11.0 AIR QUALITY

In the Kansas City region's five-county air quality maintenance area (Figure 11.1), cars, trucks and other on-road vehicles collectively travel an estimated 53 million miles per day. As they travel, they generate a variety of air pollutants, including volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two primary contributors to the region's ground-level ozone problem; fine particulates that are associated with a variety of cardiovascular problems; hazardous pollutants, such as benzene; and carbon dioxide, the principal greenhouse gas related to climate change.

Transportation planning and implementation strategies can have a significant impact on air quality — a critical issue as the region teeters on the brink of violating federal standards for ozone pollution. Because transportation-related sources are responsible for a significant portion of contaminants, planning a transportation system that makes better use of alternative modes, shortens commutes and reduces emissions from existing sources is critical to clean air in the metro.

Ultimately, reimagining the mixture of transportation choices could have a dramatic impact on the region's air quality. Transit, bicycling and walking currently represent a minuscule part of region's transportation choices, so there is a tremendous opportunity to expand use of these modes and reap the benefits they can offer in reducing transportation-related air pollution.

Forward-thinking land-use plans that encourage transit access, proximity and walkability are critical to encouraging alternative transportation uses.

The Clean Air Action Plan (CAAP) for the Kansas City region — first published in 2005 and updated in 2011 — provides guidance on voluntary actions to reduce ozone-forming emissions, both in the near future and long term. The CAAP contains four categories of emission reduction strategies: electric power plant controls, diesel engine retrofits, public education and long-term initiatives that promote sustainable development. The CAAP is available online at www.marc.org/Environment/Air-Quality/Reports/Clean-Air-Action-Plan.
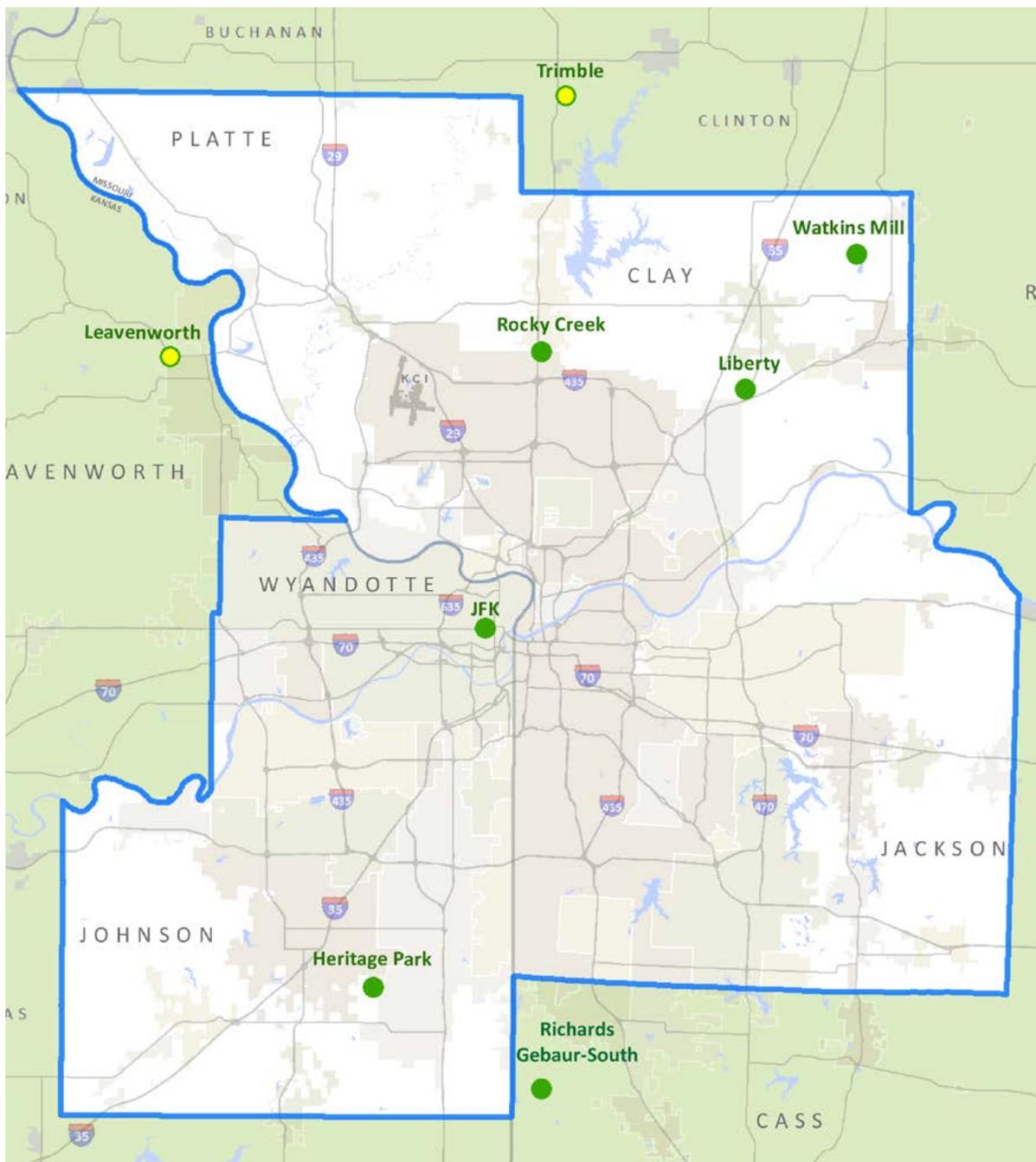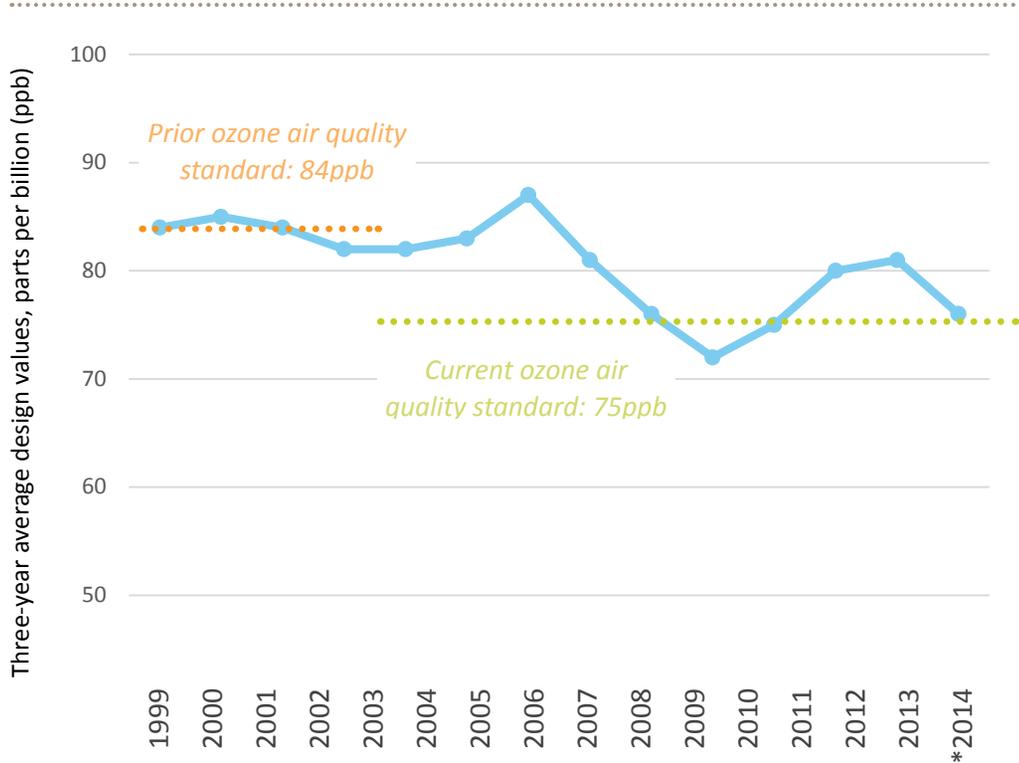
Maintenance Area

The Kansas City region's air quality planning boundary includes five counties — Johnson and Wyandotte counties in Kansas and Jackson, Clay and Platte counties in Missouri. Monitoring stations in and around this area help track concentrations of ozone and other pollutants in the atmosphere.

Figure 11.1 : Air Quality Maintenance Area

Figure 11.2: Maximum Monitor Design Values

Prior ozone air quality standard: 84ppb

Current ozone air quality standard: 75ppb

Three-year average design values, parts per billion (ppb)

*2014 data is preliminary, not quality-assured

Needs Assessment

There is growing public and political pressure to develop a national strategy to substantially reduce emissions of carbon dioxide and other greenhouse gases. In 2008, the Environmental Protection Agency adopted an ozone standard of 75 parts per billion (ppb). While the Kansas City region is currently designated as in attainment for this standard, ozone levels have exceeded the 75ppb threshold in recent years. The EPA is expected to finalize a new, lower ozone standard in 2015, which will almost certainly put Kansas City out of attainment for ozone with the National Ambient Air Quality Standard (NAAQS). It will likely take several years of focused attention and action for the region to comply with the new standard.

Objectives

The Clean Air Action Plan can help achieve the following policy goals:

Climate change and energy use

The CAAP's goals to decrease overall emissions and use of carbon-based fuels have clear links to climate change and energy use. The plan outlines public education and sustainability efforts that provide a clear a clear framework to address climate change and energy use in the context of air quality and transportation.

Economic vitality

Being designated as a non-attainment area for any NAAQS pollutants has a significant economic impact on a region. The goals of the CAAP promote economic vitality with clear strategies to remain in attainment with all federal standards.

Environment

By identifying strategies to protect the region's air quality, the CAAP also helps protect plants and animals that are affected by air pollutants. By supporting efforts to plant more trees and implement smart land-use planning policies, the CAAP helps ensure that the environment continues to be healthy for plants, animals and people alike.

Public health

The health impacts of ground-level ozone are varied and wide-ranging. Air quality is a significant factor in the incidence of asthma and other respiratory conditions. The young and the elderly are most vulnerable to health impacts from poor air quality conditions, but on days when ozone levels are high, even healthy adults can feel adverse health effects. The CAAP strives to educate residents about using alternative transportation on days predicted to have high-ozone levels. The plan also offers simple behavioral changes that can affect ozone levels and presents ideas for modifying outdoor and indoor activities on days when health may be affected.

Strategies

The CAAP includes a number of actions, strategies and goals to improve the region's air quality. The strategies that specifically relate to transportation are included here.

11-1: Reduce emissions from diesel engines, which emit nitrogen oxides and contribute to fine particulate pollution.

CAAP strategies to reduce emissions from diesel engines include:

a. Retrofits for on-road diesel engines.
b. Diesel construction equipment replacement.
c. Truck stop electrification.
d. Idle-reduction programs for public and private diesel fleets.
e. Switching locomotive emissions control technologies.

11-2: Encourage the use of alternative fuels.

Alternatives to traditional diesel and gasoline can reduce tailpipe emissions significantly, particularly from heavy-duty diesel applications. Compressed natural gas, electricity, propane, biodiesel and other alternative fuel options can help reduce the emissions from the transportation sector without requiring a reduction in vehicle miles traveled.

11-3: Promote options that are pedestrian-, bike- and transit friendly for communities, including incentives for compact development.

Near term (five years):

a. Establish transit-oriented development (TOD) guidelines for five bus-rapid transit (BRT) corridors.

b. Increase biking/walking/transit to 9 percent of total trips.

c. Increase carsharing participation to 5,000 participants.

d. Cover 20 percent of the region's population with Complete Streets or similar policies.

e. Conduct two Complete Streets trainings.

Long term (10 years):

a. Establish TOD guidelines for all BRT corridors.

b. Increase biking/walking/transit to 12 percent of total trips.

c. Increase carsharing to 12,000 participants.

d. Cover 60 percent of the region's population with Complete Streets or similar policies.

11-4: Promote the use of native landscaping and green infrastructure elements along roadways to reduce the urban heat-island effect and mitigate ozone precursor and other emissions.

Near term (five years):

a. 120,000 acres in the metro area use native landscaping/ sustainable stormwater site design (roadside, riparian, park, large institutional landscapes).

b. 50 percent of local governments and public agencies adopt native landscaping, green infrastructure protection and pervious pavement policies.

c. Decrease residential water use for lawn care and irrigation by 5 percent.

d. Hold trainings in commercial and municipal landscaping at least twice yearly.

e. Create local recognition program for business and municipalities using landscaping BMPS.

Long term (10 years):

a. 243,000 acres (10 percent of the region's total acreage) use native landscaping/sustainable stormwater site design.

b. Reduce mowable acreage by 10 percent in the region.

c. Hold quarterly training in commercial and municipal

Transportation Outlook 2040				
Policy framework strategies and goals:	11–1: Reduce emissions	11–2: Alternative fuels	11–3: Mode diversity	11–4: Landscaping and infrastructure
Economic vitality			X	
Placemaking			X	X
Equity				
Transportation choices			X	
Safety and security				
System condition				
System performance				
Public health	X	X	X	X
Environment	X	X	X	X
Climate change and energy use	X	X	X	X