BATON ROUGE AREA
CLEAN AIR ACTION REPORT

Prepared for

ADVANCE
A U.S. Environmental Protection Agency Program

EPA'S OZONE AND PM ADVANCE PROGRAM
[2014 UPDATE]

Prepared by

Baton Rouge
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CAPITAL REGION PLANNING COMMISSION
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Louisianacleanfuels

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INTRODUCTION

This document has been prepared to satisfy the annual "Path Forward Plan" requirement for the Baton Rouge area under EPA's Advance Program. As with the original report prepared last year, this report has been prepared as a cooperative effort of the Baton Rouge Clean Air Coalition, the Capital Region Planning Commission, and Louisiana Clean Fuels.

This report is a simple update to the original and more exhaustive 2013 report. The 2013 report provided extensive background information on the Baton Rouge area including physiography, land use, climate, economy, transportation, and air quality. It also served to chronicle ozone attainment history and detail numerous voluntary emission reduction measures that have been or are being taken to mitigate the area's ozone levels. The 2013 report can be accessed at **http://epa.gov/ozonepmadvance/pdfs/20131220batonrouge.pdf.**

AIR QUALITY UPDATE

OZONE

Ozone levels in the Baton Rouge area have continued to improve. The area achieved attainment with the standard in 2013 (based on 2011-2013 monitoring data) with a design value of 75 ppb (parts per billion). This design value is equal to the existing 2008 8-hour ozone standard. This standard was the third one that the area has met. This achievement was also two years ahead of the federal attainment date for the area. In 2014, the area's design value declined further to 72 ppb (based on 2012-2014 data). In 2014 there were only four exceedance days in the Baton Rouge area with only a few monitors affected.

The overall downward trend in 8-hour ozone design values for the Baton Rouge area is presented in Figure 1. This progress in bringing the local ozone levels down is remarkable given the emissions challenges for the area such as a heavy industrial corridor, marine commerce activity on the Mississippi River, two major universities, an airport, and heavy interstate traffic through the center of the urban area.

FINE PARTICULATE MATTER ($PM_{2.5}$)

Annual $PM_{2.5}$ data for the Baton Rouge area shows a downward trend over the past ten years (Figure 2). Fourth quarter 2014 fine particulate and AQI data were not available at the time this report was prepared.

In a January 15th 2015 Federal Register announcement, EPA reported that all areas of Louisiana including the 5-parish Baton Rouge ozone nonattainment area are classified as either unclassifiable or attainment for the annual $PM_{2.5}$ NAAQS based on 2012 monitoring data.

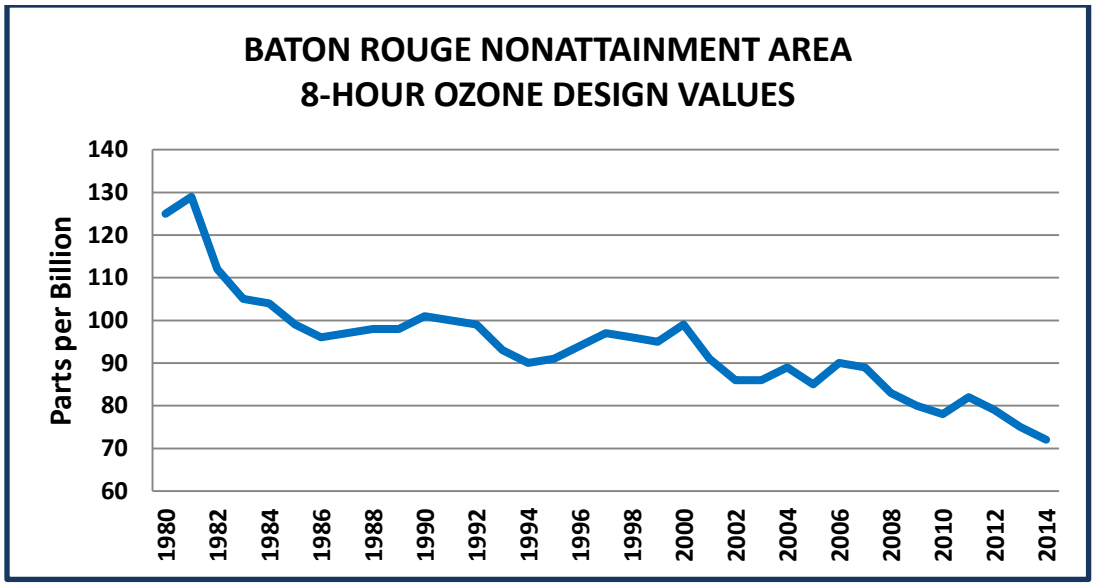

Figure 1. Ozone progress in the Baton Rouge Ozone Nonattainment Area.

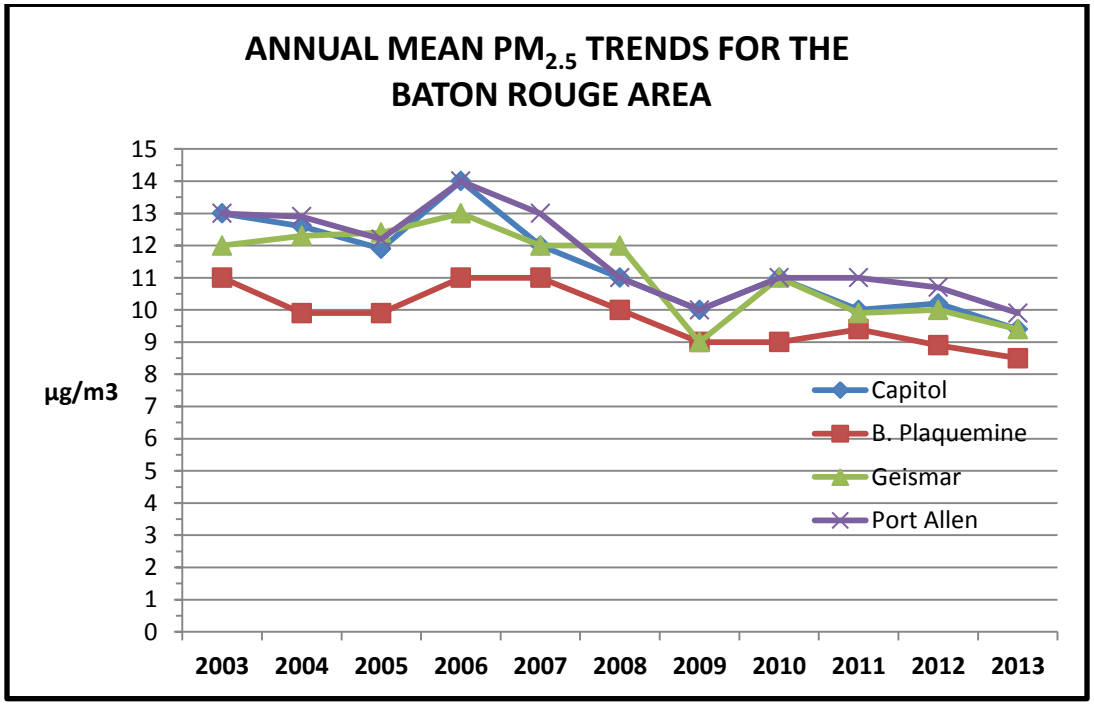

Figure 2. $PM_{2.5}$ annual mean value trend chart for the four monitors in the Baton Rouge area.

EXPECTATIONS FOR EPA'S REVISED OZONE STANDARDS

In December 2014, EPA proposed to make revisions to the primary and secondary NAAQS for ozone (Federal Register Vol. 79, No. 242, December 17, 2014). The EPA proposed to revise the primary standard to a level within the range of 65 to 70 parts per billion (ppb), and also to revise the secondary standard to within the same range.

Although the Baton Rouge area achieved attainment of the 2008 8-hour ozone standards in 2014 (two years ahead of schedule), it now faces new, more stringent standards that will, in all likelihood, return the area to nonattainment status. Severe impacts on the local economy, transportation projects, and cost of energy are expected. The new standards are expected to grind to a halt a budding industrial renaissance with the accompanying economic benefits for the Baton Rouge area. Moreover, even EPA admits it can identify only a small percentage of the controls that would be required to meet the new standards. There is no clear path forward to attainment of the new standards, thus the future might hold a perpetual state of nonattainment and stalled economic growth for the Baton Rouge area.

The expected designations for Louisiana metro areas under the proposed standards are shown in Figure 3.

MSA	75 ppb	70 ppb	65 ppb	60 ppb
New Orleans-Metairie-Kenner	A	NA	NA	NA
Baton Rouge	A	NA	NA	NA
Shreveport-Bossier City	A	A	NA	NA
Lafayette	A	A	NA	NA
Houma-Bayou Cane-Thibodaux	A	A	NA	NA
Lake Charles	A	A	NA	NA
Monroe	A	A	A	A
Alexandria	NM	NM	NM	NM

Note: A=Attainment; NA=Nonattainment; NM=Not monitored

Figure 3. Expected designations for Louisiana metro areas under EPA's proposed ozone standard revisions.

Assuming EPA follows its 2012 Classifications Rule (77 FR 30160; May 21, 2012), all metro areas would be classified as "Marginal" for any standard set from 65 to 70 ppb (based on 2014 design values).

Looking at the probable new nonattainment designations under an EPA proposed standard of 65 ppb (Figure 4), practically all of south Louisiana along with the Shreveport-Bossier area will be affected.

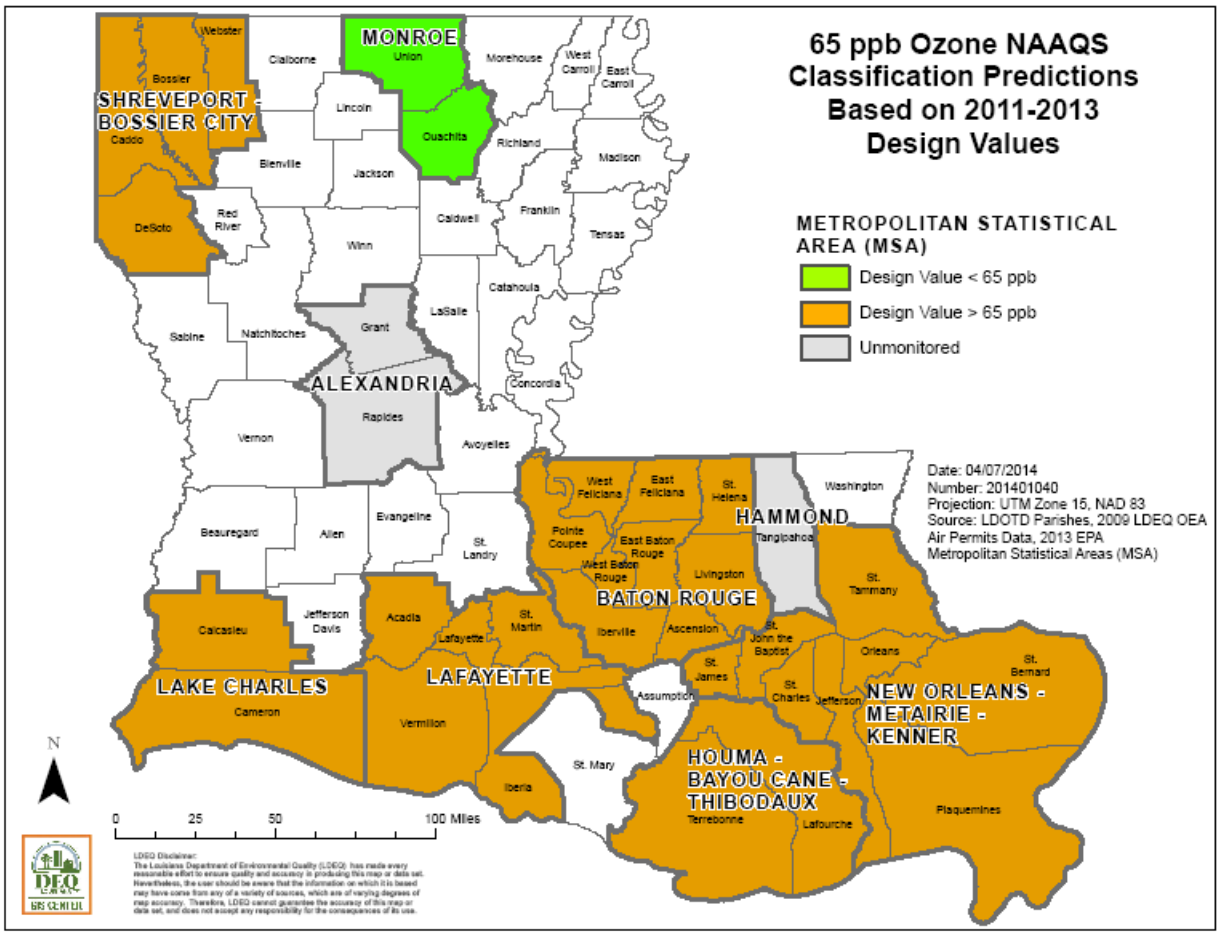

Figure 4. Potential impacts of proposed ozone standard revisions on designations of Louisiana metro areas (2014 design values produce the same results as 2013 values).

2014 VOLUNTARY EMISSION REDUCTION ACTIVITIES

ALTERNATIVE ENERGY

Louisiana Clean Fuels

In their 2013 Transportation Technology Deployment Report released in March 2014, Louisiana Clean Fuels (LCF) reported that within their covered area, which includes Baton Rouge area parishes, almost 1 million gallons of gasoline equivalents and almost 5,000 tons of greenhouse gas emissions had been reduced mainly through their activities. The 2014 report is not yet complete, but it is expected that even larger reductions are expected for their activities in 2014. A major achievement LCF accomplished in 2014 was the completion and opening of a truck stop electrification project in West Baton Rouge Parish.

CATS Alt Fuel Study

Earlier this year, Capital Area Transit System (CATS) leadership commissioned a $91,000 study from the University of New Orleans Transportation Institute to conduct a cost-benefits analysis of various alternative fuel options. The report ultimately recommended a long-term transition to electric buses — the option easiest on the environment with zero tailpipe emissions but with the greatest financial barrier to entry.

West Baton Rouge CNG and Fleet Conversion

With a combination of CMAQ funding and local match, West Baton Rouge Parish is planning construction of a CNG fueling station, conversion of 10 existing vehicles to CNG and then purchasing 20 new CNG vehicles to replace existing vehicles.

Tenaska NG Fuels, LLC

Louisiana's first natural gas liquefaction and fueling facility, known as Tenaska Bayou LNG, is planned to be built in Baton Rouge. Located at the Port of Baton Rouge, the facility would provide liquefied natural gas (LNG) and compressed natural gas (CNG) as alternative clean-burning and lower cost fuels for high-horsepower marine, transportation, and natural gas and oil exploration and production industries in the region. Construction is planned to begin in 2015 and could last 18 to 24 months.

ENERGY EFFICIENCY

According to the Louisiana Department of Natural Resources (LDNR), the energy efficiency measures described in the 2013 Advance Report were continued into 2014 except for the Renew Louisiana Energy Efficiency Conservation Block Grant Program (EECBG) Program, ARRA SEP grant funds allocated to ***Energy Star*** appliance rebates, Home Energy Rebate Option (HERO) Program, State Buildings – Lead by Example Program, Transportation Efficiency & Alternate Fuels Program, and the Revolving Loan Fund.

EPISODIC CONTROLS

All of the episodic controls described in the 2013 Advance Report have continued through 2014. These include Ozone Action Days, EnviroFlash, and Industry Ozone Action Days.

URBAN HEAT ISLAND

Baton Rouge Green's urban forestry program, NeighborWoods, continues to be active in the Baton Rouge area, with an estimated 30,000 trees planted in the urban environment by the organizations volunteers and supporters.

RESEARCH/APPLICATION OF NEW TECHNOLOGIES

Regional Airshed Modeling

With its current "marginal" ozone classification, the Baton Rouge nonattainment area is not required by federal regulations to conduct regional ozone modeling for its forthcoming state implementation plan (SIP). However, in 2013, LDEQ with the support of major stakeholders committed to a new round of very sophisticated statewide ozone modeling. The modeling was completed in 2014 and is expected facilitate intelligent choices in ozone mitigation measures among the state's major urban areas to help prevent these areas into falling from attainment into nonattainment with the current ozone standard. It is also expected to provide a look into possible future circumstances should the ozone standard be lowered. The modeling will also provide capability to test various emission reduction strategies for efficacy at lowering ozone levels. The results of future year (2017) modeling are summarized in Figure 5. These modeled projections indicate that the Baton Rouge area would be in compliance with the existing ozone NAAQS, but would likely fall into nonattainment with EPA's proposed revision of the ozone NAAQS.

In an EPA December 2014 webinar presentation on proposed revisions to the National Ambient Air Quality Standards for ozone, a graphic (Figure 6) based on EPA modeling projects that the Baton Rouge metro area along with Lake Charles and Shreveport would violate a 65 ppb standard in 2025. It was not shown what assumptions were used as to emission controls for that modeling.

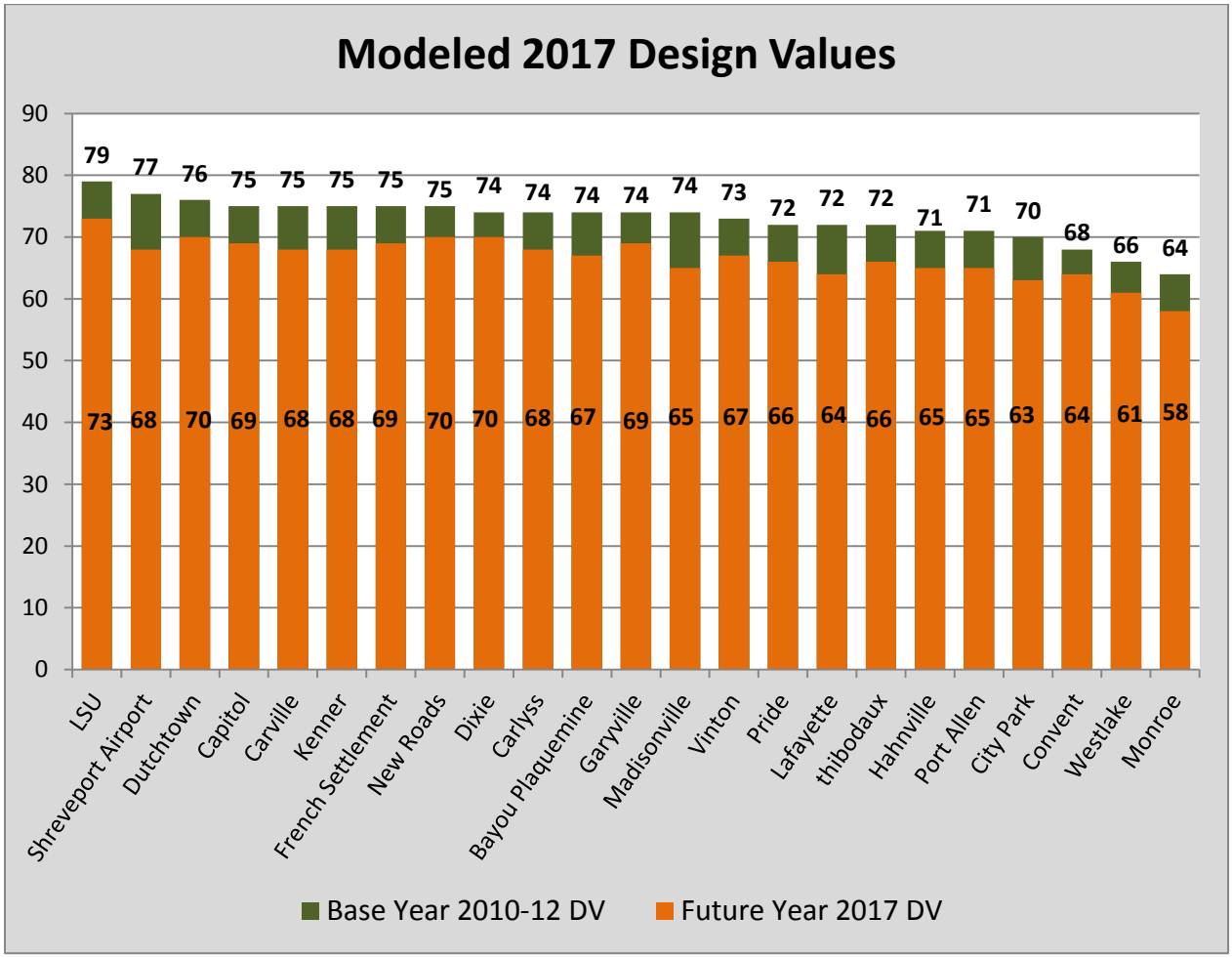

Figure 5. Regional Airshed-modeled 2017 8-hour ozone design values for Louisiana.

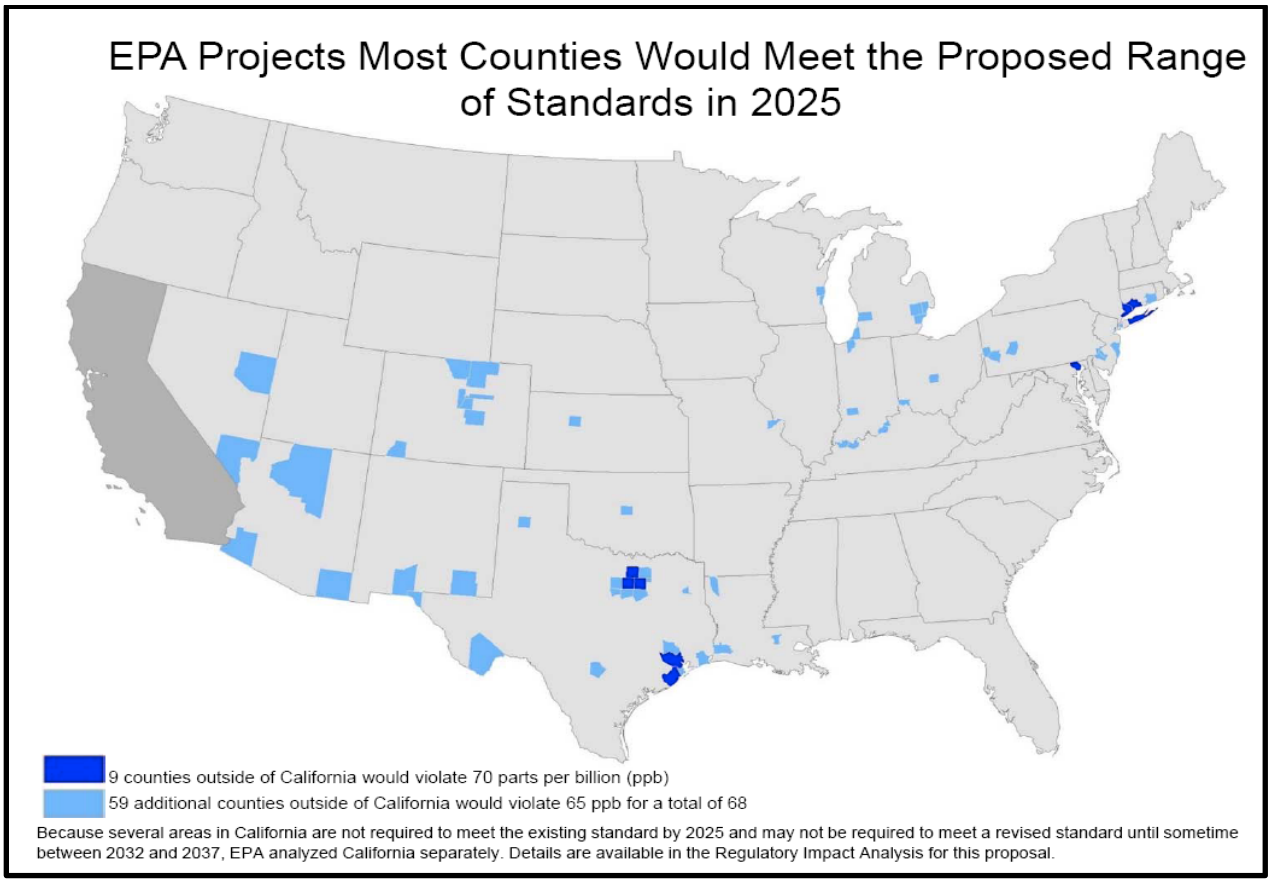

Figure 6. EPA modeling results for proposed revision to the National Ambient Air Quality Standards for ozone.

PUBLIC OUTREACH AND EDUCATION

The Baton Rouge Clean Air Coalition, Capital Region Planning Commission, Louisiana Clean Fuels, LDEQ, and LDNR are all continuing public outreach and education activities as described in our 2013 Advance Report.

BRCAC

BRCAC stakeholders were active in assisting in the establishment of Clean Air Coalitions and promoting the Advance Program in the New Orleans and Houma-Thibodaux areas.

BRCAC Executive Director, Dr. Mike McDaniel, was active throughout the year with presentations to different groups on the Baton Rouge ozone situation and what to expect with the proposed revisions to the ozone standards.

Late in 2014, BRCAC arranged a forum held at LDEQ on generating and documenting emission reduction credits for projects involving ports and marine vessels.

LCF

LCF outreach activities for 2013 were documented in their 2013 Transportation Technology Deployment Report completed in March 2014. Outside of their stakeholder meetings, they reported 16 outreach events featuring alternate fuels and AF fleets. They also continued their public information and outreach activities through their online newsletters.

LDEQ

In May, 2014 LDEQ sponsored a press conference celebrating the Baton Rouge area achievement of the 2008 8-hour ozone standard. EPA Region 6 Administrator Ron Curry was the featured speaker.

LDEQ was involved in a broad effort for public outreach and education during Air Quality Awareness Month including more than 20 TV and radio interview around the state of Louisiana. LDEQ staff also presented the air quality information to industry and business at conferences and meetings.

LDEQ continued to publicize and promote the EnviroFlash Notification System, which in partnership with EPA, alerts Louisiana citizens about air quality.

LDEQ continued their EPA Advance Program activities with communications and meetings around the state and continued efforts to build new Advance programs in new areas of the state.

CRPC

CRPC public outreach activities included announcement of the new GreenRide Program they would be implementing in early 2015. Descriptions of the program and its benefits were included in several local newspaper articles and featured in numerous presentations about CRPC air quality activities. Several presentations concerning air quality updates for the Baton Rouge area were given to the MPO Technical Advisory and Transportation Policy Committee meetings.

CPRC and LDEQ are continuing to work with the EPA School Flag program, especially with the ones in the non-attainment parishes, to create public awareness of outdoor air quality conditions so that children can continue to exercise while protecting their health when air quality is in unhealthy ranges.

LDNR

The Louisiana Department of Natural Resources continued its outreach activities associated with their agency responsibilities for promoting energy efficiency and alternate fuels.

OTHER

GeauxRide

The Capitol Region Planning Commission is in the process of implementing the internet-based GreenRide ride sharing program for the Baton Rouge area. The same program has been implemented in the New Orleans area and plans are to ultimately link or integrate the programs for the two areas. CRPC has recently contracted for the program and is in the early stages of testing it with selected employers. Although a GreenRide product from the Trapeze Group, the program is being rebranded as Geaux Ride for the Baton Rouge area.

Bike Racks in Downtown Baton Rouge and at Southern University

CRPC acquired CMAQ funding to purchase and install bike racks in downtown Baton Rouge and at Southern University.

EPA Bikeshare Planning Grant.

CRPC assisted the Baton Rouge Downtown Development District is a successful grant application to EPA for a bikeshare planning grant.

DOTD Smartphone Application "Good to Geaux"

In addition to a number of traffic management measures described in our 2013 Advance report, the Louisiana Department of Transportation and Development (DOTD) in late 2013 announced the launch of "Way to Geaux," a new hands-free, eyes-free smartphone application providing Louisiana travelers access to around-the-clock, real-time traffic and road condition updates. LDOT's traffic management measures provide both convenience and air quality benefits by mitigating Baton Rouge traffic congestion.

New Strategy for Emission Reductions

While we are working diligently to maintain attainment with the ozone standard, the Baton Rouge area is on the cusp of a major industrial renaissance due to the availability of long term contracts for cheap, natural gas for energy and feedstock for production of various products such as liquid fuels, ammonia, hydrogen, and other various chemicals. This new abundance of natural gas is the result of new extractive technologies of horizontal drilling and hydraulic fracturing of deep shale deposits.

The Greater Baton Rouge Industry Alliance has tabulated a remarkable $23.7 billion in announced or underway industrial projects in the Baton Rouge Metropolitan Statistical Area

(MSA). A recent survey conducted by the Baton Rouge Area Chamber across the Baton Rouge area projects that 16,400 jobs will be created locally through 2015. While this is great news for the state and the Baton Rouge area for economic development and jobs opportunities, it does present some challenges for maintaining attainment for the national ozone air quality standard. There will be an increase in ozone-forming emissions directly from the new industrial activity as well as ancillary emission increases associated with increased materials transportation (roadways, rail, air, and pipelines). There will also be a concomitant increase in mobile and area emissions associated with expected population growth.

The importance of maintaining attainment of the federal ozone standard in the Baton Rouge area cannot be overstated. Under federal Clean Air Act requirements, any new major source of emissions (new industrial developments or expansions) must undergo New Source Review (NSR). In attainment areas NSR consists of a process called Prevention of Significant Deterioration (PSD). New Source Review in nonattainment areas (NNSR) is a much more severe process. The principal requirements of NNSR are:

- Installation of Lowest Achievable Emission Rate (LAER) technology
- Provision for "offsets" representing emission reductions that must be made from other sources, and
- Completion of an analysis of alternate sites, sizes, production processes, and environmental control techniques and demonstrate that the benefits of locating the source in a nonattainment area significantly outweigh the environmental and social costs imposed

The "offset" provision of NNSR requires that, for example, a new industry locating in an ozone nonattainment area that expects to emit 100 tons per year (tpy) of a pollutant (e.g. NOx) might have to find 110 tpy of reductions from another source to offset its emissions. The offset ratio (e.g. 1:1.1) is designed to ratchet down ozone-forming emissions over time. It is this provision that presents the potential for seriously constraining industrial development in the Baton Rouge area. The stark truth is that there is precious little in the way of available offsets to support permitting for new industries or expansions at existing industries.

While the limited availability of offsets is a concern for industrial development in the short run, it is a show stopper in the long-run. EPA has recently proposed a new, more-stringent ozone standard expected to be between 65 to 70 ppb. Current guidance from recently completed regional airshed modeling for the State of Louisiana undertaken by LDEQ strongly suggests that the Baton Rouge area (among most other urban areas within the state) may fall into ozone nonattainment status with the new standard. As can be seen in figure 3, only a very few of the monitored metro areas around the state are expected to be able to comply with a new ozone

standard of 65 ppb or below. The Baton Rouge area is projected to be nonattainment monitor. Thus, unless things change, the Baton Rouge area will be subject to NNSR at a standard of 70 ppb based on modeled results for the LSU and "offset" requirements for some time. The constraint presented for new industrial development by the scarcity of available offsets will only grow worse unless some innovative strategy is established to help meet offset requirements.

After almost 25 years of working to reduce ozone levels in the Baton Rouge area, practically all of the easy and relatively low-cost emission reduction measures have been exhausted. Recognizing these impediments to further progress in reducing ozone levels and economic development, Dr. Mike McDaniel, Executive Director of Baton Rouge Clean Air Coalition, has proposed an innovative strategy for the Baton Rouge area that will (1) reduce ozone-forming emissions and help facilitate maintenance of the ozone standard, and (2) produce bankable emission reduction credits that can be used to meet offset requirements for permitting new facilities and expansions at existing facilities.

Historically, ERCs were typically earned by an industry through implementing projects that resulted in emission reductions at their facility. For example, an industry might close or put controls on an existing source. DEQ would have to certify the credits before allowing them to be banked or used for offsets, since the credits must meet Clean Air Act requirements that they be:

- Enforceable (i.e., authorized by an appropriate permitting mechanism)
- Permanent
- Quantifiable
- Real (i.e., must be actual, not potential emission reductions), and
- Surplus (i.e., not required by a regulation)

Alternatively, an industry might buy ERCs that have been banked by another industry.

The current problem with this rather limited field of play (industrial facilities) is that the emission reduction credits bank is now practically broke with few, if any credits, available to provide needed offsets.

In light of this constraint, Dr. McDaniel and BRCAC stakeholders have proposed that a new program be implemented that facilitates the earning of ERCs through industries underwriting or contributing to innovative, off-property projects in mobile and areas source categories that would relate to innovative ozone mitigation strategies such as:

- Alternative fuels
- Energy efficiency

- Episodic controls
- Urban heat island
- Transportation Management

These projects could be conducted with mobile sources, area sources, and other non-industrial sources. The use of such projects is not without precedent (e.g. "cash for clunkers" program; EPA guidance for "Using Locomotive and Truck Idling Emissions Reductions for New Source Review Offsets"; EPA March 14, 2000 response to San Diego Air Pollution Control District concerning PG&E's request to use mobile emission reduction credits (MERCs) to offset NOx emissions for a power plant project). DEQ suggests this could work in Louisiana with a modification of their rules, which they are currently undertaking.

Some examples of types of projects that could be conducted in the Baton Rouge area are:

1. Local industry funds truck stop electrification to earn NOx ERCs
2. Local industry funds retrofits/conversions of marine vessels operating on the Mississippi River in the Baton Rouge region for NOx ERCs
3. Several local industries contribute to a Green Port Initiative at Port of Baton Rouge and take a proportion of emission reduction ERCs relative to their contribution
4. Local industry pays for conversions of school buses from diesel to CNG and gets ERCs for $PM_{2.5}$ emissions reductions
5. Local industry contributes to match for local government grant for vehicle fleet conversions to CNG
6. Local industry contributes to public, commercial, or residential energy efficiency projects
7. Local industry funds grants for replacement of old lawn care equipment with new low-emission equipment

EPA acknowledges that the majority of emission controls needed to meet the new ozone standards are unknown. Implementing the proposed innovative strategy will help solve this problem and provide a number of valuable benefits such as:

- Allow for continued economic and transportation development (increased availability and lower costs for ERCs)
- Provide for overall ratcheting down of emissions in the nonattainment area
- Reduce emissions from important ozone precursor sources not easily regulated by LDEQ (e.g. on-road and off-road mobiles sources, area sources)
- Facilitate overall emissions reductions in pursuit of ozone attainment
- Open up a new area of business opportunities

Forum on Generating and Documenting Emission Reduction Credits for Projects Involving Ports and Marine Vessels.

Baton Rouge Clean Air Coalition sponsored a forum on emission reduction credit opportunities for projects involving ports and marine vessels on December 9th at LDEQ.

The Louisiana Department of Environmental Quality is in the process of developing new rules to allow emission reduction credits (ERCs) to be generated for emission reduction projects for mobile and area sources as well as industrial sources. These ERCs could be banked, traded, or applied as offsets for permitting new sources or expansions at existing facilities. One of the areas of greatest promise for substantial generation of ERCs is ports/marine vessels. Thus, we invited Bruce Anderson of Starcrest Environmental Group LLC to lead a forum and discussions related to generating ERCs for ports and marine vessels. Starcrest has extensive experience with emissions estimating and reduction projects at many large marine operations around the country.

2015 PLANS

All of the Baton Rouge Advance participants (BRCAC, LCF, and CRPC) plan to continue with their ongoing activities into 2015.

One major effort all three organizations will be participating in for 2015 is the completion and implementation of a new strategy to grant emission reduction credits for mobile and area sources as well as point source projects. LDEQ is currently drafting rules for this strategy and expects the rules will be in place by late summer or early fall. To support this strategy, the organizations will also be working on the architecture (structure and function) of a coordinating entity (e.g. clearinghouse) to assist LDEQ with tracking, vetting and implementing projects to generate emission reduction credits that could be available for offset use for air quality permit applications.