APPENDIX H

Air Quality Supporting Information and Correspondence

Connect Cobb

Northwest Transit Corridor Environmental Assessment

Air Quality Analysis Report

December 20, 2013

U.S. Department of Transportation

Federal Transit Administration

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ATTACHMENTS

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Connect Cobb Northwest Transit Corridor
Cobb and Fulton Counties, Georgia

Project Description: The project corridor is approximately 25 miles long and extends from the northern terminus in the City of Acworth (Cobb County) to its southern terminus in Midtown Atlanta (Fulton County). The preferred alternative would include Bus Rapid Transit (BRT) service in exclusive bus lanes along US 41/Cobb Parkway starting in Kennesaw and continuing in I-75 High Occupancy Vehicle (HOV) lanes south of Akers Mill Road. The preferred alternative would also include express bus service in the I-75 managed lanes and HOV lanes from Acworth to the Metro Atlanta Rapid Transit Authority (MARTA) Arts Center Station in Midtown Atlanta. It is anticipated that some additional right-of-way on US 41/Cobb Parkway would be required, however the amounts and locations of this additional right-of-way have not been determined. The project also includes construction of 24 transit stations to serve the BRT system.

The project has been developed in two phases. Phase 1 includes those improvements described above from the City of Acworth to the Cumberland South transit station in the area of the I-75 and I-285 interchange. Phase 1 would include BRT lanes and 16 of the 21 proposed transit stations.

Phase 2 would continue the BRT system south on I-75 to the MARTA Arts Center Station. Buses would use HOV lanes and include the remaining five transit stations.

Ozone: This project is not included in the currently approved TIP. However, based on conversations with ARC, Connect Cobb is not currently in the constrained Regional Transportation Plan (RTP). It is in the aspirations element of the plan as a series of links from Arts Center to Town Center (ASP-AR-414 to ASP-AR-419). In the RTP update, which will be adopted in February 2014, a first phase will be brought into the long range portion of the constrained plan as AR-475, with the following description:

$PM_{2.5}$: This project is contained within a $PM_{2.5}$ nonattainment area. This project has been evaluated by an interagency group consisting of Federal Transit Administration, Federal Highway Administration, US Environmental Protection Agency, Georgia's Department of Natural Resources Environmental Protection Division and ARC and they agreed that this project does NOT appear to be a "Project of Concern" per the Transportation Conformity Rule (concurrence date).

Mobile Source Air Toxics (MSAT): The proposed project would be classified as a Tier 2 project with *Low Potential MSAT Effects*. Therefore, this technical report also contains a qualitative analysis of MSAT emissions. It is anticipated that the project will have no appreciable impact on regional MSAT levels.

Carbon Monoxide (CO): Based on the project scope, location and parking space at transit stations, and fuel type for proposed buses to be used, this project would not increase traffic congestion or increase idle emissions and CO concentrations. The project is consistent with state and federal air quality goals for CO.

Phases 1 and 2 are both consistent with the State Implementation Plan for attainment of clear air quality in the area.

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1 INTRODUCTION

1.1 Project Description

The project corridor is approximately 25 miles long and extends from the northern terminus in the City of Acworth (Cobb County) to its southern terminus in Midtown Atlanta (Fulton County). The preferred alternative would include Bus Rapid Transit (BRT) service in exclusive bus lanes along US 41/Cobb Parkway starting in Kennesaw and continuing in I-75 High Occupancy Vehicle (HOV) lanes south of Akers Mill Road. The preferred alternative would also include express bus service in the I-75 managed lanes and HOV lanes from Acworth to the Metro Atlanta Rapid Transit Authority (MARTA) Arts Center Station in Midtown Atlanta. It is anticipated that some additional right-of-way on US 41/Cobb Parkway would be required, however the amounts and locations of this additional right-of-way have not been determined.

The project also includes construction of 24 transit stations to serve the BRT system. Transit stations would be categorized as one of four types; Village, Commuter, Transit Oriented Development, or Neighborhood.

Neighborhood stations will be local in focus and serve low density areas, providing a location for residents to enter the system. There will be small scale parking provided at these stations.

Village stations are also local in focus but they will also serve nearby residential and commercial areas, including mixed-use developments. The focus is on pedestrian access with small walkable activity nodes.

Commuter stations are more regional in focus and will serve a broad group of daily commuters who would be dropped off at the station or use park and ride facilities. The focus of these stations is on automobile access with a large station including substantial parking.

Transit Oriented Development stations are regional in focus and would be designed to serve high density destinations. Pedestrian access is essential to these stations and a mix of land uses will be expected in the station vicinity.

Table 1-1 shows the station name, parking lot type, and estimated number of spaces. Figure 1 shows the routes for the locally preferred alternative and transit station locations.

The project has been developed in two phases, as indicated on Figure 1. Phase 1 includes those improvements described above from the City of Acworth to the Cumberland South transit station in the area of the I-75 and I-285 interchange. Phase 1 would include BRT lanes and 16 of the 21 proposed transit stations.

Phase 2 would continue the BRT system south on I-75 to the MARTA Arts Center Station. Buses would use HOV lanes and include the remaining five transit stations.

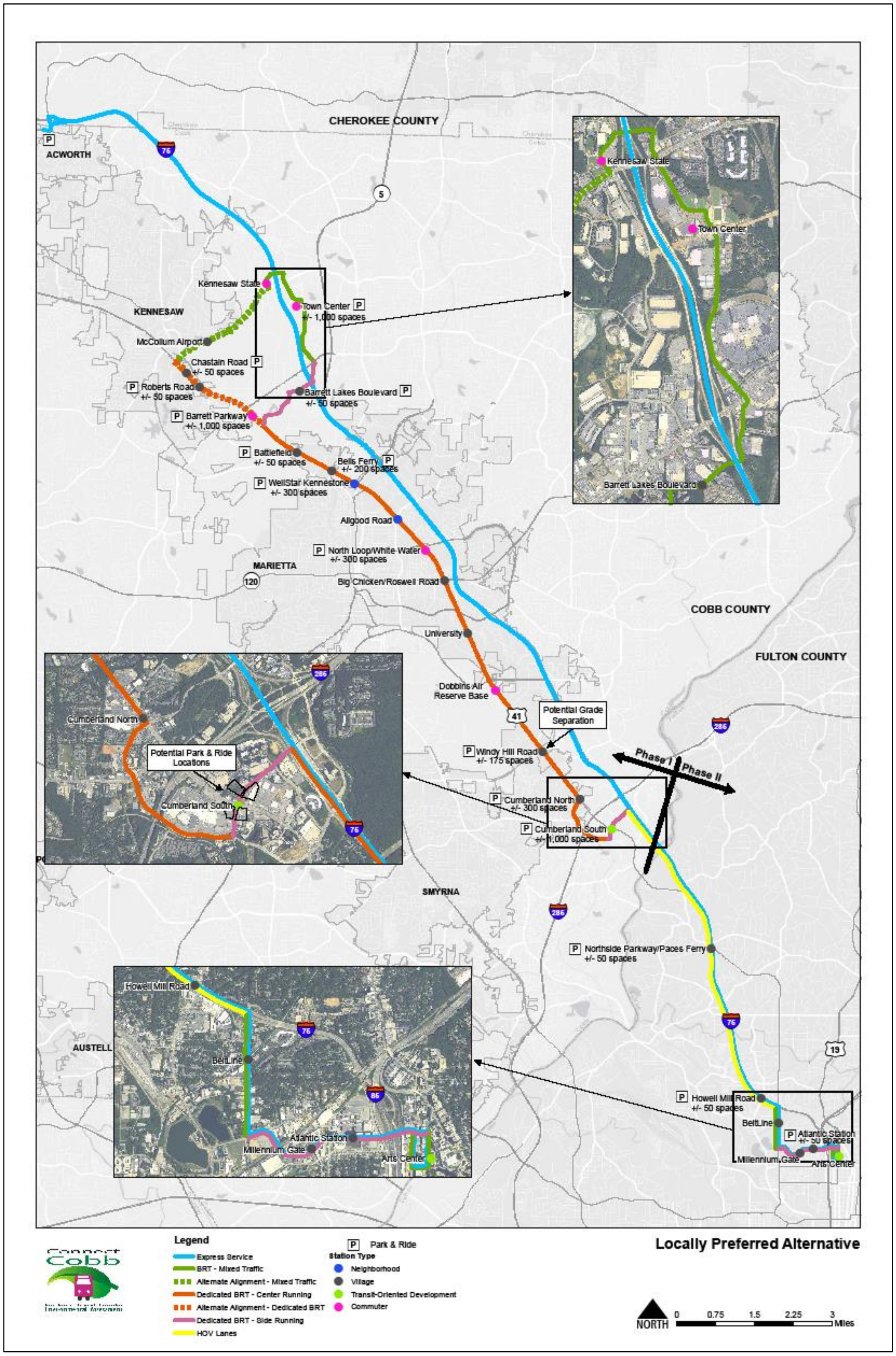
Table 1-1: Transit Station Information

Station Name	Station Type	Parking Lot Type	Number of Parking Spaces
Kennesaw State	Village	None	Not Applicable
Town Center	Commuter	Existing Lot	1,000
Barrett Lakes Boulevard	Village	Surface	50
McCollum Airport	Village	None	Not Applicable
Chastain Road	Village	Surface	50
Roberts Road	Village	Surface	50
Barrett Parkway	Commuter	Structured	1,000
Battlefield	Village	Surface	50
Belles Ferry	Village	Surface	200
Wellstar Kennestone	Commuter	Structured	300
Allgood Road	Neighborhood	None	Not Applicable
North Loop/White Water	Commuter	Structured	300
Big Chicken/Roswell Road	Village	None	Not Applicable
University	Village	None	Not Applicable
Dobbins Air Reserve Base	Village	None	Not Applicable
Windy Hill Road	Village	Existing Lot	175
Cumberland North	Village	Structured	300
Cumberland South	Transit Oriented	Structured	1,000
Northside Parkway/Paces Ferry	Village	Surface	50
Howell Mill Road	Village	Surface	50
Beltline	Village	None	Not Applicable
Millennium Gate	Village	None	Not Applicable
Atlantic Station	Village	Surface	50
MARTA Arts Center Station	Transit Oriented	None	Not Applicable

Notes:

1) Surface means a flat, open air lot
2) Structured means a multi-level parking deck. Number of decks has not been determined
3) At stations with no parking provided, stations available for pedestrian access only.
4) Lots with parking spaces would also be available as Park-And-Ride Lots

Figure 1-1: Project Location Map



2 AFFECTED ENVIRONMENT

Air pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or reducing human or animal health.

2.1 CLEAN AIR ACT AMENDMENTS OF 1990

The Clean Air Act Amendments (CAAA) of 1990 and the Final Conformity Rule (40 Code of Federal Regulations [CFR] Parts 51 and 93) direct the US Environmental Protection Agency (USEPA) to implement environmental policies and regulations that will ensure acceptable levels of air quality. The Clean Air Act and the Final Conformity Rule apply to proposed transportation projects. According to Title I, Section 176 (c) 2: "No federal agency may approve, accept or fund any transportation plan, program, or project unless such plan, program, or project has been found to conform to any applicable State Implementation Plan (SIP) in effect under this act."

The Final Conformity Rule defines conformity as consistency with the SIP's purpose to eliminate or reduce the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and to achieve expeditious attainment of such standards. In particular, such activities will not:

- Cause or contribute to any new violation of any NAAQS in any area;
- Increase the frequency or severity of any existing violation of any NAAQS in any area; and
- Delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in any area.

2.2 NATIONAL AND STATE AMBIENT AIR QUALITY STANDARDS

The NAAQS have been established for air pollutants that have been identified by the USEPA as being of concern nationwide. These air pollutants, referred to as criteria pollutants, are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM), ozone (O_3) and sulfur dioxide (SO_2) (see Table 2-1). The sources of these pollutants, effects on human health and the nation's welfare, and occurrence in the atmosphere vary considerably.

The NAAQS protect the public health and welfare. The primary NAAQS are established at levels intended to protect public health, including sensitive population groups, with an adequate margin of safety. Secondary NAAQS are set at levels designed to protect the public by accounting for the effects of air pollution on vegetation, soil, materials, and elements of the environment that affect general welfare. The standards presented in Table 2-1 represent the official ambient air quality standards for the State of Georgia.

2.3 CRITERIA POLLUTANTS AND EFFECTS

Pollutants that have established national standards are referred to as "criteria pollutants." The sources of these pollutants, their effects on human health and the nation's welfare, and their final deposition in the atmosphere vary considerably. A brief description of each pollutant is as follows:

Table 2-1: National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead		primary and secondary	Rolling 3 month average	0.15 µg/m³ (1)	Not to be exceeded
Nitrogen Dioxide		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb (2)	Annual Mean
Ozone		primary and secondary	8-hour	0.075 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution	$PM_{2.5}$	primary	Annual	12 µg/m³	annual mean, averaged over 3 years
		secondary	Annual	15 µg/m³	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m³	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 µg/m³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide		primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: http://www.epa.gov/air/criteria.html

(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

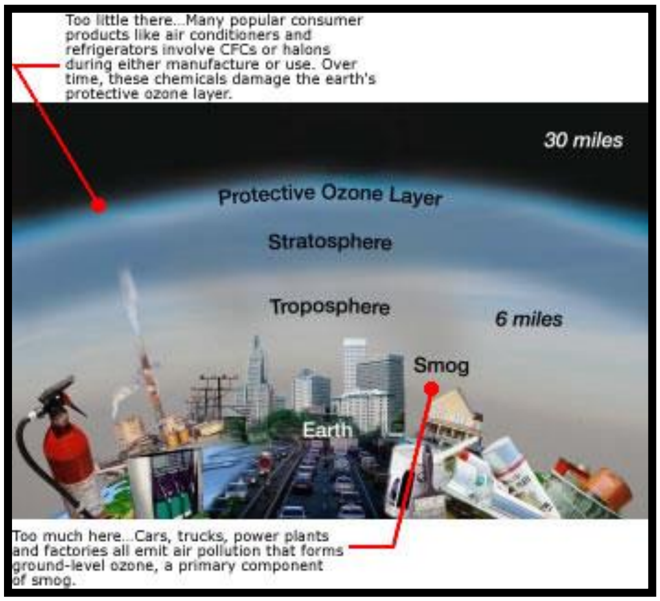
(3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO2 standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Abbreviations: ppm/b = parts per million/billion, µg/m³ = micrograms per cubic meter.

Ozone. Ozone (O_3) is a colorless toxic gas. As shown in Figure 2-1, O_3 is found in both the Earth's upper and lower atmospheric levels. In the upper atmosphere O_3 is a naturally occurring gas that helps to prevent the sun's harmful ultraviolet rays from reaching the earth. In the lower layer of the atmosphere, O_3 is man-made. O_3 is not directly emitted from emission sources; it forms in the lower atmosphere through a chemical reaction between hydrocarbons (HC), also referred to as Volatile Organic Compounds (VOCs), and nitrogen oxides (NOX), which are emitted from industrial sources and from automobiles. Substantial O_3 formations generally require a stable atmosphere with strong sunlight, thus high levels of O_3 are generally a concern in the summer. O_3 is the main ingredient of smog. O_3 enters the bloodstream through the respiratory system and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen. O_3 also damages vegetation by inhibiting its growth.

Figure 2-1: Ozone in the Atmosphere[1]



Particulate Matter (PM). Particulate pollution is composed of solid particles or liquid droplets that are small enough to remain suspended in the air. In general, particulate pollution can include dust, soot, and smoke; these can be irritating but usually are not poisonous.

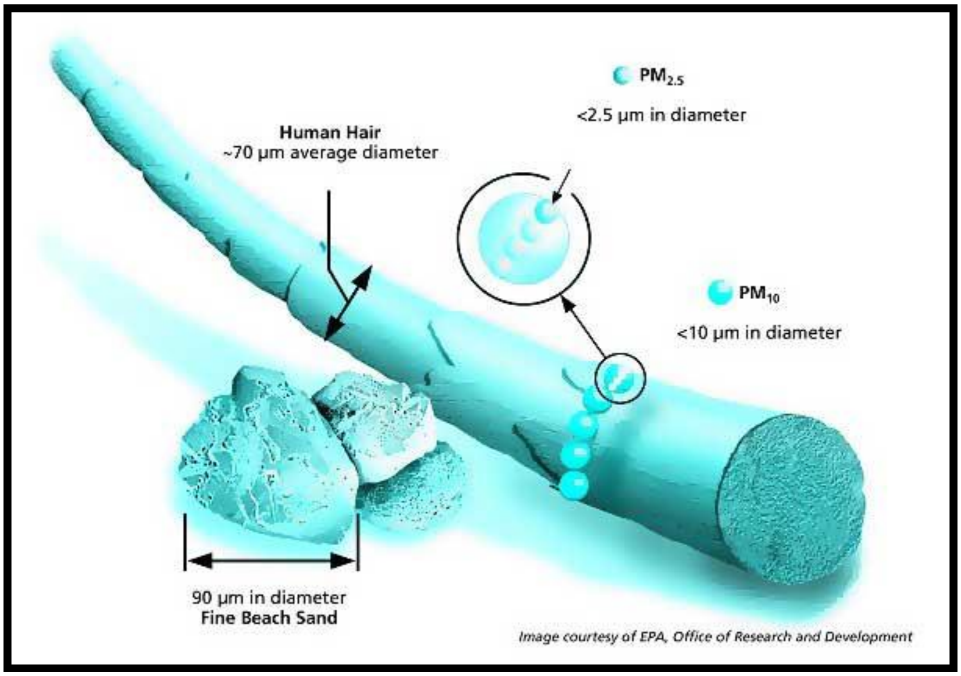
Particulate pollution also can include bits of solid or liquid substances that can be highly toxic. Of particular concern are those particles that are smaller than, or equal to, 10 microns (PM_{10}) and 2.5 microns ($PM_{2.5}$) in size.

PM_{10} refers to PM less than 10 microns in diameter, about one seventh the thickness of a human hair (Figure 2-2). Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when gases emitted from industrial and combustion sources, and motor vehicles undergo chemical reactions in the atmosphere. Major sources of PM_{10}

[1] Source: http://www.epa.gov/oar/oaqps/gooduphigh/good.html#1.

include motor vehicles; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning, industrial sources, windblown dust from open lands; and atmospheric chemical and photochemical reactions. Suspended particulates produce haze and reduce visibility. Data collected through numerous nationwide studies indicates that most of the PM_{10} comes from fugitive dust, wind erosion, and agricultural and forestry sources.

Figure 2-2: Relative PM Size[2]



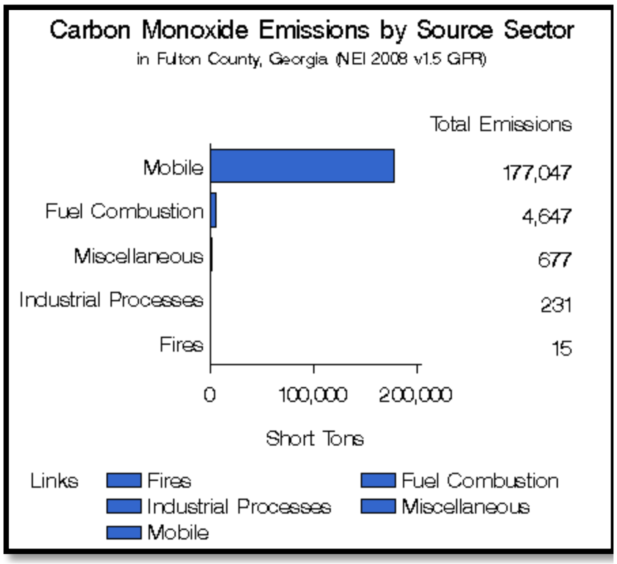
A small portion of PM is the product of fuel combustion processes. In the case of $PM_{2.5}$, the combustion of fossil fuels accounts for a significant portion of this pollutant. The main health effect of airborne PM is on the respiratory system. $PM_{2.5}$ refers to particulates that are 2.5 microns or less in diameter, roughly 1/28th the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds. Like PM_{10}, $PM_{2.5}$ can penetrate the human respiratory system's natural defenses and damage the respiratory tract when inhaled. Whereas particles 2.5 to 10 microns in diameter tend to collect in the upper portion of the respiratory system, particles 2.5 microns or less are so tiny that they can penetrate deeper into the lungs and damage lung tissues.

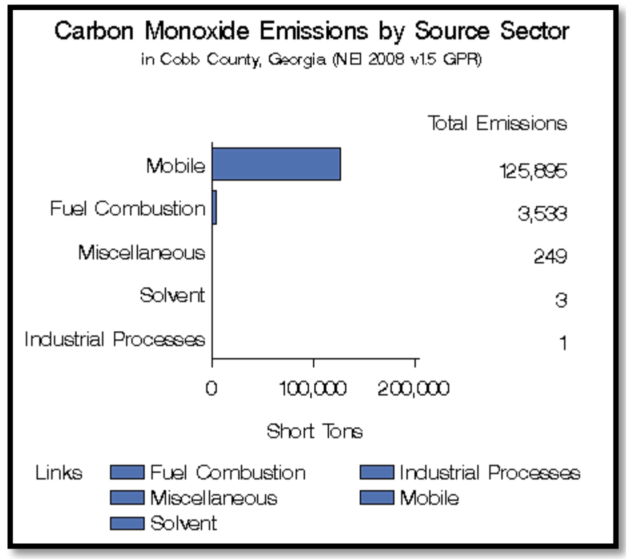
Carbon Monoxide (CO). CO is a colorless gas that interferes with the transfer of oxygen to the brain. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. On-road motor vehicle exhaust is the

[2] Source: http://www.epa.gov/oar/particlepollution/basic.html.

primary source of CO. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. The breakdown of CO emissions by source for Fulton County is provided in Figure 2-3.

Figure 2-3: Sources of CO in Cobb and Fulton Counties[3]





Prolonged exposure to high levels of CO can cause headaches, drowsiness, loss of equilibrium, or heart disease. CO levels are generally highest in the colder months of the year when inversion conditions (when warmer air traps colder air close to the ground) are more frequent. CO concentrations can vary greatly over relatively short distances. Relatively high concentrations of CO are typically found near congested intersections, along heavily used roadways carrying slow moving traffic, and in areas where atmospheric dispersion is inhibited by urban "street canyon" conditions. Consequently, CO concentrations are predicted on a localized, or microscale, basis.

Nitrogen Dioxide. Nitrogen dioxide (NO_2) is a brownish gas that can irritate the lungs and cause breathing difficulties at high concentrations. Like O_3, NO_2 is generally not directly emitted from an emission source, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to ozone formation. NO_2 also contributes to the formation of PM_{10}. At atmospheric concentration, NO_2 is only potentially irritating. In high concentrations, the result is a brownish red cast to the atmosphere and reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm).

Lead. Lead (Pb) is a stable element that persists and accumulates both in the environment and in animals. Its principal effects in humans are on the blood forming, nervous, and renal systems. Lead levels in the urban environment from mobile sources have decreased significantly because of the federally mandated switch to lead free gasoline.

[3] http://www.epa.gov/cgi-bin/broker?_service=data&_debug=0&_program=dataprog.state_1.sas&pol=CO&stfips=13

Sulfur Dioxide. Sulfur dioxide (SO_2) is a product of high sulfur fuel combustion. The main sources of SO_2 are coal and oil combustion in power stations, industry and for domestic heating. Industrial chemical manufacturing is another source. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children, yellow plant leaves, and corrode iron and steel.

2.4 MOBILE SOURCE AIR TOXICS

In addition to the criteria pollutants, USEPA also regulates air toxics. However, USEPA did not establish NAAQS for air toxics (see Table 2-1). Most air toxics originate from human made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the CAA. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted into the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The USEPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS).[4] In addition, USEPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA).[5] These are:

- Benzene – characterized as a known human carcinogen;
- Acrolein – the potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure;
- Formaldehyde – a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals;
- 1,3-butadiene – characterized as carcinogenic to humans by inhalation;
- Diesel Exhaust (DE) – likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel PM and diesel exhaust organic gases. Diesel exhaust also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis;

[4] Source: http://www.epa.gov/ncea/iris/index.html.
[5] Source: http://www.epa.gov/ttn/atw/nata1999.

- Naphthalene – the USEPA has classified naphthalene as a possible human carcinogen. Acute exposure of humans to naphthalene by inhalation, ingestion, and dermal contact is associated with hemolytic anemia, damage to the liver, and neurological damage. Cataracts have also been reported in workers acutely exposed to naphthalene by inhalation and ingestion; and
- Polycyclic Organic Matter (POM) – defines a broad class of compounds that includes the polycyclic aromatic hydrocarbon compounds (PAHs), of which benzo[a]pyrene is a member. Cancer is the major concern from exposure to POM. The USEPA has classified seven PAHs (benzo[a]pyrene, benz[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene) as a probable human carcinogens.

This list is subject to change and may be adjusted in consideration of future USEPA rules.

2.5 GREENHOUSE GASES

The issue of global climate change is an important and global concern that is being addressed in several ways by the Federal government. The Transportation section is the second largest source of total greenhouse gases (GHG) in the U.S. and the largest source of carbon dioxide (CO_2) emissions – the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all U.S. CO_2 emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels, which account for approximately 80 percent of anthropogenic emissions of carbon worldwide. Almost all (98 percent) of transportation-sector emissions result from the consumption of petroleum products such as motor gasoline, diesel fuel, jet fuel, and residual fuel.

Recognizing this concern, the Federal Highway Administration (FHWA) is working with other modal administrations through the Department of Transportation Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to greenhouse gases – particularly CO_2 emissions – and to assess the risks to transportation systems and services from climate changes.

There are also several programs underway in Georgia to address GHG emissions. Georgia is a member of the Climate Registry, a nationwide voluntary effort to quantify GHG emissions from all sources and lay the foundation for potential future carbon emissions trading and mitigation efforts.

2.6 ATTAINMENT STATUS/REGIONAL AIR QUALITY CONFORMITY

Section 107 of the CAAA requires that USEPA publish a list of all geographic areas in compliance with the NAAQS, as well as those not in compliance with the NAAQS. The designation of an area is made on a pollutant-by-pollutant basis. The USEPA's current designations for the affected area are shown in Table 2-2.

Table 2-2: Attainment Classifications and Definitions

Attainment	Unclassified	Maintenance	Nonattainment
Area is in compliance with the NAAQS.	Area has insufficient data to make determination and are treated as being in attainment.	Area once classified as nonattainment but has since demonstrated attainment of the NAAQS.	Area is not in compliance with the NAAQS.

The Atlanta area, including Cobb and Fulton Counties, is classified as a moderate nonattainment area for O_3 (8-hour standard), a nonattainment area for $PM_{2.5}$, and an attainment area for all other pollutants.

The Atlanta Regional Commission (ARC) is responsible for managing the process to ensure that transportation plans and programs within the Atlanta nonattainment area do not cause or contribute to violations of the NAAQS. This process is referred to as transportation conformity. A transportation project is analyzed as part of a regional transportation network developed by the county or state. Projects included in this network are found in the Transportation Improvement Program (TIP), which is the basis for the regional mobile source air quality analysis that utilizes vehicle miles traveled (VMT) and vehicle hours traveled (VHT) within the region to determine daily "pollutant burden" levels. The results of this analysis, which are presented in the SIP, determine if an area is in compliance with regulations set forth in the USEPA's final conformity rule. The goal of the SIP is to demonstrate how the region plans to meet the NAAQS by the USEPA attainment deadlines. The FY 2012-2017 TIP is the current adopted plan for the Atlanta region. It was adopted by the ARC on July 27, 2011 and was approved by the U.S. Department of Transportation (USDOT) on September 6, 2011.

A conformity determination must be made for transportation plans, programs, and individual projects within air quality nonattainment areas in order for federal transportation funding to be allocated, without restriction, to the region. This determination is provided by the USDOT with the concurrence of USEPA. The current conforming regional transportation plan for the ARC is *Plan 2040 – Blueprint for a Brighter Tomorrow*. Plan 2040 was prepared by ARC in 2011 and included a Conformity Determination Report:

http://documents.atlantaregional.com/plan2040/docs/tp_PLAN2040CDR_072711.pdf).

2.7 Ambient Air Quality In The Study Area

2.7.1 Local Meteorology

The National Weather Service of the National Oceanic and Atmospheric Administration (NOAA) maintains information on the meteorology of metropolitan areas around the country. The nature of the surrounding atmosphere is an important element in assessing the ambient air quality of an area.

For the proposed project, the study area is located in the foothills of the southern Appalachians in northern central Georgia. The terrain is rolling to hilly and slopes downward towards the east, west, and south. The Gulf of Mexico and the Atlantic Ocean are approximately 225 miles south and southeast of the area, respectively. Both the Appalachian chain of mountains and the two nearby maritime bodies exert an important influence on the region's climate. Temperatures are moderated throughout the year while abundant precipitation fosters natural vegetation and growth of crops. Summer temperatures in the area are moderated somewhat by elevation, but are still rather warm. However, prolonged periods of hot weather are unusual, and 100-degree heat is rare.

With the mountains to the north tending to retard the southward movement of polar air masses, Atlanta winters are rather mild.

The Bermuda High Pressure Area has a dominant effect on the weather in the study area, particularly during summer months. At that time, easterly or northeast winds produce the least pleasant weather, although southerly winds also are quite humid during the summer. The generally light wind conditions contribute to the formation of occasional early morning fog.

During "smog season," May 1 through September 30, sweltering heat, direct sunlight and stagnant wind conditions serve as catalysts to "cook" man-made and naturally occurring chemical compounds in the lower atmosphere, producing elevated levels of O_3.

2.7.2 Monitored Air Quality

The Environmental Protection Division (EPD) of the Air Protection Branch of the Georgia Department of Natural Resources (DNR) measures air quality levels at representative locations throughout the state. The Ambient Monitoring Program (AMP), run by the DNR, measures concentrations of criteria and non-criteria air pollutants at various locations throughout the state.

The AMP also issues daily air pollution forecasts. The DNR verifies, analyzes, and collates all data collected by the monitors. Data collected and reported must meet minimum quality assurance requirements established by the USEPA, as outlined in the Federal Register Part 58 and appendices. Monitors near the study area for the proposed project are listed in Table 2-3.

Table 2-3: Air Quality Monitors near Study Area

Site ID	Site Address	City	County	Pollutant(s)
131210099	Georgia Power Substation	Atlanta	Fulton	CO
130670003	Kennesaw National Guard	Kennesaw	Cobb	$PM_{2.5}$ and O_3
131210055	Confederate Avenue	Atlanta	Fulton	O_3 and SO_2
130890002	South DeKalb	None	DeKalb	CO, $PM_{2.5}$, PM_{10}, O_3 and SO_2

Source: http://www.epa.gov/airquality/airdata/ad_maps.html

The monitored air quality data collected from the four monitoring locations nearest to the study area for the three most current years available (2011 through 2013) are presented in Table 2-4. The descriptors and data types used for each pollutant are consistent with the NAAQS presented in Table 2-1.[6]

[6] In the case of SO_2, the pollutant concentrations are presented as they are available from USEPA – in parts per billion (ppb). There are no monitoring stations located adjacent to the project area that provide current data related to nitrogen oxide (NO_x) or lead (Pb); therefore, no data is presented for these pollutants.

Table 2-4: Monitored Ambient Air Quality Data (2011-2013)[7]

Pollutant	Averaging	Statistic	South DeKalb 2390-B Wildcat Road DeKalb County			Confederate Avenue			Kennesaw National Guard 1901 McCollum Parkway, Kennesaw, Cobb County			Georgia Power Substation 4434 Roswell Rd Atlanta, Fulton County		
			2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
Carbon Monoxide (CO) [ppm]	1-Hour	Maximum	1.7	1.4	1.22							1.9	1.8	1.8
		2nd Maximum	1.7	1.4	1.18							1.8	1.7	1.5
		# of Exceedences	0	0	0							0	0	0
	8-Hour	Maximum	1.5	1.6	1.1							1.3	1.1	1.1
		2nd Maximum	1.5	1.6	1.1							1.3	1.1	1.1
		# of Exceedences	0	0	0							0	0	0
Particulate Matter [µg/m³]	PM_{10}	2nd Maximum 24-Hour	46	43	34									
		Mean Annual	20.5	20.55	17.83									
		# of Exceedences	0	0	0									
	$PM_{2.5}$	98th Percentile	33.6	30	20.2				24.5	18.9	16.8			
		Mean Annual	11.85	9.98	11.0				11.54	10.14	8.71			
		# of Exceedences	0	0	0				0	0	0			
Ozone (O_3) [ppm]	8-Hour	First Highest	0.088	0.099	0.082	0.093	0.101	0.096	0.082	0.087	0.073			
		Second Highest	0.084	0.087	0.063	0.092	0.089	0.075	0.079	0.076	0.073			
		Third Highest	0.082	0.086	0.062	0.086	0.087	0.067	0.079	0.076	0.067			
		Fourth Highest	0.082	0.085	0.061	0.084	0.048	0.066	0.079	0.075	0.065			
		# of Days Standard Exceeded	8	9	1	15	10	1	11	3	0			
Sulfur Dioxide (SO_2) [ppb]		1-Hour Maximum	18.6	10.6	14.4	29.4	12.4	10.4						
		3-Hour Maximum	13.2	6.4	8.1	17.6	8.9	5.0						
		24-Hour Maximum	4.3	2.3	1.7	6.2	3.8	2.0						
		Arithmetic Mean	0.91	0.44	0.35	1.7	1.97	1.50						

[7] Source: USEPA AirData Website (Interactive Map): http://www.epa.gov/airdata/ad_maps.html.

3 ENVIRONMENTAL CONSEQUENCES

3.1 SOURCES OF EMISSIONS

Pollutants that can be traced principally to motor vehicles are relevant to the evaluation of the project impacts. These pollutants, which are discussed in Section 2, include carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NO_X), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$) and mobile source air toxics (MSATs). Transportation sources account for a small percentage of regional emissions of sulfur oxides (SO_X) and lead (Pb); thus, a detailed analysis of these pollutants is not included.

The HC and NO_X emissions from automotive sources are a concern primarily because they are precursors in the formation of O_3 and PM. Ozone is formed through a series of reactions that occur in the atmosphere in the presence of sunlight. Since the reactions are slow and occur as the pollutants are diffusing downwind, elevated ozone levels often are found many miles from sources of the precursor pollutants. Therefore, the effects of HC and NO_X emissions are generally examined on a regional or "mesoscale" basis.

The PM_{10} and $PM_{2.5}$ impacts are both regional and local. A significant portion of PM, especially PM_{10}, comes from disturbed vacant land, construction activity, and paved road dust. The $PM_{2.5}$ also comes from these sources. Motor vehicle exhaust, particularly from diesel vehicles, is also a source of PM_{10} and $PM_{2.5}$. Thus, it is appropriate to predict concentrations of PM_{10} and $PM_{2.5}$ on both a regional and a localized basis.

The MSAT impacts are both regional and local. Through the issuance of USEPA's Final Rule regarding emission control of Hazardous Air Pollutants from Mobile Sources [66 FR 17229], it was determined that many existing and newly promulgated mobile source emission control programs would result in a reduction of MSATs. USEPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades.

The CO impacts are generally localized. Even under the worst meteorological conditions and most congested traffic conditions, high concentrations of CO are limited within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Vehicle emissions are the major sources of CO.

The following narrative discusses the impacts of each phase of the project organized according to the various pollutants.

3.2 ANALYSIS METHODOLOGY AND FINDINGS

3.2.1 Ozone

Both Phases 1 and 2 are in an area where the SIP contains transportation control measures. The CAA requires Transportation Plans and TIPs in areas not meeting the NAAQS to conform to the emissions budget of the SIP for air quality. As previously noted, the FY 2012-2017 TIP is the current adopted plan for the Atlanta region showing the region's highest transportation priorities. It was adopted by the ARC on July 27, 2011 and was approved by the USDOT on September 6, 2011.

Neither phase of the Connect Cobb Northwest Transit Corridor project is included in the currently approved TIP. Based on conversations with ARC, Connect Cobb is not currently in the constrained Regional Transportation Plan (RTP).

3.2.1.1 Findings for Phase 1

Phase 1 is in the aspirations element of the RTP as a series of links from Arts Center to Town Center (ASP-AR-414 to ASP-AR-419). In the RTP update, scheduled for adoption in February 2014, Phase 1 will be brought into the long range portion of the constrained plan as AR-475, with the following description:

> *Construction of dedicated guideway in the US 41 corridor from Kennesaw State University to the Cumberland Activity Center for Bus Rapid Transit service that will operate from Kennesaw State University to the Arts Center MARTA Station. The project also includes companion transit supportive infrastructure in Midtown Atlanta.*

3.2.1.2 Findings for Phase 2

Phase 2 is not in any current plans, or has been identified by ARC for inclusion in future plan updates. Fulton County would need to request inclusion of the Phase 2 in future planned updates.

3.2.2 Particulate Matter (PM_{10} and $PM_{2.5}$)

On March 10, 2006, USEPA issued a final rule regarding the localized or "hot-spot" analysis of $PM_{2.5}$ and PM_{10} [40 CFR Part 93]. This rule requires that $PM_{2.5}$ and/or PM_{10} hotspot analysis be performed for transportation projects with significant diesel traffic in areas not meeting $PM_{2.5}$ and/or PM_{10} air quality standards. The project area is classified as an attainment area for PM_{10}. As such, a PM_{10} hotspot analysis is not required.

On January 5, 2005, the USEPA designated 24 counties and three partial counties in Georgia as nonattainment areas for $PM_{2.5}$. This designation became effective on April 5, 2005, 90 days after USEPA's published action in the Federal Register. Transportation Conformity for the $PM_{2.5}$ standards applies as of April 5, 2006, after the one year grace period provided by the CAA. Metropolitan $PM_{2.5}$ non-attainment areas are now required to have a TIP and long range transportation plan (LRTP) that conforms to the $PM_{2.5}$ standard.

3.2.2.1 Findings for Phase 1

Phase 1 of the Connect Cobb Northwest Transit Corridor project was evaluated by an interagency group consisting of FTA, FHWA, USEPA, EPD and ARC and they agreed that this project does NOT appear to be a "Project of Concern" per the Transportation Conformity Rule and thus meets the statutory and regulatory requirements for $PM_{2.5}$ hotspots without a qualitative analysis on <concurrence date>. Documentation and correspondence are included in Attachment 2.

3.2.2.2 Findings for Phase 2

Phase 2 of the Connect Cobb Northwest Transit Corridor project was evaluated by an interagency group consisting of FTA, FHWA, USEPA, EPD and ARC and they agreed that this project does NOT appear to be a "Project of Concern" per the Transportation Conformity Rule and thus meets the statutory and regulatory requirements for $PM_{2.5}$ hotspots without a qualitative analysis on <concurrence date>. Documentation and correspondence are included in Attachment 2.

3.2.3 Mobile Source Air Toxics

An MSAT assessment is required statewide for most federal transportation projects. Based on the example projects defined in the FHWA guidance "Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents" updated December 6, 2012, the Connect Cobb Northwest Transit Corridor would be classified as a project with *Low Potential MSAT Effects*.

The Motor Vehicle Emissions Simulator (MOVES) is the USEPA's software for predicting emissions from motor vehicles . It helps answer "what if" questions, such as "How would particulate matter emissions decrease in my state on a typical weekday if truck travel was reduced during rush hour?" or "How does the total hydrocarbon emission rate change if my fleet switches to gasoline from diesel fuel?" The purpose of the tool is to provide an accurate estimate of emissions from mobile sources under a wide range of user-specified conditions (from USEPA User Guide for MOVES2010b [June 2012]).

According to USEPA, MOVES improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced USEPA's understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in the National-Scale Air Toxics Assessment (NATA) that are emitted by mobile sources. USEPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles.

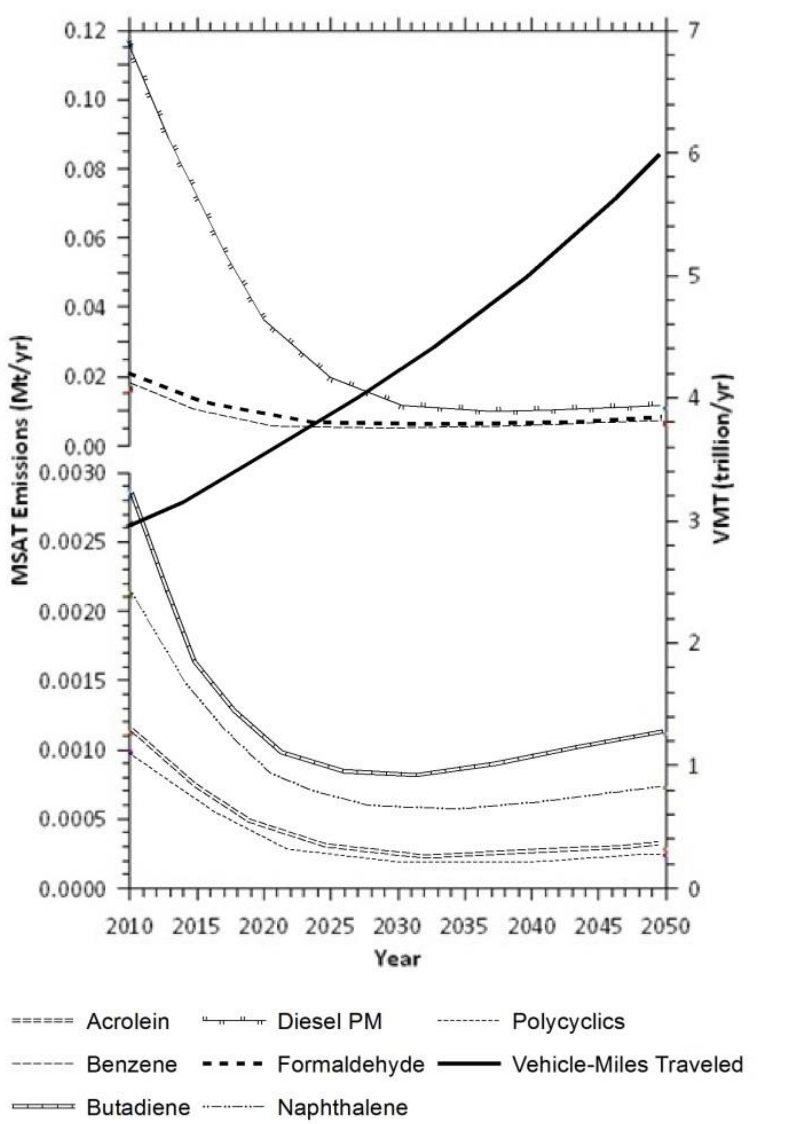
Based on regulations now in effect, FHWA analysis using USEPA's MOVES2010b model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100 percent, as shown in Figure 3-1.

The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, federal agencies are duly expected by the public and other agencies to address MSAT impacts in environmental documents. The FHWA, USEPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA continues to monitor the developing research in this field.

Figure 3-1. National MSAT Emission Trends 2010-2050 for Vehicles Operating on Roadways Using the USEPA MOVES 2010b Model



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles traveled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors
Source: USEPA MOVES2010b model runs conducted during May - June 2012 by FHWA.

Qualitative MSAT Assessment

The amount of MSAT emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT is calculated by multiplying the amount of daily traffic on a given roadway segment by the length of the segment. The aggregate of these calculated values would determine the VMT for all segments in a given transportation network. Fleet mix is comprised of various percentages of FHWA classified vehicle types. The fleet mix is divided depending on whether they carry passengers or commodities, and non passenger vehicles are further subdivided by number of axles and trailer units. The results of this VMT analysis are summarized in Table 3-1.

Table 3-1: DESIGN YEAR (2040) VMT COMPARISON

Segment	2040 No Build			2040 Build		
	ADT	Segment Length	VMT	ADT	Segment Length	VMT
Phase 1						
I-75 North of I-575	182,021	8.4 miles	1,528,974	181,779	8.4 miles	1,526,943
US 41 North of I-575	51,850	8.8 miles	456,280	52,000	8.8 miles	457,600
I-75 Between I-285 and I-575	341,782	9.8 miles	3,349,463	341,674	9.8 miles	3,348,405
US 41 Between I-285 and I-575	46,935	12.4 miles	581,994	46,989	12.4 miles	582,663
VMT Total Phase 1			**5,916,711**			**5,915,611**
Phase 2						
I-75 Between I-85 and I-285	245,937	7.9 miles	1,942,902	246,262	7.9 miles	1,945,469
VMT Total Phase 2			**1,942,902**			**1,945,469**
VMT Total Phases 1 and 2			**7,859,613**			**7,870,080**

Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The USEPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The USEPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (USEPA, http://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's *Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents*. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of

MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The USEPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/ getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the USEPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires USEPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than one in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than one in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld USEPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

3.2.3.1 Findings for Phase 1

Because the estimated VMT under each of the Alternatives for Phase 1 are nearly the same, varying by less than one percent, it is expected there would be no appreciable difference in overall MSAT emissions between the Build and No Build Alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050 while VMT are projected to increase by over 100 percent . Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

3.2.3.2 Findings for Phase 2

Because the estimated VMT under each of the Alternatives Phase 2 are nearly the same, varying by less than one percent, it is expected there would be no appreciable difference in overall MSAT emissions between the Build and No Build Alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050 while VMT are projected to increase by over 100 percent . Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

3.2.4 Carbon Monoxide

Carbon monoxide (CO) concentrations can be highest at locations where there are large volumes of idling traffic, for example at traffic signals. Buses to be used along the transit corridor would travel in designated lanes that would limit idling to primarily at transit stations. Headway times at transit stations would be a maximum of approximately eight minutes during peak hour traffic periods, and less during nonpeak periods. The 15 buses to be purchased for the rapid transit system would either be compressed natural gas (CNG) or diesel-electric hybrid, minimizing CO emissions.

Improvements for the corridor would include construction of the bus only lanes on US 41 and HOV lanes on I-75. The proposed scope for the transit corridor project does not include new or upgraded signalization for general purpose lanes on US 41, or other improvements to I-75.

Transit station locations are designed to encourage pedestrian access from nearby residential areas, or short destination trips for automobiles. Many of the stations are located in areas that already contain traffic signals, turning lanes, and transportation features that would facilitate efficient entrance and egress.

3.2.4.1 Findings for Phase 1

Construction of bus only lanes would minimize idling delays for transit vehicles. Headway times at transit stops during peak periods are not anticipated to be longer than eight minutes at each station. Transit station locations have been identified to encourage pedestrian access. Some stations will not offer parking, so that driving to the stations is not an option. For transit stations with parking, it will be limited with the intent of encouraging short destination trips instead of attracting users from the larger region. Based on the scope of infrastructure improvements and operations planned for Phase 1, a "hot spot" analysis is not required, and the project is not anticipated to result in increased CO emissions in excess of state and federal regulatory limits on a local level.

3.2.4.2 Findings for Phase 2

Phase 2 would include use of HOV lanes for BRT service. The HOV lanes are express lanes, with no stops except at designated transit stops. The HOV lanes would also reduce idling delays. As with Phase 1, headway times at transit stops during peak periods are not anticipated to be longer than eight minutes at each station, and transit station locations for Phase 2 have been identified to encourage pedestrian access. Some stations will not offer parking, so that driving to the stations is not an option. Parking at Phase 2 transit stations is no more than 50 spaces, encouraging short destination trips. Based on the scope of infrastructure improvements and operations planned for Phase 2, a "hot spot" analysis is not required, and the project is not anticipated to result in increased CO emissions in excess of state and federal regulatory limits on a local level.

3.2.5 Greenhouse Gas Emissions

To date, no national standards have been established regarding greenhouse gases, nor has the USEPA established criteria or thresholds for GHG emissions. On April 2, 2007, the Supreme Court issued a decision in *Massachusetts et al v. Environmental Protection Agency et al* that the USEPA does have authority under the CAA to establish motor vehicle emissions standards for CO_2 emissions. The USEPA is currently determining the implications to national policies and programs as a result of the Supreme Court decision. However, the Court's decision did not have any direct implications on requirements for developing transportation projects.

Recognizing these concerns, agencies such as FHWA are working with other modal administrations through the Department of Transportation Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to greenhouse gases – particularly CO_2 emissions – and to assess the risks to transportation systems and services from climate changes.

Because climate change is a global issue and the emissions changes due to project alternatives are very small compared to global totals, GHG emissions were not calculated for the alternatives consider. The climate impacts of CO_2 emissions are global in nature. Further, due to the interactions between elements of the transportation system as a whole, emissions analyses would be less informative than ones conducted at regional, state, or national levels. Because of these concerns, CO_2 emissions cannot be usefully calculated in this document in the same way that other vehicle emissions are addressed. As more information emerges and as policies and legal requirements evolve, approaches to climate change at both the project and policy level will be reviewed and updated.

4 CONSTRUCTION IMPACTS ON AIR QUALITY

All phases of construction operations would temporarily contribute to air pollution. Particulates would increase slightly in the corridor as dust from construction collects in the air surrounding the project. The construction equipment would also produce slight amounts of exhaust emissions. The Rules and Regulations for Air Quality Control outlined in Chapter 391-3-1, Rules of GA EPD, would be followed during the construction of the project. These include covering earth-moving trucks to keep dust levels down, watering haul roads, and refraining from open burning, except as may be permitted by local regulations.

The USEPA has listed a number of approved diesel retrofit technologies; many of these can be deployed as emissions mitigation measures for equipment used in construction.

5 SUMMARY

Both Phases 1 and 2 of the Connect Cobb Northwest Transit Corridor were evaluated for consistency with state and federal air quality goals, including ozone, $PM_{2.5}$, MSAT, and CO as part of the assessment.

Summary Findings for Phase 1

Phase 1 is not listed in the currently approved TIP. However, it is planned to be included in the RTP update in February 2014, as TIP No. AR-475.

The project area is included in a nonattainment area for $PM_{2.5}$. The project has undergone interagency coordination to determine if it is a project of air quality concern. This interagency coordination group, consisting of representatives from USEPA, FTA, FHWA, EPD, and ARC, determined the project is not of air quality concern on (concurrence date).

A qualitative analysis of MSAT emissions relative to the alternatives has determined that Phase 1 would have *Low Potential MSAT Effects*. Modeling by the USEPA has estimated that over the next 20 years all levels of MSAT will be trending down regardless of the alternatives chosen.

An assessment of whether Phase 1 would result in increased CO concentrations was conducted. Based on the project scope, proposed used of alternative fueled buses, infrastructure improvements for the BRT system, and transit station design and location, a qualitative analysis has determined that a quantitative "hot spot" analysis would not be required, and that Phase 1 is not anticipated to result in CO concentrations in excess of state and federal regulatory limits on a local or regional basis.

Summary Findings for Phase 2

Phase 2 is not listed in the currently approved TIP. Fulton County would need to request inclusion of the Phase 2 in future planned updates.

The project area is included in a nonattainment area for $PM_{2.5}$. The project has undergone interagency coordination to determine if it is a project of air quality concern. This interagency coordination group, consisting of representatives from USEPA, FTA, FHWA, EPD, and ARC, determined the project is not of air quality concern on (concurrence date).

A qualitative analysis of MSAT emissions relative to the alternatives has determined that Phase 2 would have *Low Potential MSAT Effects*. Modeling by the USEPA has estimated that over the next 20 years all levels of MSAT will be trending down regardless of the alternatives chosen

An assessment of whether Phase 2 would result in increased CO concentrations was conducted. Based on the project scope, proposed used of alternative fueled buses, infrastructure improvements for the BRT system, and transit station design and location, a qualitative analysis has determined that a quantitative "hot spot" analysis would not be required, and that Phase 1 is not anticipated to result in CO concentrations in excess of state and federal regulatory limits on a local or regional basis.

Determination of Project Categorization for PM2.5 Hotspot Requirements for Fulton County/Atlanta Region

Project Name: Connect Cobb Northwest Atlanta Transit Corridor
Location: Cobb County and City of Atlanta, Fulton County, Metro Atlanta nonattainment area
Document Type: Environmental Assessment
FTA Contact: Stan Mitchell
Cobb County Contact: Faye DiMassimo

Description: The project corridor is approximately 25 miles long and extends from the northern terminus in Kennesaw (Cobb County) to its southern terminus in Midtown Atlanta (Fulton County). See Figure 1 for the project location. The proposed project would include Arterial Rapid Transit (ART) service in dedicated bus lanes along US 41/Cobb Parkway (US 41) and continuing in the existing I-75 High Occupancy Vehicle (HOV) lanes south of Akers Mill Road, continuing to the Metro Atlanta Rapid Transit Authority (MARTA) Arts Center Station in Midtown Atlanta on existing roads. It is anticipated that some additional right-of-way on US 41 would be required; however, the amounts are anticipated to be minor and locations of this additional right-of-way have not been finalized.

The project includes construction of transit stations to serve the ART system. The recommended transit station locations include 1) Kennesaw State, 2) Town Center, 3) Barrett Lakes Boulevard, 4) White Circle, 5) Battlefield, 6) WellStar Kennestone, 7) Allgood Road, 8) North Loop/White Water, 9) Big Chicken/Roswell Road, 10) University, 11) Dobbins Air Reserve Base, 12) Windy Hill Road, 13) Cumberland North, 14) Cumberland South, and 15) the existing MARTA Arts Center Station. Figure 1 shows the location of the proposed project, as well as proposed transit station locations.

1. Is this project in a conforming Plan/TIP?

Yes. The preliminary engineering phase of the project (AR-023A) was included as a conforming project in the approved FY 2012-2017 Transportation Improvement Plan (TIP). The construction phase of the project (AR-475) is a long range constrained project in the Plan 2040 Regional Transportation Plan (RTP).. The text below is the project description from the RTP:

> *Construction of dedicated guideway in the US 41 corridor from Kennesaw State University to the Cumberland Activity Center for Bus Rapid Transit service that will operate from Kennesaw State University to the Arts Center MARTA Station. The project also includes companion transit supportive infrastructure in Midtown Atlanta.*

2. Is the project on a new highway or expanded highway that serves a significant volume of diesel truck traffic, such as a facility with greater than 125,000 average daily traffic (ADT) and 8% or more of such AADT is diesel truck traffic or an expanded highway with a significant increase in the number of diesel vehicles?

No. The proposed project would add "Bus-only" lanes to sections of US 41, and use of the existing and committed transportation network in the Kennesaw area. The ART would utilize existing High Occupancy Vehicle (HOV) lanes on I-75 between Akers Mill Road and Northside Drive, and existing roads to the MARTA Arts Center Station. Truck percentage currently exceeds 8 percent, however truck percentage would remain the same, or in some areas decrease, in the design year. The decrease in truck percentage on the segment of US 41 between I-285 and I-575 is due to a shift in travel patterns to the I-75 Express Lane system, anticipated to be complete by 2040.

The overall traffic volumes even in the design year would not approach 125,000 vehicles. On US 41, the maximum ADT in the 2040 Build Alternative along the project corridor would be 52,000, and 51,850 in the 2040 No Build Alternative. As indicated in Table 1, the Build Alternative would not significantly increase volumes or truck percentages compared to the No Build Alternative, including diesel vehicles.

Table 1: Existing and Project ADT and Truck Percentage

Segment	2006 Existing		2020 No Build		2020 Build		2040 No Build		2040 Build	
	ADT	Truck %	ADT	Truck %	ADT	Truck %	ADT	Truck %	ADT	Truck %
US 41: Between I-285 and I-575	28,129	16	34,398	15	34,416	15	46,935	14	46,989	14
US 41: North of I-575	39,699	16	43,749	16	43,746	16	51,850	16	52,000	16

3. Does the project construct new exit ramps or other highway facility improvements that connect a highway or expressway to a major freight, bus, or intermodal terminal?

No. The ART proposes 15 new transit stations. These stations would not be major freight, bus, or intermodal terminals. As shown on Figures 2 and 3, construction of the stations would consist of a shelter, platform, and other amenities for transit loading and unloading of passengers. While there would be parking spaces at some stations, the number of spaces would vary, ranging from 50 to 1,000. The number and location of stations is intended to encourage pedestrian access and short origination and destination trips from nearby residential and commercial areas. The ART system would also provide access to schools, medical facilities and other services.

4. Does the project expand an existing highway or other facility that affects a congested intersection (Operates at LOS D, E, or F) that has a significant increase in the number of diesel trucks?

No. Although there are intersections that operate at LOS D, E, or F, the proposed project would not result in an increase in truck percentages between the Build and No Build Alternatives. Overall truck percentage for the corridor is expected to remain the same, or in some segments decrease, in the design year, as shown in Table 1.

5. Does the highway project involve a significant increase in the number of diesel transit buses and / or diesel trucks?

No. As shown in Table 1, truck percentages would not change between the design year Build and No Build Alternatives. New alternative fuel vehicles would provide service for the ART. Fifteen vehicles would be purchased at a future date specifically for use on the ART. It is anticipated these 15 vehicles would be either diesel hybrid or CNG. They would not be diesel power only.

The purpose of the project is not to add general purpose lanes. With purchase of the 15 buses specifically for the ART, the Build Alternative would not result in a significant increase in diesel powered vehicles.

Based on the above, a qualitative $PM_{2.5}$ hotspot analysis is not required for this project since it is NOT a project of local air quality concern under 40 CFR 93.123(b)(1). The Clean Air Act and 40 CFR 93.116 requirements were met without a hotspot analysis since this project has been found not to be of air quality concern under 40 CFR 93.123(b)(1). Therefore, the project meets statutory and regulatory transportation conformity requirements without a hot-spot analysis.

Figure 1. Proposed Project

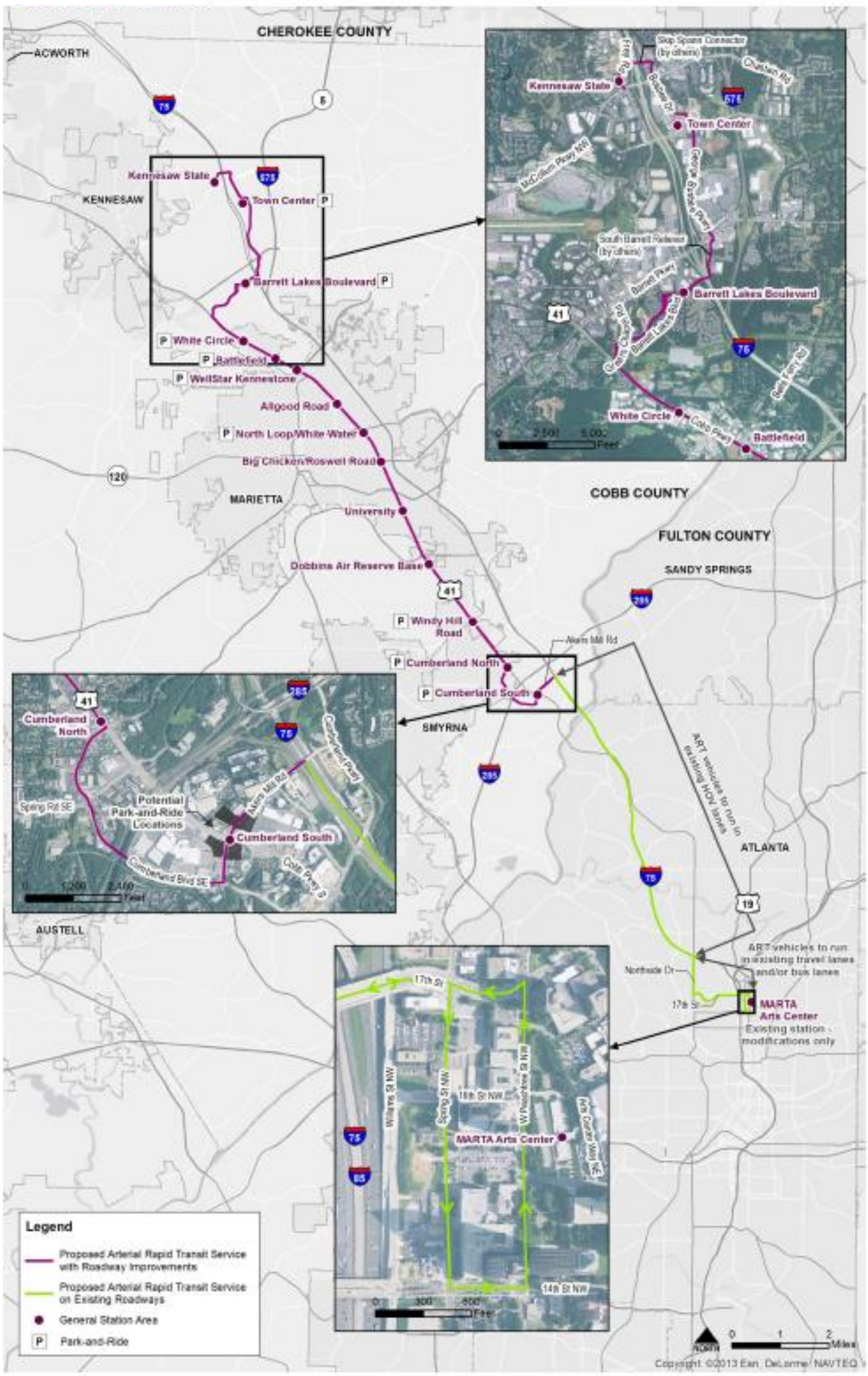


Figure 2. Station Concept Design

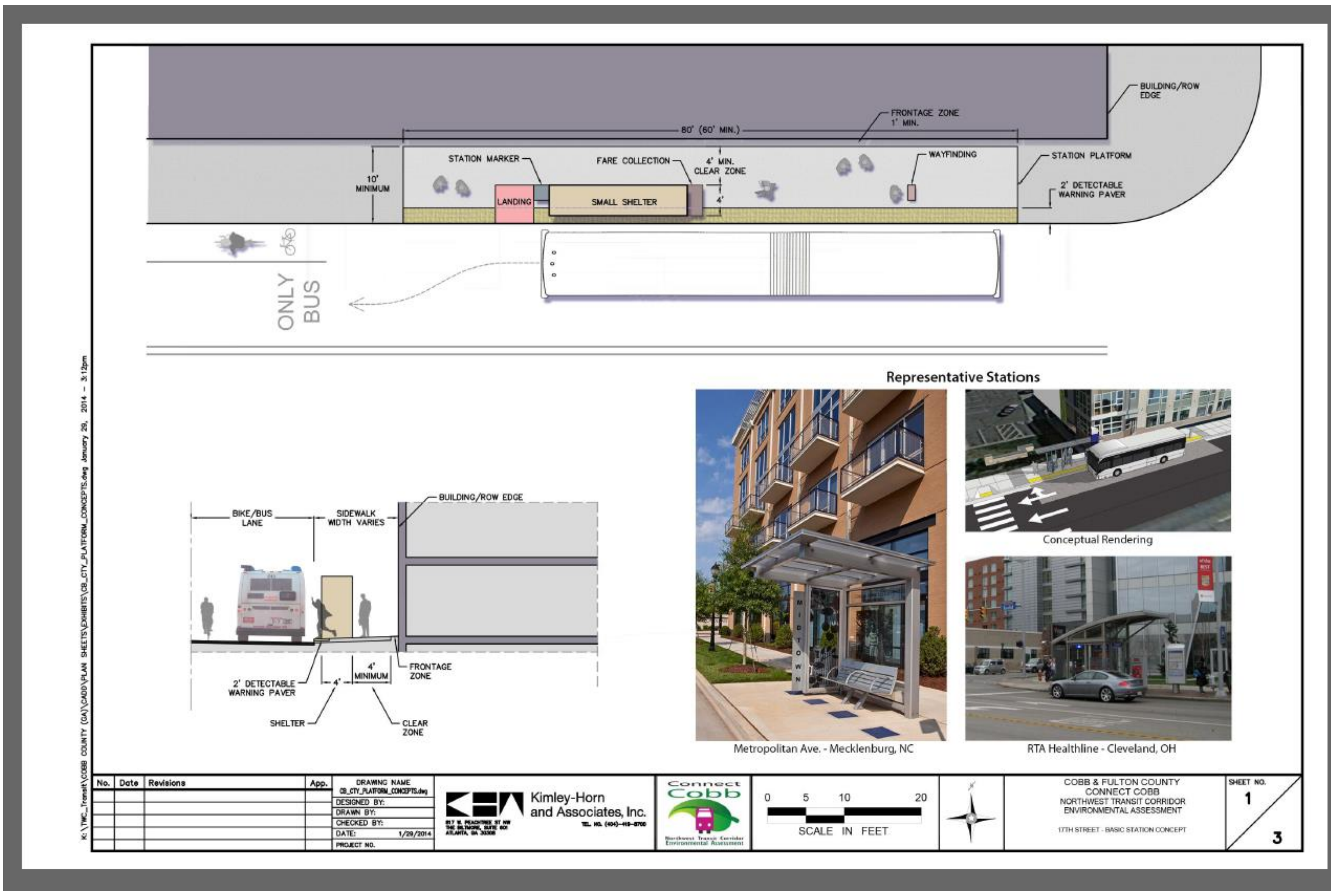
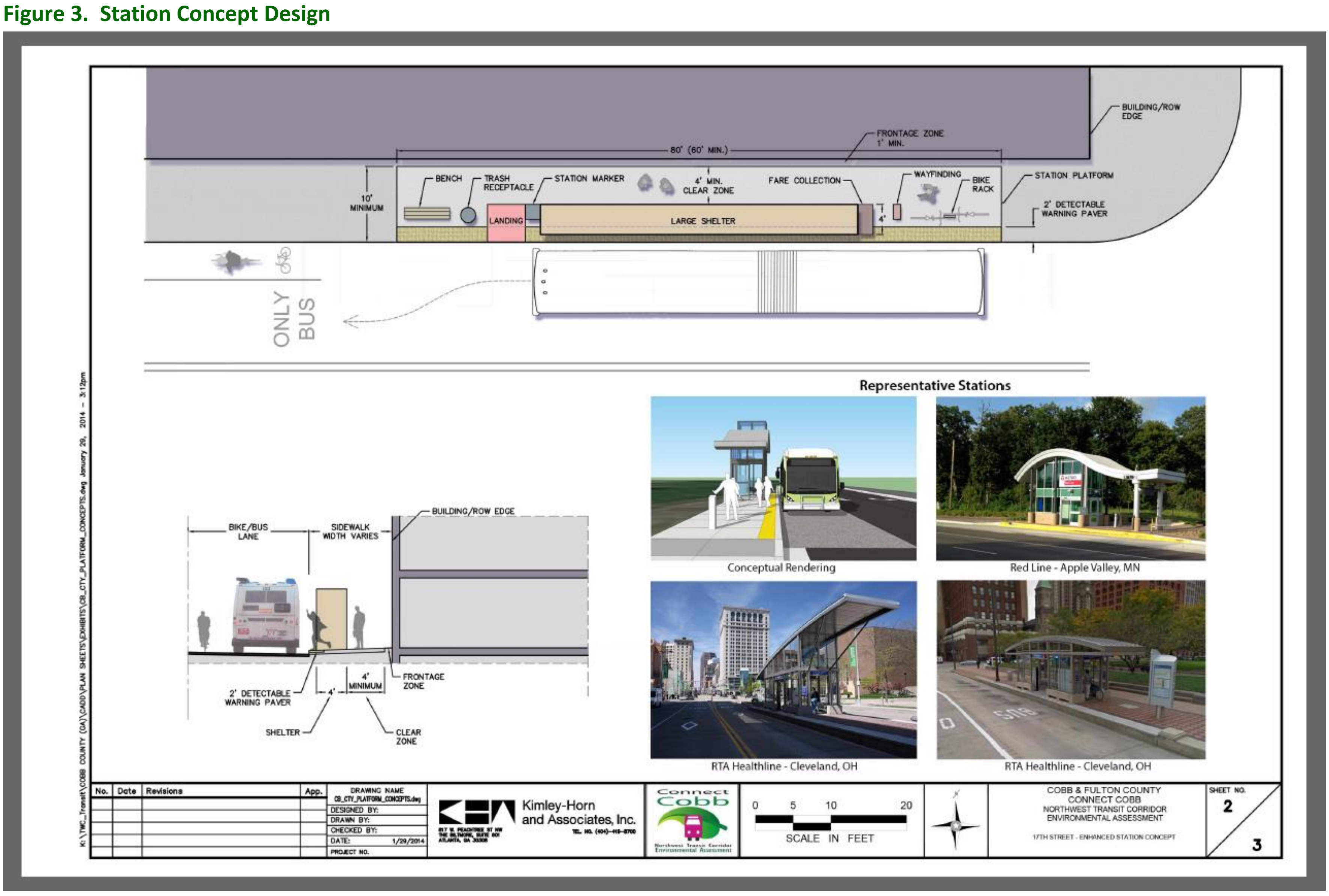


Figure 3. Station Concept Design



From: Myers, Dianna [mailto:Myers.Dianna@epa.gov]
Sent: Tuesday, January 27, 2015 12:25 PM
To: Mitchell, Stanley
Cc: Somerville, Amanetta; aphillips@dot.ga.gov; Edwards, Andrew (FHWA); Benjamin, Lynorae; Dixon, Chetna (FHWA); ddonofrio@atlantaregional.com; dhaynes@atlantaregional.com; aheath@dot.ga.gov; thuff@dot.ga.gov; james_kelly@dnr.state.ga.us; jcrane@dot.ga.gov; JBarrett@atlantaregional.com; JOrr@atlantaregional.com; mkemp@dot.ga.gov; keijackson@dot.ga.gov; kgwin@dot.ga.gov; kkim@atlantaregional.com; Melton, Boyd (FTA); rgoodwin@grta.org; Syamala@hallcounty.org; sshakshuki@dot.ga.gov; anclay@dot.ga.gov; apromesse@dot.ga.gov; Walker, Julia (FTA); Marty.Sewell@cobbcounty.org; Myers, Dianna; Farngalo, Zuri
Subject: RE: PM 2.5 Determination - Atlanta Non-attainment area

Hello Stan,

Thanks for sending this for our review. We have completed our review and agree that this/these project(s) do NOT appear to be a "Project of Concern" per the Transportation Conformity Rule, and thus meets the statutory and regulatory requirements for PM 2.5 hotspots without a quantitative analysis.

Dianna B. Myers

Physical Scientist

Regional Transportation Conformity Contact

Air Regulatory Management Section

Phone: (404) 562-9207 Fax: (404) 562-9019

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From: stanley.a.mitchell@dot.gov [mailto:stanley.a.mitchell@dot.gov]
Sent: Tuesday, January 06, 2015 5:16 PM
To: stanley.a.mitchell@dot.gov
Cc: Somerville, Amanetta; aphillips@dot.ga.gov; andrew.edwards@dot.gov; Benjamin, Lynorae; Chetna.Dixon@dot.gov; ddonofrio@atlantaregional.com; dhaynes@atlantaregional.com; Myers, Dianna; aheath@dot.ga.gov; thuff@dot.ga.gov; james_kelly@dnr.state.ga.us; jcrane@dot.ga.gov; JBarrett@atlantaregional.com; JOrr@atlantaregional.com; mkemp@dot.ga.gov; keijackson@dot.ga.gov; kgwin@dot.ga.gov; kkim@atlantaregional.com; Keith.Melton@dot.gov; rgoodwin@grta.org; Syamala@hallcounty.org; sshakshuki@dot.ga.gov; anclay@dot.ga.gov; apromesse@dot.ga.gov; julia.walker@dot.gov; Marty.Sewell@cobbcounty.org
Subject: RE: PM 2.5 Determination - Atlanta Non-attainment area

All, sorry for the repeat, but the previous attachment was out of date. Please use this one.

Stan Mitchell
Environmental Protection Specialist
Federal Transit Administration Region 4
230 Peachtree St. NW, Ste. 1400
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O: (404) 865-5643
C: (404) 405-1271
stanley.a.mitchell@dot.gov

From: Mitchell, Stanley
Sent: Monday, January 05, 2015 5:33 PM
To: Mitchell, Stanley
Cc: 'Amanetta Somerville'; 'Amber Phillips'; Edwards, Andrew (FHWA); 'Benjamin.Lynorae'; Dixon, Chetna (FHWA); 'David D'Onofrio'; 'David Haynes'; Myers.Dianna@epamail.epa.gov; 'Heath Andrew'; 'Huff, Tamaya'; 'James_Kelly'; 'jcrane@dot.ga.gov'; 'Jean Hee P. Barrett'; 'John Orr'; 'mkemp@dot.ga.gov'; 'Keisha Jackson'; 'Kelly Gwin'; 'Kyung-Kim'; Melton, Boyd (FTA); Mitchell, Stanley; 'rgoodwin@grta.org'; 'Sirkanth Yamala'; 'Soli Shakshuki (sshakshuki@dot.ga.gov)'; Clay, Andrew (anclay@dot.ga.gov); apromesse@dot.ga.gov; Walker, Julia (FTA); Sewell, Marty (Marty.Sewell@cobbcounty.org)
Subject: PM 2.5 Determination - Atlanta Non-attainment area

All,

A PM 2.5 Determination for a project within the Atlanta Nonattainment area is attached. FTA has determined that the project is not a Project of Air Quality Concern per the Transportation Conformity Rule. The project sponsor, Cobb

County DOT will be available to answer questions at the upcoming IAC meeting on January 27, 2015, and will make a brief presentation describing the project as time permits.

Please review and provide comments back by January 30, 2015. If no comments are received from your agency, concurrence with this determination will be assumed.

Happy New Year!

Stan Mitchell
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