of implementation of the TIP/LRTP <u>have to be less than or equal</u> to Missouri and Illinois VOC and NO_x motor vehicle emissions budgets for the 2008 and 2015 ozone standards from their respective SIPs.
- Conformity Determination process and finding are documented and draft goes out for public comment along with draft TIP/LRTP
- Presented to East-West Gateway Board of Directors for final approval

EAST-WEST GATEWAY
Council of Governments
Creating Solutions Across Jurisdictional Boundaries

For Additional Information

- East West Gateway Council of Governments – www.ewgateway.org/community-planning/environmental/air-quality
- St. Louis Regional Clean Air Partnership information and daily ozone air quality forecasts – www.cleanair-stlouis.com
- Illinois Environmental Protection Agency – https://epa.illinois.gov/topics/air-quality.html
- Missouri Department of Natural Resources – www.dnr.mo.gov/air
- Plain English Guide to the Clean Air Act, USEPA (2007) – www.epa.gov/sites/default/files/2015-08/documents/peg.pdf
- USEPA AirNow – www.airnow.gov
- St. Louis Forecast Office, National Weather Service issue alerts for days forecasted by Clean Air Partnership/KMOV Channel 4 meteorologists to have high ozone values - https://www.weather.gov/lsx/

East-West Gateway
Council of Governments
Creating Solutions Across Jurisdictional Boundaries