



Path Forward

2017 update

December 2017

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Introduction

Four States Clean Air Alliance

Air quality issues, while for years considered a problem for large metropolitan areas, have more recently been identified as a potential issue in mid-sized or smaller communities such as the Joplin Metro area. This is especially true for the air quality parameter of ozone, as federal ozone regulations have become more exacting in recent years as knowledge of the adverse health and environmental effects of ground-level ozone are recognized. With this increased regulation, acceptable ground-level ozone levels have been reduced to the point the Joplin Metro area could be considered in violation of these standards. To proactively address this issue before it occurs, the Four States Clean Air Alliance (FSCAA) was formed through a joint agreement of the Joplin Area Transportation Study Organization (JATSO) and the Environmental Task Force of Jasper and Newton Counties (ETF).

The FSCAA continues participation in EPA's Advance Program, focusing on ground-level ozone at this time. While the Path Forward deals solely with ground-level ozone, it may be amended in the future to address other air quality parameters (e.g., particulate matter) as necessary. The FSCAA Board voted to join EPA's Advance Program designed to assist communities striving to stay in attainment with current National Ambient Air Quality Standards (NAAQS), after the initial Clean Air Action Plan (CAAP) finalization and implementation. This Path Forward document was developed to guide both FSCAA involvement with the Advance Program as well as ongoing efforts to raise awareness of ground-level ozone concerns in the Four States region. The Governing Board of FSCAA is charged with the primary responsibility for development and implementation of the Path Forward document. The JATSO has final approval of all aspects of this plan before it may be considered final.

The area encompassed by FSCAA efforts currently consists of Jasper and Newton Counties in southwest Missouri, Cherokee County in southeast Kansas and the Inter-Tribal Council North Eastern Oklahoma [see Appendix A]. Entities in these geographical areas are more likely to be contributors to the formation of ground-level ozone in the Four States region.

FSCAA goals include:

- Monitor results of designated air quality monitoring stations,
- Increase awareness of local public, governments, and businesses regarding air quality issues,
- Inform local public, governments, and businesses on environmental and health consequences of poor air quality,
- Educate community members about existing and proposed legislation concerning air quality affecting FSCAA area, and
- Promote voluntary participation in implementation of Path Forward plan.

National Ambient Air Quality Standards

The Clean Air Act, which was last amended in 1990, requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The six principal pollutants EPA has set NAAQS for include:

- Ozone (O₃)
- Carbon Monoxide (CO)
- Particulate Matter (PM)
- Lead (Pb)
- Nitrogen Dioxide (NO_x)
- Sulfur Dioxide (SO₂)

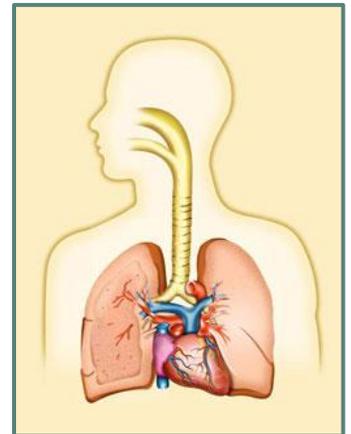
For more information on these pollutants, please visit <https://www.epa.gov/criteria-air-pollutants/naqs-table>.

Ground-Level Ozone

Ozone is a gas composed of three oxygen atoms. While ozone can be found both in the Earth's upper atmosphere and at ground-level, the location where it is found determines if ozone is considered beneficial or harmful to humans and the environment. When it is found in the upper atmosphere, ozone is beneficial by protecting us from the sun's ultraviolet rays. However, when this same gas occurs at ground-level, it is harmful and causes significant negative effects on human health and the environment.

Ground-level ozone can cause the following health effects even at low concentrations:

- Aggravate asthma or other respiratory illnesses
- Irritate respiratory systems causing coughing and throat irritation
- Inflammate and damage cells that line the lungs
- Reduce lung capacity, making it difficult to take deep breaths
- Increase susceptibility to respiratory illnesses
- Increase hospitalizations by aggravating respiratory illnesses



Ozone is a powerful oxidant that can irritate the airways.
Source: <https://www.epa.gov/ozone-pollution/health-effects-ozone-pollution>

High levels of ground-level ozone can damage plants and other vegetation by making them more susceptible to disease, harsh weather, insects and other pollution. Ground-level ozone is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_x) react in the atmosphere with sunlight and heat. Since ozone requires the combination of sunlight and heat to form, it is mainly of concern during "Ozone Season" from March through November. Accordingly, FSCAA concentrates the efforts of various education and awareness campaigns immediately before and throughout this period.

FSCAA Path Forward

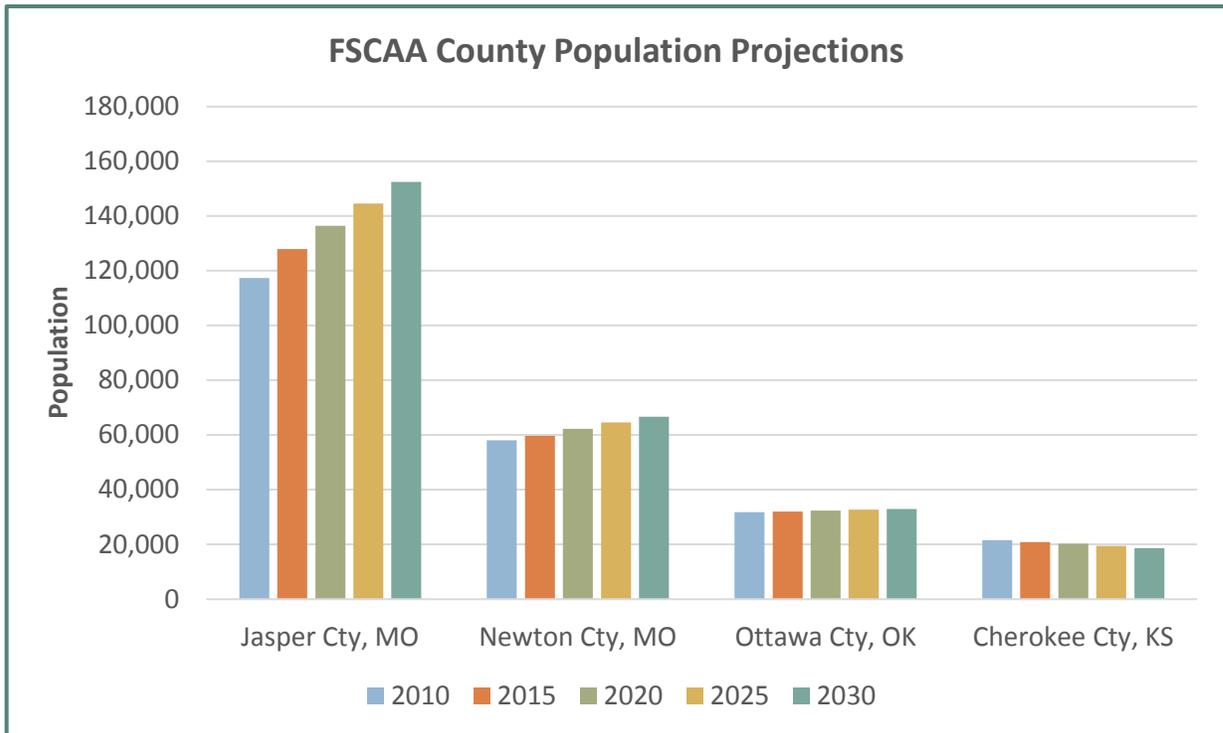
The FSCAA area includes Jasper and Newton Counties in southwest Missouri, Cherokee County in southeast Kansas, and the Inter-Tribal Council North Eastern Oklahoma (ITC) in Ottawa County, Oklahoma. This region was chosen based on existing planning boundaries and the potential sources that affect this area, while also taking into consideration the location of the air quality monitors for the region. There are two ozone monitors in the region, one at Alba in Jasper County, MO operated by MoDNR, and another monitor near Miami in Ottawa County, OK, which is operated by the Quapaw Tribe of Indians (who also represents ITC on the governing board of FSCAA). [see Appendix A]



Air monitoring stations in Alba, MO (left) and Miami, OK (right)

The majority of the strategies in this Path Forward document are focused towards the FSCAA area. In future developments, it is planned to disseminate additional educational campaign material to other counties outside of this FSCAA area. FSCAA seeks to implement proactive and feasible voluntary strategies to protect public health and the environment while sustaining growth in the region. Some counties in the Four States region are projected to experience population growth in coming years. The fastest growing county, Jasper County, MO, is expected to grow by 30 percent between 2010 and 2030.

Additional areas to the south and to the west of the FSCAA area are considered vital to ozone air quality improvement efforts in the Joplin Metro area due to prevailing wind direction in the spring and summer months. These areas include McDonald County in southwest Missouri and Benton County in northwest Arkansas. These counties are upwind from the FSCAA area and are potentially contributors to FSCAA area's air quality through regional transport. Benton County, AR is also expected to grow significantly, by 56 percent, between 2010 and 2030.



Sources: Wichita State University – Center for Economic Development & Business Research; Missouri Office of Administration – Budget & Planning; Oklahoma Department of Commerce

Emissions Data

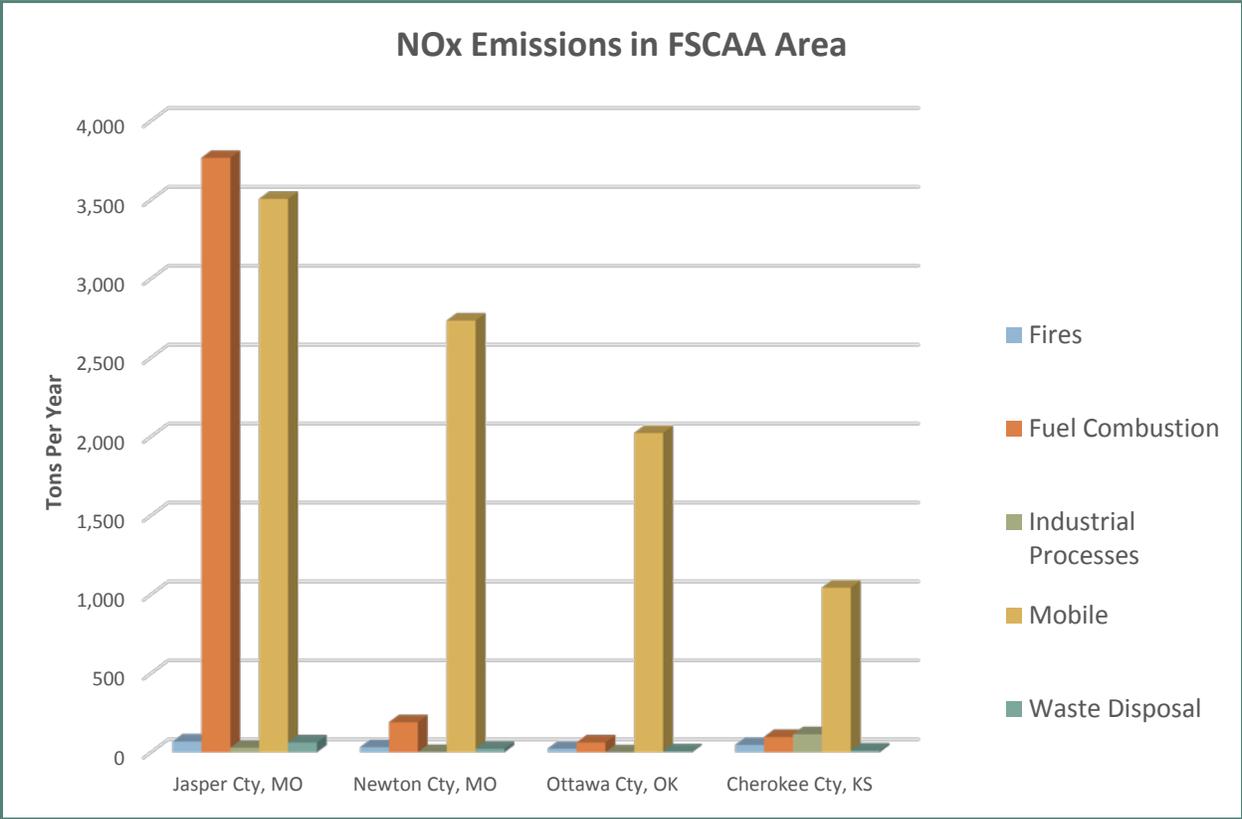
Ozone-Forming Emissions within the Four States Area

Emissions of NO_x and VOCs that can contribute to the formation of ground-level ozone in the Four States area are generated from various sources. The four major categories of emission sources are: point, non-point, on-road, and non-road. Some examples of specific sources within these categories include fires, motor vehicles, gasoline vapors, chemical solvents, industrial processes, power plants, gas-powered off-road equipment and many more.

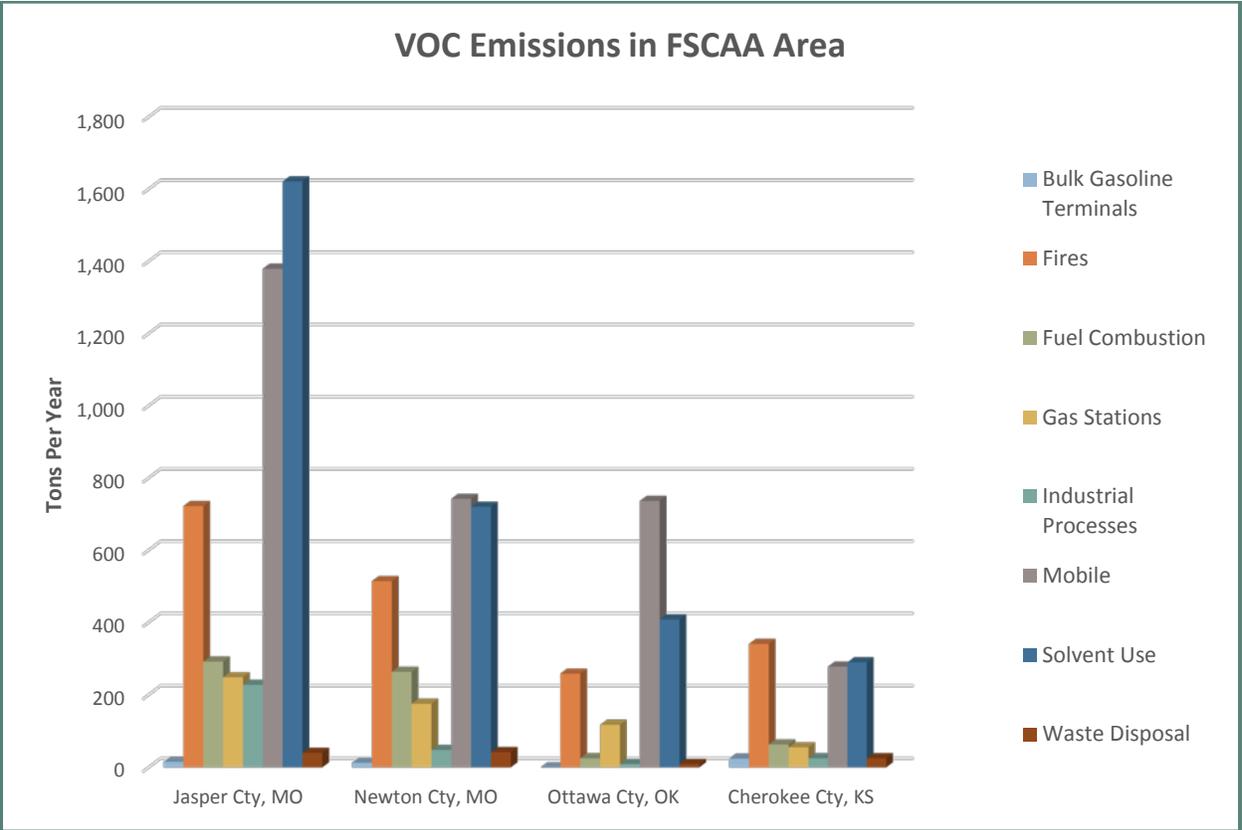
The graphs on the following pages 6 and 7 show the amount of Nitrous Oxides (NO_x) and Volatile Organic Compounds (VOC) emissions released from man-made sources by county and by source. As can be seen in these graphs, fuel combustion and mobile sources account for most of the NO_x emissions in the area, while mobile and solvent use account for most of the VOC emissions.

Ozone-Forming Emissions outside of the Four States Area

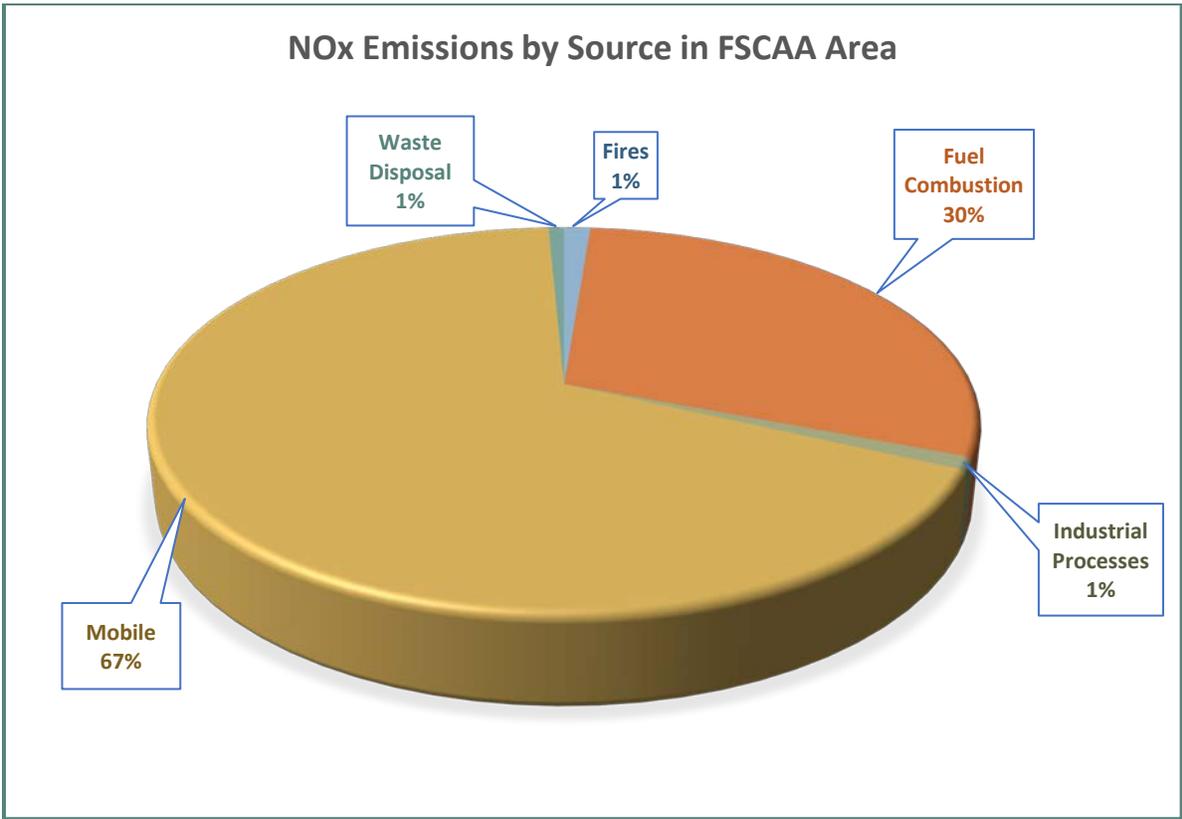
The Four States area's location at the intersection of four States, and downwind of rapid urban development in one of those States, places the Four States area in the path of potential exposure to air pollutants transported from upwind sources. FSCAA will continue to evaluate and consider the possible contribution of such air pollutants that could be introduced into the Four States area via regional transport in this manner.



Source: 2014 EPA National Emissions Inventory (NEI)

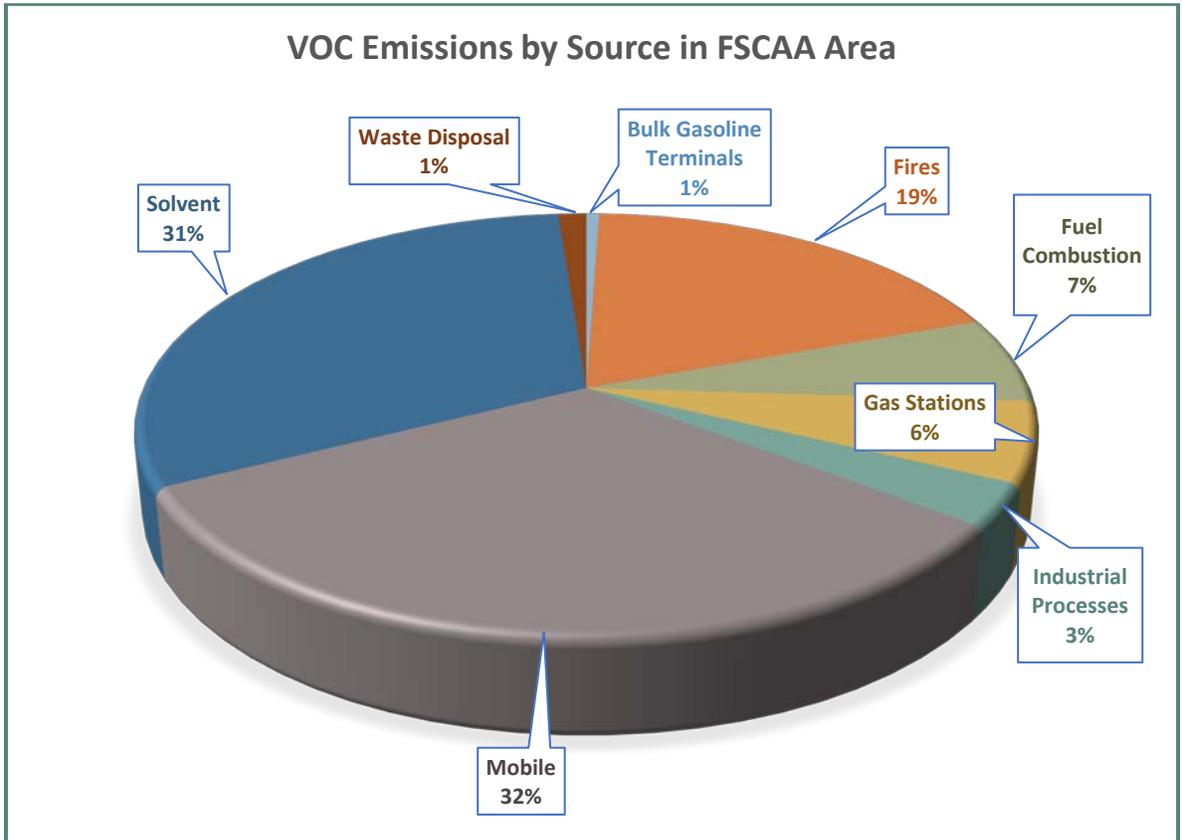


NOx Emissions by Source in FSCAA Area



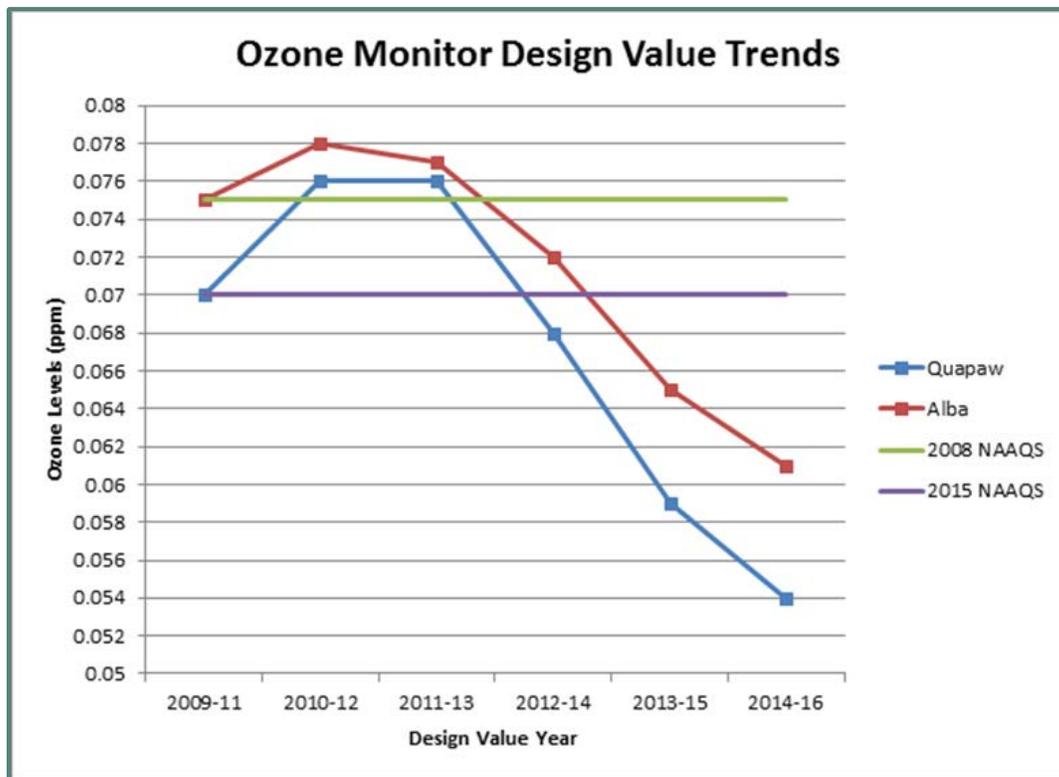
Source: 2014 EPA National Emissions Inventory (NEI)

VOC Emissions by Source in FSCAA Area



Ozone Design Values

The following chart shows the design values for ozone monitoring conducted in Jasper County, MO and Ottawa County, OK since 2009. The ozone design value is the annual fourth-highest daily maximum 8-hour ozone concentration, averaged over 3 years. A violation occurs if an area's ozone design value exceeds the 8-hour ambient air quality standard established by the EPA. In October 2015, EPA lowered the 8-hour standard from 0.075 parts per million (75 ppb), shown as the green line in the graph below, to 0.070 parts per million (70 ppb), shown as the purple line in the graph below.



The ozone design values for both locations have shown a decreasing trend since approximately the 2010-2012 design value period.

Emission Reduction Strategies

Reducing ozone levels in the Joplin Metro area will be difficult due to many sources of ozone precursors that are not located in the area. Ozone generation is dominated by up-wind stationary sources and vehicular traffic on the adjacent throughways. The strategies identified in this document can be implemented by organizations and individuals in the region to reduce air pollution. The unavailability of photochemical modeling data prevents the region from quantifying the impacts of various strategies.

Many of these strategies have been proven effective in other communities, providing numerous benefits including:

- Protection of public health and environment
- Prevention of state and federal regulations following a non-attainment designation
- Reducing air pollutants from contaminating surface water
- Improving community health by encouraging bicycling and walking
- Conserving natural resources
- Reducing dependency on foreign oil
- Fiscal savings for individuals, businesses, local governments, and other organizations

The purpose of this Path Forward document is to implement specific viable voluntary strategies that can reduce the formation of ground-level ozone. There must be strong support and participation by local governments, industries, organizations, and the public for the program to be successful. Four target categories have been identified as specific areas in which to focus to reduce ground-level ozone.

Administrative Strategies

Description

The following duties and responsibilities to be conducted by the FSCAA board will allow the FSCAA to continue its work of raising awareness and reduction of ground-level ozone in the Four States region.

Short Term Strategies - Administrative

Ozone Advance Program

FSCAA will continue to participate in EPA's Ozone Advance Program including the annual update of this Path Forward document to provide direction for FSCAA efforts to increase awareness and promote reduction strategies of ground-level ozone in this region.

Funding

FSCAA will search for funding sources, such as local foundations, grants, or other avenues to provide financial support beyond the small amount in the Joplin Health Department annual budget.

Staffing

FSCAA seeks an intern or volunteer, especially one with a scientific/technical or marketing/public relations background, to assist with general campaign efforts. The Board members and City of Joplin staff, including Health Department staff, have carried out various FSCAA tasks up to now.

Outreach

FSCAA re-evaluates the general education plan before and during the Ozone Season to develop methods of increasing awareness levels in the community. FSCAA will seek out and attend public outreach events throughout the Ozone Season to continue distributing the campaign message. The use of funding from JATSO (Joplin Area Transportation Study Organization) or other sources currently being pursued will provide a means for FSCAA to advertise on local media outlets regularly.

Long Term Strategies - Administrative

These tasks will be evaluated for completion as funding and other resources become available.

Outreach

Awareness efforts continue to reach into the local communities of Jasper and Newton Counties in southwest Missouri, Cherokee County in southeast Kansas, and ITC jurisdiction in northeast Oklahoma. The established media campaign is aired on local broadcast TV, cable and radio throughout the Four States region. As warranted, additional efforts will be made to reach other communities that could potentially impact the Joplin Metro region, such as counties in northwest Arkansas and northeast Oklahoma.

Accomplishments - Administrative

- FSCAA joined and participates in EPA's Ozone Advance Program with annual updates to this Path Forward document
- March 2016 - Path Forward document approved by FSCAA Board
- March 2016 - FSCAA representatives attended EPA's Advance workshop at EPA Region 6
- June/July 2016 - Path Forward document approved by ETF & JATSO Boards
- July 2016 - Path Forward document submitted to EPA Advance Program

Education Strategies

Description

Air quality awareness applies to both the public and the business community. Increasing education about air quality will aid in the decision-making process based on an understanding of the broader impacts of everyday activities. The objectives of the tasks in this section are to increase the level of knowledge of individuals and the business community about actions that can be done to reduce ground-level ozone.

Short Term Strategies - Education

Message

Continue FSCAA's implementation of the educational communication plan to deliver components of the various topics. Identify options for communication message delivery methods, such as press releases, newsletters articles, media appearances, etc. Encourage large companies, schools, hospitals, etc. to disseminate provided information about ground-level ozone during the ozone season. Meet with organizations with large fleets to advocate the "No Idle" message.

Public Service Announcement (PSA)

Continue to develop current PSA series to be released as outlined in the communication plan to increase public awareness of ozone issues. The newest component of the series is the Solvent PSA that encourages proper use of household chemicals. The print ad below is accompanied by a short video PSA with 3 steps homeowners can take to prevent solvent abuse.



Solvent PSA Print Ad

Social Media

Promote and maintain a presence on social media such as Facebook, Twitter and YouTube.

Website

Promote and maintain the FSCAA website at www.SummerAir.org to act as a central site to distribute information to the community. Embed a link from MoDNR and/or the Quapaw Tribe to graphically show the levels of ozone data, including current data but also historical data from previous years.

Speaker's Bureau

Continue efforts to familiarize by speaking to community groups. Identify appropriate audiences and secure speaking opportunities to promote ground-level ozone awareness to create an educated population who will take actions to reduce ozone precursors.

Long Term Strategies - Education

These tasks will be evaluated for completion as funding and other resources become available.

Public Opinion Survey

Develop and administer a survey to determine the public's opinion on emission reduction strategies to obtain feedback from stakeholders regarding which specific emission reduction strategies they would be willing to support and adopt. This information would provide additional direction to future efforts. Survey participants would be provided with a list of proposed ozone-forming emission reduction strategies and asked to prioritize each one, as well as indicate their willingness to adopt or support each strategy. Example strategies to be included on a survey of this type might include a "Public No Idling Campaign", "School No Idling Campaign", "Public Participation in Ozone Alert Day Activities, "Support biking and walking infrastructure" or "Implement energy efficiency projects at home and at work".

Video

Identify partners to produce a 10- to 15-minute video to be used as part of an educational package.

Permanent Education Display

Create and purchase a display like the portable unit but one that can be installed permanently at an appropriate location, such as the Wildcat Glades Conservation and Audubon Center in Joplin, MO; the Southeast Kansas Nature Center at Schermerhorn Park in Galena, KS or at a tribal center in northeast OK.

Emergency Ozone Alert system

Issue an alert to public when ground-level ozone readings are predicted to rise above a specified range. Pull data from AirNow website or from monitoring stations. Make agreement with qualified meteorologist to report on this during weather forecasts during Ozone Season and/or post numbers to website on daily basis. Examples on Tulsa Ozone Alert Program <http://ozonealert.com> and this local news station air quality alert notice <http://wpri.com/blog/2015/07/11/air-quality-alert-2/>.

PSA Display on local Jumbotrons

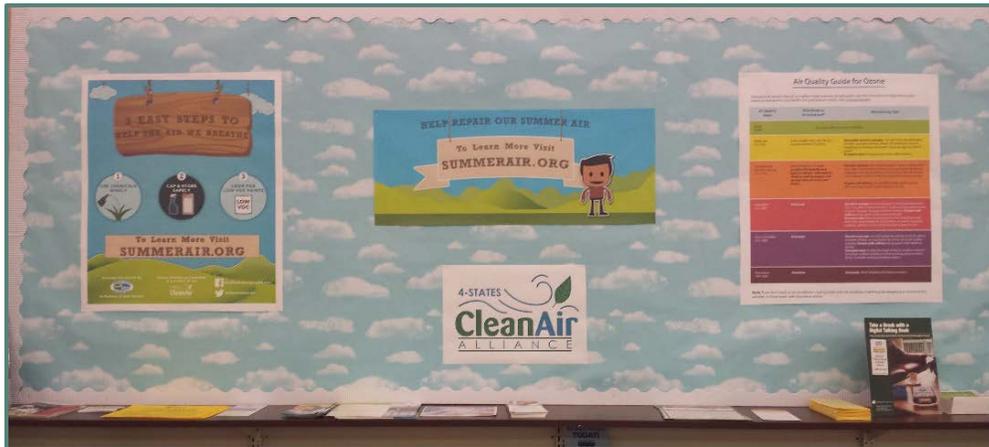
Show PSA's on Jumbotrons in local area, such as school sports venues. Research which area high schools, colleges or universities have Jumbotron screens installed and arrange for PSA's to be shown during games.

School involvement/participation

Modify current FSCAA PowerPoint presentation for use in local elementary schools. Develop events to interest school-age groups to participate and learn about ground-level ozone, such as essay contest, art shows, science fairs, or similar. Educate and encourage local schools and other organizations to join the EPA-sponsored Air Quality Flag program to provide visible information about the current air quality forecast using raised colored flags. http://airnow.gov/index.cfm?action=flag_program.index

Accomplishments - Education

- April 2016 - Provided printed posters of current campaign print ads to Wildcat Glades Nature Center and Audubon Society for display at the Center building and on covered bulletin boards along the walking trails. Summer Air brochures were also delivered to the facility for distribution to visitors.
- April 2016 – Created informational display for community bulletin board located at the Joplin Public Library for display during the month of April, the beginning of Ozone Season.



FSCAA display at Joplin Library

- FSCAA Board members wrote articles for their home agency newsletters.
 - June 2016 – Empire staff wrote an article about ground-level ozone for Empire's daily internal employee communication; Ozone information also posted on Empire's Facebook page.
 - May 2016 – HSTCC staff included Clean Air campaign print ads in quarterly newsletters.
- Spring 2016 – Quapaw Tribal staff submitted an article for the EPA Tribal Air Newsletter on ITC's work with FSCAA on ground-level ozone.
- April 2016 – FSCAA representatives set up a booth at the annual Earth Day celebration at Missouri Southern State University.

- April 2016 – FSCAA representatives set up a booth at the Green Fling Environmental Day at Leggett & Platt Inc., a locally-based S&P 500 diversified manufacturer.
- April 2016 – FSCAA representatives set up a booth during the Health and Safety Fair at Downstream Casino Resort, a local tribally-owned gaming and lodging facility.
- April 2016 – FSCAA representatives set up a booth during the 10th Annual Environmental Festival held by the Wyandotte Nation, focused this year on environmental awareness and animal protection.



FSCAA booth at Wyandotte Nation Environmental Festival

- Summer 2016 – Submitted article on ground-level ozone for the City of Joplin “Citizen” newsletter distributed to all residents in Joplin city limits.
- August 2016 – Assembled a window box display at the Joplin Public Library for the month of August themed with a message to decrease homeowner’s lawn size to reduce mowing and to encourage the use of a reel mower as an alternative to gas-powered lawnmowers.



“Why grow when you can sow” display at Joplin Public Library

- August 2016 – FSCAA representatives set up a booth at the Shoal Creek Water Festival held by the Wildcat Glades Nature Center and Audubon Society, with a message about decreasing lawn size to reduce mowing; handed out over 100 fact sheets with an attached packet of native wildflower seeds.
- Throughout Ozone Season - Utilized Speaker’s Bureau to present message to these community partners: Rotary Club of Joplin, the Joplin Safety Alliance, and a local Boy Scout pack.
- Throughout Ozone Season - Participated in several interviews with local programs associated with the local broadcast TV stations, the City of Joplin “Joplin Insider” show, and Missouri Southern State University’s “Newsmakers” show. These 30-minute programs provided an opportunity to discuss the goals, projects and public education efforts of FSCAA.

Energy Conservation & Utility Strategies

Description

The implementation of energy conservation programs by individuals, businesses, and municipalities can have an impact on energy production thus reducing air pollutants.

Short Term Strategies - Energy Conservation & Utility

NOx reductions from power plants

Empire to maintain NOx levels at or below 2007 baseline - In practice using low-NOx boilers and Selective Catalytic Reduction (SCR).

VOC reductions from power plants

Carthage Water & Electric Plant maintain VOC levels at or below 2011 baseline

Energy Conservation Awareness/Programs

Promote energy conservation and efficiency messaging to customers as developed and provided by the education committee.

Energy Conservation Awareness/Programs

Promote energy conservation and efficiency messaging to employees and other internal audiences as developed and provided by the education committee.

Long Term Strategies - Energy Conservation & Utility

N/A

Accomplishments - Energy Conservation & Utility

Empire District Electric Company (Empire) has already taken steps to significantly reduce NOx emissions from their plants. Since 2009, Empire has reduced an average of 810 tons of NOx per year from the Riverton Plant, 3,299 tons of NOx per year from the Asbury Plant and 635 tons of NOx per year from the Iatan 1 Plant. Empire expects they will continue to produce 15 percent to 17 percent of their total net system input with their hydro facility at Ozark Beach, Missouri and through power purchase agreements with Elk River Wind Farm, LLC and Meridian Way Wind Farm, LLC. Empire anticipates they will sell most of the environmental attributes associated with the wind farm generation.

During 2016, Empire reduced 997 tons of NOx from the Riverton Plant, 3,602 tons of NOx from the Asbury Plant, and 614 tons of NOx from the Iatan 1 Plant. Improvements at the Asbury and Iatan 1 Plants are due to the installation of Selective Catalytic Reduction NOx Systems. Empire produced 15 percent of their total net system input in 2016 with their hydro facility at Ozark Beach, Missouri, and through power purchase agreements with Elk River Wind Farm, LLC and Meridian Way Wind Farm LLC. Empire has sold most of the environmental attributes associated with the wind farm generation.

At Empire's Riverton plant, an existing simple cycle combustion turbine was converted to a more efficient combined cycle unit which began full operation in 2016. A combined cycle unit recovers heat from the combustion turbine to produce steam and generate additional electricity via a steam turbine. This conversion project included the addition of a SCR to reduce NOx emissions. Also, in conjunction with bringing the combined cycle unit on-line, two coal/natural gas fired boilers were permanently retired.

From 2009-2016, Empire has implemented 19 different energy conservation incentive programs, saving its customers across four states the electric usage of nearly 15,000 homes (177,000 MWh) and one state with lower natural gas usage.



Empire's electric vehicle & charging station

In 2016, Empire began partnering with local businesses to install EV charging stations. As of June 30, 2017, this effort has resulted in public charging stations at 9 separate locations in Joplin, Branson and Ozark with several more in the planning stage.

Electric vehicles (EVs) offer an increasing potential to reduce emissions. Empire is committed to expanding their use of EVs as well as encouraging broader adoption of EVs throughout its service area. According to the Department of Energy's Alternative Fuels Data Center, Personal EVs in Missouri emit 27.2% less pollutants than gasoline counterparts, on average. As an increasing amount of renewable energy is added to the electric grid, emission reduction opportunities are growing. When powered by renewable energy sources, such as wind, EVs can operate emission free.

Empire dedicates over 5% of its annual fleet replacement budget to the purchase of plug-in vehicles. Currently, there are 8 plug-in hybrid EVs in Empire's fleet and 3 hybrid bucket trucks. Traditional bucket trucks require the gasoline motor to run, at high RPM, while the bucket is in operation. The hybrid bucket truck allows the bucket to operate without the gasoline motor running, providing fuel savings and lower emissions.



Empire's electric powered bucket truck

Carthage Water & Electric Plant (CW&EP) has already taken steps to reduce VOC emissions from the Carthage power plant. In the winter of 2011/2012, CW&EP installed catalytic converters on its engines, which reduce the amount of VOC being emitted from the plant. During 2015 and 2016, emissions were reduced by an estimated 51.61 and 68.05 percent respectively. [Note: The Carthage power plant is a peaking facility, meaning the plant only generates power on days when power is in highest demand. Therefore, the amount of generation can fluctuate depending on the weather. Because of these fluctuations, simply stating the amount of reduction in tons per year may not accurately reflect the overall efficiency of reduction. For this reason, the reduction is instead shown as a percentage.]

CW&EP also has a purchase power agreement with Southwestern Power Administration for hydro power generated at U.S. Army Corps of Engineers reservoirs. During 2015 and 2016, CW&EP received 7.17 and 5.59 percent respectively of its total net system input from hydro resources operated by Southwestern Power Administration.

In 2015, CW&EP, in cooperation with Eagle Picher Technologies LLC, completed the installation of a renewable energy storage system at the Centennial Complex in Carthage. The system utilizes lead-acid batteries in conjunction with solar and wind technologies to offer a glimpse at available technologies that

can be used for peak shaving in demand metering applications. The system also tracks solar and wind charging so that accurate data can be given to potential customers who would like to install similar equipment in their home or business for peak shaving, net metering, or off-grid applications. The installation utilizes bi-directional metering that measures the utility supply and renewable contributions.

Transportation Strategies

Description

Transportation sources are a significant contributor to emissions in the region. Steps to reduce emissions in this area can be taken by individuals, businesses, and through engineering and traffic management. FSCAA's role is to advocate for transportation improvement projects and help spread news about funding notices and related information as it comes available. FSCAA will communicate with interested stakeholders to give support for initiatives as they arise.

Short Term Strategies - Transportation

Education against overfilling gas tanks

Develop and promote a "stop at the click" message for use at convenience stores and fleet fueling islands. Provide convenience store operators with decals with appropriate messaging about not overfilling gas tanks. Posting these decals on fuel dispenser islands will keep this message in front of the public on a regular basis.

Idle Reduction

Develop a message to promote and encourage idle reduction efforts. This would be a 2-pronged approach to address businesses with fleets as well as the general driving public. A survey will be created to gauge the interest level of businesses with fleets in implementing idle reduction efforts. A separate campaign will also be developed for use with the local schools and the general driving public. During the development phase, a library of "No Idle" policies from other entities will be compiled as reference tools.

Sunshine Lamp Trolley

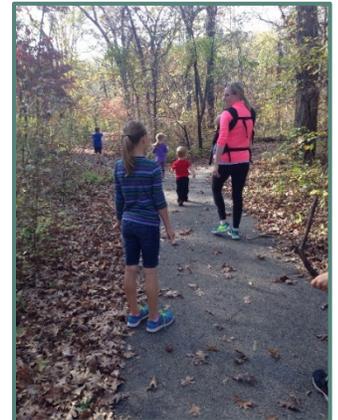
Partner with the City of Joplin to promote the use of the Sunshine Lamp Trolley system. Increase overall awareness and use of Sunshine Lamp Trolley with a week of Free Fares in the beginning of Ozone Season. On Ozone Alert Days, offer Free Ride Days to reduce the amount of personal cars on the roads.

Alternative Transportation and Commute Projects

Advocate the design, construction and/or implementation of alternative transportation and commute projects such as sidewalks, trails, bike paths and public transit, to encourage the development of a multi-modal system. Encourage employee commuter transportation programs. Support additional dedicated funding for such projects.

Planned Alternative Transportation and Commute Projects

- Bicycle and Pedestrian Transportation Plan for the Joplin Metro area.
- Update of Master Trail Plan, which is expected to add an additional 35 miles of trails in Joplin. See Appendix B for a map of this Master Trail Plan.
- Promote additional sidewalks through Transportation Alternatives funding.
- Incorporation of sidewalks and bicycle lanes into new road widening projects (Complete Streets).
- Encouraging multi-modal transportation usage through planning, zoning, and design requirements at the local government level.
- Exploring increased service and expanded routes for the Sunshine Lamp Trolley (Joplin public transportation system).
- Encourage development and use of park & ride lots
- Continue to plan and develop the West Bypass on the west side of the Joplin metropolitan area that will reduce idling on other routes
- Improved peak hour transit service and expansion of public transit system



Joplin Metro area trails used by bicyclers and pedestrians

Congestion Management Projects

Advocate the design and construction of congestion management projects targeted at local governments, engineers and others responsible for making improvements to the transportation system that will reduce idle time. Examples of these types of efforts include access management, dual left turn lanes, DDI (Diverging Diamond Interchange), ITS (Intelligent Transportation Systems), and roundabouts.



Roundabout traffic circle in Newton County

Long Term Strategies - Transportation

These tasks will be evaluated for completion as funding and other resources become available.

Rideshare

Develop and promote a Rideshare or similar program in the Joplin Metro area. Goal would be to pool a number of vehicular resources for those individuals that drive into the Joplin Metro area from outlying communities on a daily basis for work, shopping, school or other shared activities.

Diesel Emissions Reduction

Continue to research and promote funding for the retrofitting or replacement of commercial diesel vehicles or equipment as it becomes available.

Accomplishments - Transportation

- Sidewalk improvement project in Carl Junction along Route Z, from Miller St to Grimes St.
- Sidewalk improvement project in Carthage along Route 571 (Grand Ave) from Airport Drive to George E. Phelps Blvd.
- The City of Joplin received an FTA Region VII Award of Excellence at the Missouri Public Transit Association conference in Springfield, MO. These awards are presented to the transit agencies with the highest percentage increase in ridership. The Sunshine Lamp Trolley was recognized in the Small Urban Public Transit System Division for its 3% increase for 2015-2016.



Terry Wright, Transit Driver Supervisor and Robert Lolley, Transit Coordinator for the Sunshine Lamp Trolley receiving award for increased ridership.

- Expansion of trail system throughout the City of Joplin. See Appendix B for map of the City of Joplin Master Trail Plan.
- Trail project in Joplin to create a trail providing access to students and faculty to shopping and entertainment businesses. This trail, beginning at an existing Missouri Southern State University

parking lot will connect to a parking lot at Regal Northstar movie theater near the North Park Mall complex.

- Trail project in Joplin to expand the trail system in the southern section of Joplin starting at the intersection of 26th St and Main St, continuing throughout the southwest portion of Joplin to end near Cunningham Park on Maiden Ln.



Trail head for trail connecting Parr Hill Park and Campbell Parkway Park.

- Continuation of multi-modal transportation options in Joplin include shared lane markings - or "sharrow" lanes - for bicycles and automobiles on Main Street. This new signage alerts drivers that bicyclists may be present on the road.



New "sharrow" lane for cars and bikes.

- Improvements to St. Louis Ave in Joplin including the addition of a third turning lane, protected crossings for pedestrians and bicyclists using the Frisco Trail in two locations, ADA-compliant sidewalks, and dedicated bicycle lanes.



Marked and curbed crossing for pedestrians and bicyclists on the Frisco Trail.

- Construction of overpass at Kansas City Southern railroad crossing on 20th St in Joplin to allow for continuous flow of traffic and to provide safe pedestrian crossing via sidewalks.



Completion of 20th St overpass project.

- Public comment meeting held to discuss a widening project of Interstate Highway 44. Members of the community visited with City of Joplin Planning and Community Development staff to learn more about this future project.



Public comment meeting for I-44 widening project.

Major Transportation Projects in Jasper & Newton Counties (2019-2009)

Project	Road	Pedestrian	Bicycle*	Transit**	Completed***
2019					
Intersection improvements and ITS signals on 32 nd St at Main St, Indiana Ave, and Connecticut Ave	X	X			2019
Mohaska Trail Project along 26 th St from Main St to Maiden Ln	X	X	X		2019
Sidewalk improvements to repair existing sidewalks in Tornado Disaster Recovery Area		X			2019
2018					
Bicycle/Pedestrian Plan Update	X	X	X		2018
Transit system review and long-range study of a bus system	X			X	2018
ITS signals on S Main St from 15 th St to 32 nd St	X				2018
ITS signals on 20 th St from Main St to Range Line Rd	X				2018
Sidewalks on 20 th St from Main St to Range Line Rd	X	X			2018
Sidewalk improvements and Share the Road (bicycle) design on S Main St from 15 th St to 32 nd St	X	X	X		2018
MSSU multi-use path from campus to North Park Mall		X	X		2018

Sidewalk improvements in East Town neighborhood		X			2018
4-lane bridge and shared path lane on Connecticut/I-44 overpass	X		X		2018
2017					
Improvements on St. Louis Ave from Broadway Ave to Zora Ave including turning lane, ADA accessible sidewalks, bike lanes and pedestrian crossings at trail heads	X	X	X		2017
Roundabout at 32 nd St and Central City Rd	X				2017
Pedestrian improvements linking three schools in Carthage		X			2017
Pedestrian improvements on Pennell St from Temple St to Miller St in Carl Junction		X			2017
2016					
Phase II Pedestrian improvements on Pennell St in Carl Junction		X			2016
Pedestrian improvements from Fairview Elementary to Carthage High School in Carthage		X			2016
2015					
5-lane widening on Maiden Ln from 9 th St to 32 nd St	X	X	X	X	2015
20 th St overpass at Kansas City Southern crossing	X	X	X	X	2015
20 th St multi-modal trail from Range Line to Murphy Blvd		X	X	X	2015
Roundabout at N Main St/Rt 43 & Rt 171 intersection	X	X			2015
Interchange at I-44 & Prigmore Rd/CR 190 intersection	X				2015
US 60 access and intersection improvements in Neosho	X	X			2015
2014					
5-lane widening on Schifferdecker Ave from 7 th St to 32 nd St	X	X	X		2014
3-lane widening on 26 th St from Maiden Ln to Schifferdecker Ave	X	X	X		2014
Interchange improvements on I-44 & Hearnes Blvd intersection	X	X			2014
Roundabout at MacArthur Dr/Rt 171 & Centennial Ave intersection	X				2014
Pedestrian improvements on Newman Rd from Range Line Rd to Florida Ave		X			2014
Intersection improvements on HH at Hazel St in Carthage	X				2014

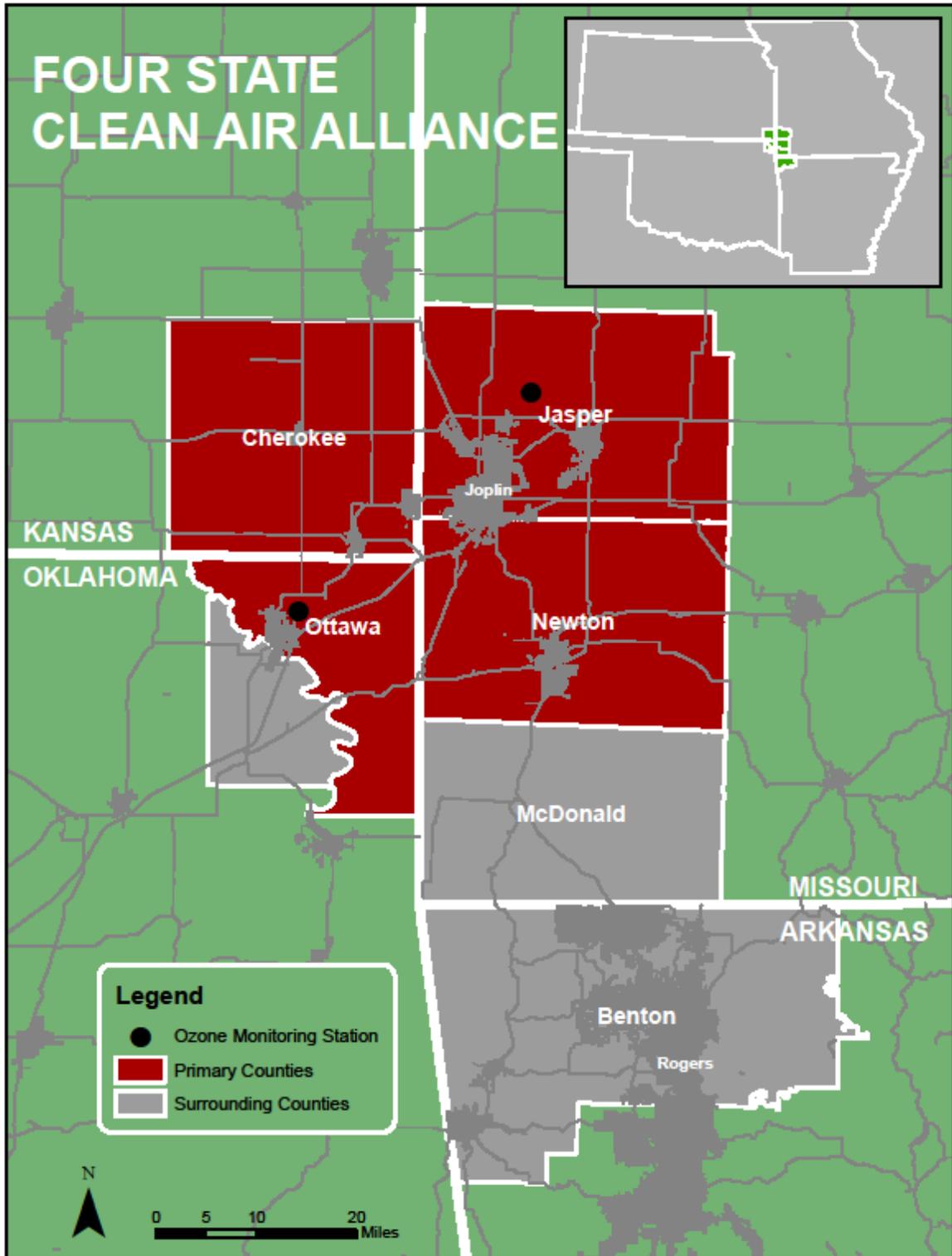
Pedestrian improvements on Roney St in Carl Junction		X			2014
Pedestrian improvements on Pennell St in Carl Junction		X			2014
2013 - 2009					
Interchange at N Main St/Rt 43 & Zora Ave intersection	X	X			2013
DDI at I-44 & Range Line Rd intersection	X	X			2013
Pedestrian improvement on 571 from E to 71 in Carthage		X			2013
Ramp improvements at various locations on I-49	X				2012
5-lane widening on Connecticut Ave from Murphy Blvd to 30 th St	X	X	X		2010
3-lane widening on Prigmore Rd/CR 190 from 32 nd St & I-44 intersection	X				2010
Video equipment along I-44	X				2010
5-lane widening on 32 nd St from Main St to Jackson Ave	X	X		X	2009
Dual turn lanes at 32 nd St & Main St intersection	X	X		X	2009
New signalized intersection on 60 at Howard Bush in Neosho	X				2009

* Dedicated bicycle lanes on road or trail

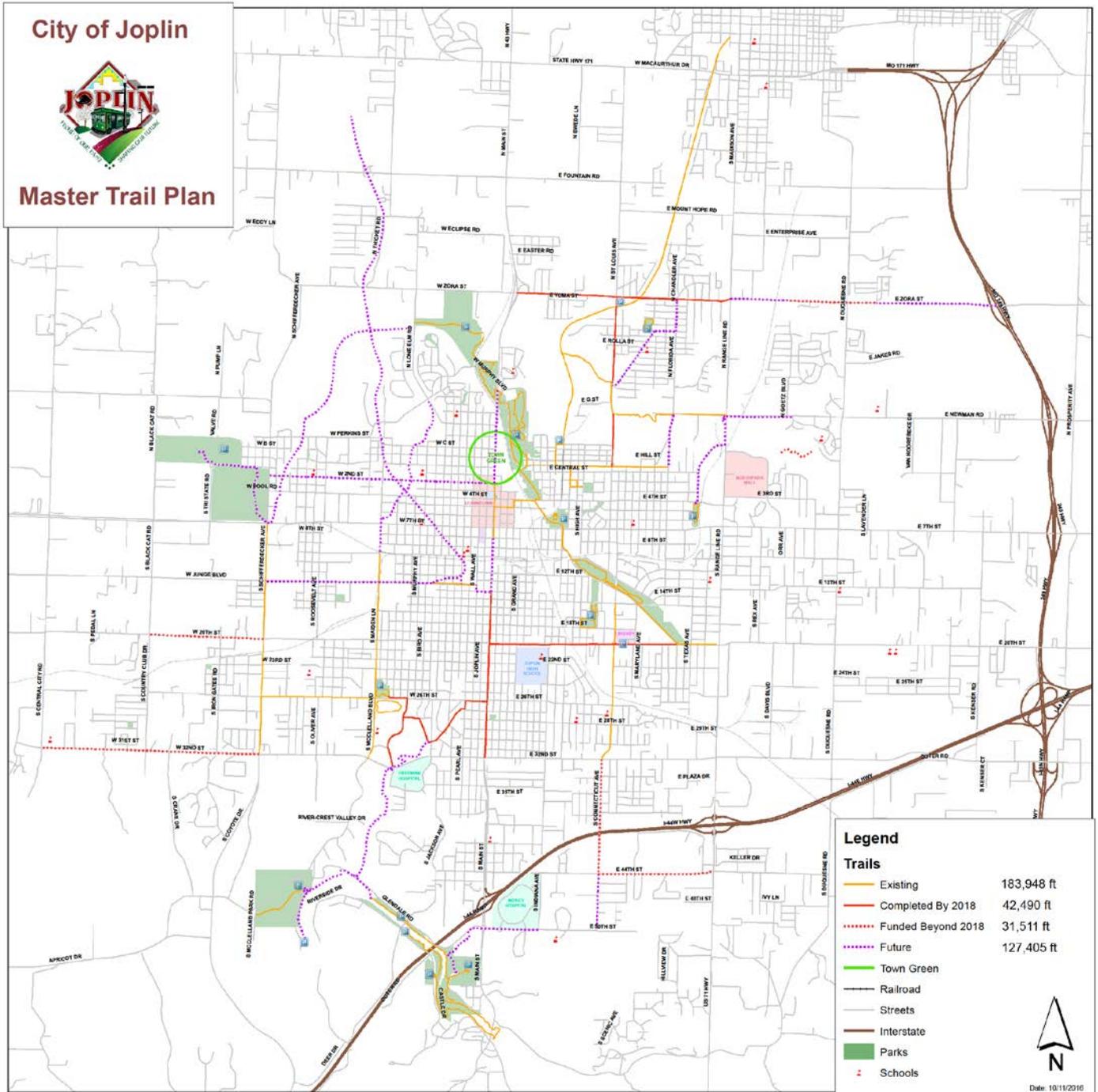
** Transit on route

*** Completed or expected completion date

Appendix A: Map of FSCAA Area



Appendix B: City of Joplin Master Trail Plan



Appendix C: Acknowledgements

The Four States Clean Air Alliance thanks these members and organizations involved with implementation of the Path Forward document for the Joplin Metro area in Missouri, focusing on Jasper and Newton Counties.

FSCAA Board Members

- Environmental Group – *Open*
- Environmental Task Force – Dan Pekarek; City of Joplin Health Department
- Inter-Tribal Council – Susie Attocknie, Craig Kreman; Quapaw Tribe
- Jasper County City – Cassandra Ludwig, Kevin Emery; Carthage Water & Electric Plant
- Jasper County Government – John Bartosh; Jasper County Commission
- Jasper County Industry – Jeff Burkett; Empire District Electric Company
- Jasper County Public Member – *Open*
- JATSO – *Open*
- MDNR – Emily Wilbur, Assem Abdul; Missouri Department of Natural Resources
- MoDOT – Andrew Seiler; Missouri Department of Transportation
- Newton County City – John Harrington, City of Neosho
- Newton County Government – Jim Jackson; Newton County Commission
- Newton County Industry – Denise Dugan; Mercy Hospital
- Newton County Public Member – Bob Hockman; TAMKO Building Products, Inc.
- Regional Planning Council – Jill Cornett; Harry S. Truman Coordinating Council
- Southeast Kansas County Government – Carl Hayes; Cherokee County Health Department

Participating Organizations

- Environmental Protection Agency
- Missouri Department of Natural Resources
- Missouri Department of Transportation
- Inter-Tribal Council, Inc.
- Quapaw Tribe
- Eastern Shawnee Tribe
- Jasper County Commission
- Newton County Commission
- Cherokee County Commission, KS
- Cherokee County Health Department, KS
- Environmental Task Force of Jasper and Newton Counties
- Joplin Area Transportation Study Organization
- Harry S. Truman Coordinating Council
- Ozarks Clean Air Alliance
- Missouri Southern State University
- Mercy Hospital
- Empire District Electric Company
- Carthage Water & Electric Plant
- TAMKO Building Products, Inc.
- City of Carthage
- City of Joplin
- City of Neosho

Appendix D: Glossary of Acronyms

CAAP	Clean Air Action Plan
DDI	Diverging Diamond Interchange
EPA	Environmental Protection Agency
ETF	Environmental Task Force of Jasper and Newton Counties
FSCAA	Four States Clean Air Alliance
HAPs	Hazardous Air Pollutants
HSTCC	Harry S Truman Coordinating Council
ITC	Inter-Tribal Council Inc.
ITS	Intelligent Transportation System
JATSO	Joplin Area Transportation Study Organization
MDNR	Missouri Department of Natural Resources
MoDOT	Missouri Department of Transportation
NAAQS	National Ambient Air Quality Standards
NOx	Nitrous oxides
O3	Ozone
VOC	Volatile Organic Compounds