ATTACHMENT F

Air Quality and Noise

F1 USEPA and OEPA Concurrence on $PM_{2.5}$
F2 OEPA Concurrence on MSAT Analysis
F3 MSAT Analysis Report
F4 ODOT-OES IOC: Preliminary Noise Analysis, January 11, 2008
F5 Preliminary Noise Analysis Report

Attachment F1

USEPA and OEPA Concurrence on $PM_{2.5}$

From:	Binau, Jesse
To:	Young, Chris;
CC:	
Subject:	FW: CLE-275-10.15 PID 76289 PM 2.5 USEPA response
Date:	Wednesday, January 30, 2008 11:59:00 AM
Attachments:	Traffic Data.jpg CLE-275-10.15 PM2.5 Project Map 1 Exhibit 2.jpg CLE-275-10.15 PM2.5 Project Map 2 Exhibit 3.jpg CLE-275-10.15 PM2.5 Area Map Exhibit 1.jpg

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USEPA response

Jesse Binau
Deputy Environmental Services Manager

ENTRAN
1848 Summit Road
Cincinnati, Ohio 45237
513-761-1700 (phone)
513-619-6457 (direct)
513-761-1728 (fax)
---
xxxxxxxxxxxxxx

From: Keith.Smith@dot.state.oh.us [mailto:Keith.Smith@dot.state.oh.us]
Sent: Thursday, November 01, 2007 7:34 AM
To: Binau, Jesse
Subject: CLE-275-10.15 PID 76289 PM 2.5 USEPA response

FYI

Keith Smith, P.E.
Acting Planning & Environmental

Engineer / Team Leader, ODOT D-8
Keith.Smith@dot.state.oh.us
1-800-831-2142 or 513-933-6590

----- Forwarded by Keith Smith/Planning/D08/ODOT on 11/01/2007 07:32 AM -----

Morris.Patricia@epamail.epa.gov

10/30/2007 10:26 AM

To Adam.Alexander@dot.state.oh.us

cc David.Snyder@fhwa.dot.gov, Elvin.Pinckney@dot.state.oh.us, Frank.Burkett@fhwa.dot.gov, Keith.Smith@dot.state.oh.us, sam.macdonald@epa.state.oh.us

Subject Re: PM2.5 hotspot

Adam,
Thanks for sending this for review, with the provided information.
I agree that the project is not a project of air quality concern based
on the traffic volumes and truck traffic percentages.
Pat

Patricia Morris
Environmental Scientist
USEPA Region 5
(312) 353-8656
morris.patricia@epa.gov

Adam.Alexander@d

ot.state.oh.us

10/26/2007 09:26

To

AM

To	Patricia Morris/R5/USEPA/US@EPA, Frank.Burkett@fhwa.dot.gov, sam.macdonald@epa.state.oh.us
cc	Elvin.Pinckney@dot.state.oh.us, Keith.Smith@dot.state.oh.us, David.Snyder@fhwa.dot.gov
bcc	Elvin.Pinckney@dot.state.oh.us, Keith.Smith@dot.state.oh.us, David.Snyder@fhwa.dot.gov
Fax to	

Subject

All,

Please review the following project description. I am requesting input
on whether the subject project is a project of air quality concern.
Based on the traffic volume, existing year truck percentage and the
decrease in the truck percentage in the design year this does not appear
to be a project of air quality concern.

Thanks and have a nice weekend.

Sincerely,
Adam Alexander
Environmental Specialist
ODOT-Office of Environmental Services
614-466-2848
adam.alexander@dot.state.oh.us

Existing Conditions

The CLE-275-10.15 project consists of proposed capacity and safety
improvements to SR 32 and the existing I-275/SR 32 and Eastgate
Boulevard interchange areas in Union Township in western

Clermont
County, Ohio (locally referred to as the “Eastgate Area”; see Exhibits 1
and 2). The project begins on SR 32 about 0.3 miles west of Bells Lane
and proceeds east through the I-275/SR 32 interchange and the Eastgate
Boulevard interchange, to a point approximately 0.2 miles east of
Eastgate Square Drive. The project also involves an approximate 2.9-mile
section of I-275 beginning approximately 1.1 miles north of the existing
I-275/SR 32 interchange and extending to a point approximately 1.2 miles
south of the existing I-275/SR 32 interchange.

The CLE-275-10.15 project was developed out of the Eastern Corridor
Multi-Modal Projects study, a comprehensive transportation study and
improvement program involving a 200 square-mile portion of eastern
Hamilton County and western Clermont County (commonly referred to as
Cincinnati’s “Eastern Corridor”). Western Clermont County is currently
the only Cincinnati suburb area that is not directly connected by
interstate or major controlled-access highway to the employment and
economic core of Cincinnati and Hamilton County. Consequently, commuter
traffic heading west toward Cincinnati from Clermont County and other
eastern outlying areas, and the reverse commuter traffic heading east
toward Clermont County, is forced to use the substandard and inefficient
SR 32 corridor, or one of the other local or regional non-expressway
facilities serving the Eastern Corridor (such as Clough Pike, SR 125 or

US 50).

Additionally, SR 32, in combination with I-275, is a key route for the regional, intrastate and interstate movement of goods and services in the eastern sector of the Cincinnati metropolitan area and OKI region. SR 32 is part of the national Appalachian Development Highway System (ADHS) network. The ADHS network connects all of the multi-state Appalachian Region to important eastern seaboard export markets, as well as midwestern, northcentral and south-central regional markets. The vicinity surrounding the project area is home to numerous businesses, restaurants, and retail shopping centers. In addition to handling substantial commuter traffic and freight movement, the SR 32 corridor and the surrounding local road network is handling a substantial amount of the local and regional traffic accessing this major commerce area.

The combination of commuter traffic, freight movement, and local business/shopping traffic in and through the Eastgate Area is resulting in high traffic volumes that, for the most part, are expected to substantially increase by 2030. The efficiency of travel and the effective movement of goods and services will continue to degrade in the project area unless capacity and access/safety improvements are implemented. Without the proposed improvements, declining transportation conditions will critically hinder the efficient movement of freight and

services, as well as the ability of people to connect with local and regional employment and economic centers.

Transportation needs in the Eastern Corridor study area, including the CLE-275-10.15 project area, were evaluated in Tier 1 of the Eastern Corridor Multi-Modal projects study and have been documented in the Eastern Corridor Tier 1 EIS (September 30, 2005) and Record of Decision (June 2, 2006). Key purpose and need elements identified for the Eastern Corridor included: a) existing transportation network deficiencies within the corridor, affecting capacity, safety and accessibility, b) limited availability of alternative transportation options (modes), c) inadequate regional linkage and mobility between social and economic destinations, and d) expected future economic expansion and population growth in the project area. These corridor-level transportation issues apply to all of the multi-modal projects included in the Eastern Corridor Tier 1 recommended plan, including the CLE-275-10.15 project.
Specific transportation goals for the CLE-275-10.15 project area, in support of the overall purpose and need for the Eastern Corridor Multi-Modal projects program, include the following:

• Improve safety on I-275 and SR 32 by addressing merge/weave problems, reducing motorist confusion, eliminating access point conflicts, and addressing stop-and-go conditions and left-turn conflicts.
• Meet ODOT Macro-Corridor goals for SR 32 by beginning to establish

limited-access east of I-275, including, where appropriate, access point removal or consolidation and grade separations.
• Improve connectivity and establish a coordinated mainline and local road network improvement program to provide better handling of different trip types (local versus regional) and vehicular modes.
• Provide capacity to achieve minimum Level of Service “D” for peak period key elements.
• Ensure that the SR 32 and Eastgate area improvements do not result in any degradation of level-of-service on I-275.
• Preserve and possibly enhance access to the Eastgate Mall area and surrounding retail complex.
• Provide opportunity for enhanced transit access and service.

The project area is extensively developed and comprised of mixed land uses, including commercial/retail, industrial, office, and single and multi-family residential (see Exhibit 2). The larger commercial/retail facilities in the area include Eastgate Mall, Eastgate Pavilion, Eastgate Crossing, Eastgate Station, Biggs Place, Meijer and Wal-Mart. Smaller businesses occur as strip development along SR 32, including a variety of restaurants, gas stations, automotive repair/ service facilities, motels, and banks. Residential development in the area mostly occurs west of the I-275/SR 32 interchange along Bells Lane, Mt. Carmel-Tobasco Road, Old SR 74 and Aicholtz Road, and to the north and south of SR 32 east of Gleneste-Withamsville Road.

Existing I-275 in the project area is classified as an Urban Interstate.

SR 32 is classified as an Urban Principal Arterial. Old SR 74 serves as an alternative east-west route that crosses SR 32 at both the east and west ends of the project area. Access from the major roadways to shopping centers, businesses, and residential development in the area is provided from local side roads, such as Eastgate Boulevard, and drives that run both perpendicular and parallel to SR 32 (see Exhibit 2).

Proposed Improvements

The CLE-275-10.15 project is the first of several roadway improvement projects to be implemented as part of the Eastern Corridor work program identified in the Tier 1 EIS. The CLE-275-10.15 project is the initial stage of action for the Eastgate Area of the Eastern Corridor, and focuses on addressing transportation inadequacies associated with the existing I-275/SR 32 and Eastgate Boulevard interchanges and the adjacent segment of SR 32 from approximately Bells Lane to Gleneste-Withamsville Road. Specifically, the CLE-275-10.15 project will improve levels-of-service to “D” or better in the I-275/SR 32 and SR 32/Eastgate Boulevard interchanges and on SR 32 in the project area, and will improve motorist safety by addressing high traffic volumes and access point conflicts through implementation of the following design plan (see Exhibit 3):

• Widen SR 32 from a four-lane facility to (primarily) a six-lane facility.

• Remove the existing Old SR 74/SR 32 intersection and extend Old SR 74
to the west to intersect with Mt. Carmel-Tobasco Road to provide
adequate spacing between the I-275/SR 32 interchange ramps and the Old
SR 74/SR 32 intersection, and eliminate the existing merge/ weave problem
on SR 32 in this area.
• Eliminate the existing SR 32/Bells Lane intersection to provide better
traffic flow on SR 32 in the vicinity of the proposed Old SR 74/Mt.
Carmel-Tobasco Road/SR 32 intersection.
• Replace the existing cloverleaf ramps in the I-275/SR 32 interchange
with a combination of directional and loop ramps and
appropriately-spaced signalized intersections on SR 32 in order to
eliminate the
merge/weave problem in the I-275/SR 32 interchange area.
• Construct a series of braided ramps between the I-275/SR 32 and SR
32/Eastgate Boulevard interchanges to eliminate the merge/ weave problem
on SR 32 in this area.
• Reconfigure the SR 32/Eastgate Boulevard interchange from a partial
cloverleaf design to a modified diamond interchange, eliminate one
signalized intersection in the SR 32/Eastgate Boulevard interchange
area, and improve intersection spacing in the SR 32/Eastgate Boulevard
interchange area to improve traffic flow on Eastgate Boulevard and
level-of-service and safety throughout the SR 32/Eastgate Boulevard
interchange area.
• Eliminate the existing SR 32/Eastgate Square Drive and Jackson Square
Drive right-in/right-out intersection to improve traffic flow and safety

between the SR 32/Eastgate Boulevard interchange and the SR 32/Gleneste-Withamsville Road intersection.

In conjunction with this project, a number of other local projects are also being developed under the Eastern Corridor Tier 1 work program umbrella to improve local road network travel along the SR 32 Corridor in the Eastgate Area vicinity. The following is a summary of these local projects:

• Tina Drive Extension: This project (PID 82558) involves an extension of Tina Drive from Bells Lane to OldSR 74 (relocated/extended as part of CLE-275-10.15) to allow for the elimination of the existing SR 32/Bells Lane at-grade intersection.
• Eastgate North Frontage Road: This project (PID 82555) involves widening and other improvements to the Eastgate North Frontage Road, and is a local road network project being coordinated with improvements to the Eastgate Boulevard interchange under CLE-275-10.15.
• Old SR 74 Improvements: This is a planned local road project that involves widening and other improvements to Old SR 74 between Eastgate Boulevard and Elick Lane/Bach-Buxton Road (PID 82557).
• Aicholtz Road Connector: This project (PID 82552) involves the construction of a connector road (Aicholtz Road) from relocated Old SR 74 at Mt. Carmel-Tobasco Road southeast to Eastgate Boulevard.

Since these projects are being developed in conjunction with the CLE-275-10.15 project (or are in close proximity to CLE-275-10.15), they have been included in the 2010/2030 Build condition, as shown on Exhibit 3.

(See attached file: Traffic Data.jpg)(See attached file: CLE-275-10.15
PM2.5 Project Map 1 Exhibit 2.jpg)(See attached file: CLE-275-10.15
PM2.5 Project Map 2 Exhibit 3.jpg)(See attached file: CLE-275-10.15
PM2.5 Area Map Exhibit 1.jpg)

From:	Binau, Jesse
To:	Young, Chris;
CC:	
Subject:	FW: CLE-275-10.15 PID 76289 PM 2.5 EPA Response
Date:	Wednesday, January 30, 2008 11:57:33 AM
Attachments:	

OEPA reponse

Jesse Binau
Deputy Environmental Services Manager

ENTRAN
1848 Summit Road
Cincinnati, Ohio 45237
513-761-1700 (phone)
513-619-6457 (direct)
513-761-1728 (fax)
---
xxxxxxxxxxxxxx

From: Keith.Smith@dot.state.oh.us [mailto:Keith.Smith@dot.state.oh.us]
Sent: Thursday, November 01, 2007 7:33 AM
To: Binau, Jesse
Subject: CLE-275-10.15 PID 76289 PM 2.5 EPA Response

FYI

Keith Smith, P.E.
Acting Planning & Environmental
Engineer / Team Leader, ODOT D-8
Keith.Smith@dot.state.oh.us
1-800-831-2142 or 513-933-6590

----- Forwarded by Keith Smith/Planning/D08/ODOT on 11/01/2007 07:31 AM -----

"Sam MacDonald" <sam.macdonald@epa.state.oh.us>

10/30/2007 10:00 AM

To <Adam.Alexander@dot.state.oh.us>, <Morris.Patricia@epamail.epa.gov>, <Frank.Burkett@fhwa.dot.gov>

cc <Elvin.Pinckney@dot.state.oh.us>, <Keith.Smith@dot.state.oh.us>, "Bill Spires" <bill.spires@epa.state.oh.us>, <David.Snyder@fhwa.dot.gov>

Subject Re:

Hello Adam,

I regret the delay in responding to your request. Based upon the information provided and 40 CFR 93.123(b)(1), CLE-275-10.15 PID 76289 does not appear to be a project of air quality concern. In regard to 40 CFR 93.123(b)(1)(v), you may already have some of this information but in case you don't:

Clermont County is currently designated as nonattainment for PM2.5.

The PM-2.5 data: 2005 Annual 15.7, 24-Hr 98th Percentile 38.3
2006 Annual 12.7, 24-Hr 98th Percentile 31.6
**2007 Annual 15.2, 24-Hr 98th Percentile 33.5
Average 14.5 34.5

Disclaimer: 2007 data are through August and therefore are **not certified/complete/QA'd/etc.

We anticipate a decrease once the 4th quarter data is added.

The Clermont County monitor (39-025-0022) is located about 7.4 miles east of I-275 (project location) and about 135 yards north of SR-32.

Thank you for the opportunity to review and comment.
Enjoy the day,
Sam

>>> <Adam.Alexander@dot.state.oh.us> 10/26/2007 10:26 AM >>>

All,

Please review the following project description. I am requesting input on whether the subject project is a project of air quality concern. Based on the traffic volume, existing year truck percentage and the decrease in the truck percentage in the design year this does not appear to be a project of air quality concern.

Thanks and have a nice weekend.

Sincerely,
Adam Alexander
Environmental Specialist
ODOT-Office of Environmental Services
614-466-2848
adam.alexander@dot.state.oh.us

Existing Conditions

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eastern outlying areas, and the reverse commuter traffic heading east toward Clermont County, is forced to use the substandard and inefficient SR 32 corridor, or one of the other local or regional non-expressway facilities serving the Eastern Corridor (such as Clough Pike, SR 125 or US 50).

Additionally, SR 32, in combination with I-275, is a key route for the regional, intrastate and interstate movement of goods and services in the eastern sector of the Cincinnati metropolitan area and OKI region. SR 32 is part of the national Appalachian Development Highway System (ADHS) network. The ADHS network connects all of the multi-state Appalachian Region to important eastern seaboard export markets, as well as midwestern, northcentral and south-central regional markets. The vicinity surrounding the project area is home to numerous businesses, restaurants, and retail shopping centers. In addition to handling substantial commuter traffic and freight movement, the SR 32 corridor and the surrounding local road network is handling a substantial amount of the local and regional traffic accessing this major commerce area.

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the adjacent segment of SR 32 from approximately Bells Lane to Gleneste-Withamsville Road. Specifically, the CLE-275-10.15 project will improve levels-of-service to “D” or better in the I-275/SR 32 and SR 32/Eastgate Boulevard interchanges and on SR 32 in the project area, and will improve motorist safety by addressing high traffic volumes and access point conflicts through implementation of the following design plan (see Exhibit 3):

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• Eliminate the existing SR 32/Bells Lane intersection to provide better traffic flow on SR 32 in the vicinity of the proposed Old SR 74/Mt. Carmel-Tobasco Road/SR 32 intersection.
• Replace the existing cloverleaf ramps in the I-275/SR 32 interchange with a combination of directional and loop ramps and appropriately-spaced signalized intersections on SR 32 in order to eliminate the
merge/weave problem in the I-275/SR 32 interchange area.
• Construct a series of braided ramps between the I-275/SR 32 and SR 32/Eastgate Boulevard interchanges to eliminate the merge/weave problem on SR 32 in this area.
• Reconfigure the SR 32/Eastgate Boulevard interchange from a partial cloverleaf design to a modified diamond interchange, eliminate one signalized intersection in the SR 32/Eastgate Boulevard interchange area, and improve intersection spacing in the SR 32/Eastgate Boulevard interchange area to improve traffic flow on Eastgate Boulevard and level-of-service and safety throughout the SR 32/Eastgate Boulevard interchange area.
• Eliminate the existing SR 32/Eastgate Square Drive and Jackson Square Drive right-in/right-out intersection to improve traffic flow and safety between the SR 32/ Eastgate Boulevard interchange and the SR 32/Gleneste-Withamsville Road intersection.

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Since these projects are being developed in conjunction with the CLE-275-10.15 project (or are in close proximity to CLE-275-10.15), they have been included in the 2010/2030 Build condition, as shown on Exhibit 3.

Attachment F2

USEPA and OEPA Concurrence on MSAT Analysis

From:	Binau, Jesse
To:	Young, Chris; Osborne, Deborah;
CC:	
Subject:	FW: CLE-275-10.15 MSAT Analysis
Date:	Tuesday, March 04, 2008 9:58:36 AM
Attachments:	

OEPA Concurrence

Jesse Binau
Deputy Environmental Services Manager

ENTRAN
1848 Summit Road
Cincinnati, Ohio 45237
513-761-1700 (phone)
513-619-6457 (direct)
513-761-1728 (fax)

From: Adam.Alexander@dot.state.oh.us [mailto:Adam.Alexander@dot.state.oh.us]
Sent: Tuesday, March 04, 2008 9:45 AM
To: Binau, Jesse
Subject: Fw: CLE-275-10.15 MSAT Analysis

OEPA's concurrence is below. I thought we already had this one, but I guess not.

Adam Alexander
Environmental Specialist
ODOT-Office of Environmental Services
614-466-2848
adam.alexander@dot.state.oh.us

----- Forwarded by Adam Alexander/Environmental/CEN/ODOT on 03/04/2008 09:43 AM -----

"Sam MacDonald" <sam. macdonald@epa.state.oh.us>

03/04/2008 09:40 AM

To <Adam.Alexander@dot.state.oh.us>

cc

Subject Re: CLE-275-10.15 MSAT Analysis

Hello Adam

You didn't find my concurrence because I never sent you one. Can't believe I missed this one. I concur that CLE-275-10.15 meets the criteria for a project with higher potential for MSAT effects. In my opinion, this is a very well done MSAT analysis. One minor suggestion....a brief description/ expansion of what "providing opportunity for enhanced transit access and service" (pg 4) includes.

Please let James and Andrea know that Carolina Prado should receive the MSAT and Hot Spot reviews...until my position is filled.

Thanks Adam and very sorry for the oversight.
Take good care,
Sam

>>> <Adam.Alexander@dot.state.oh.us> 3/4/2008 9:11 AM >>>

Sam,

I am trying to find your concurrence email for this project and I'm not having any luck. Can you forward it to me?

Thanks,
Adam

Attachment F3

MSAT Analysis Report

Quantitative Mobile Source Air Toxics (MSAT) Analysis

CLE-275-10.15; PID 76289
Clermont County, Ohio

Prepared for:

The Ohio Department of Transportation, District 8
505 South SR 741
Lebanon, Ohio 45036

Prepared by:

ENTRAN

Engineering
Planning
Surveying
Environmental

1848 SUMMIT ROAD
CINCINNATI, OHIO 45237-2804
513.761.1700 / FAX 513.761.1728

September 2007

I. APPLICABILITY & BACKGROUND

A. Applicability

Section 112(b) of the federal Clean Air Act currently lists 189 air toxics, also known as *hazardous air pollutants* (HAPs). Air toxics are emitted by a variety of industrial sources and by motor vehicles, and present a threat of adverse effects to human health and/or the environment. The United States Environmental Protection Agency (EPA) has assessed this list of air toxics and has identified a subset of 21 of these toxics as "Mobile Source Air Toxics" (MSATs), which are set forth in the EPA final rule: *Control of Emissions of Hazardous Air Pollutants from Mobile Sources* (66 FR 17235). The EPA has also extracted six of these 21 MSATs and labeled them "priority" MSATs; these are: *benzene, formaldehyde, acetaldehyde, diesel particulate matter / diesel exhaust organic gases, acrolein,* and *1,3-butadiene*.

While these six MSATs are considered the priority transportation toxics, the EPA stresses that these lists are subject to change and may be adjusted in future rules. The EPA has not established regulatory concentration targets for the six relevant MSAT pollutants appropriate for use in the project development process.

Highway air toxics assessment procedures, coordination requirements, and mitigation measures are based on:

- *Federal Highway Administration's* (FHWA) *Interim Guidance on Air Toxic Analysis in NEPA Documents* (February 3, 2006)
- *FHWA Title 23 Code of Federal Regulations Part 771*
- *FHWA Title 40 Code of Federal Regulations Part 93*
- *FHWA Title 66 Code of Federal Regulations 17235*
- *FHWA Title 40 Code of Federal Regulations Part 1502*
- *The Ohio Department of Transportation (ODOT) Office of Environmental Services (OES) Technical Guidance TG-POL-01-06* dated August 1, 2006

The FHWA and ODOT guidance divides projects into four categories: those that require no analysis, those that have no potential for meaningful MSAT effects, those with low potential for MSAT effects, and those with higher potential for MSAT effects.

This project meets the criteria for "higher potential MSAT effects" since it adds capacity and adds new travel lanes. The analysis quantifies the MSAT effects of construction of the CLE-275-10.15 project. The FHWA Interim Guidance on Air Toxic Analysis in NEPA Documents (February 3, 2006) requires this analysis for capacity-adding highway construction projects with predicted traffic volumes exceeding 140,000 – 150,000 vehicles per day (if adjacent land uses are sensitive to MSAT effects).

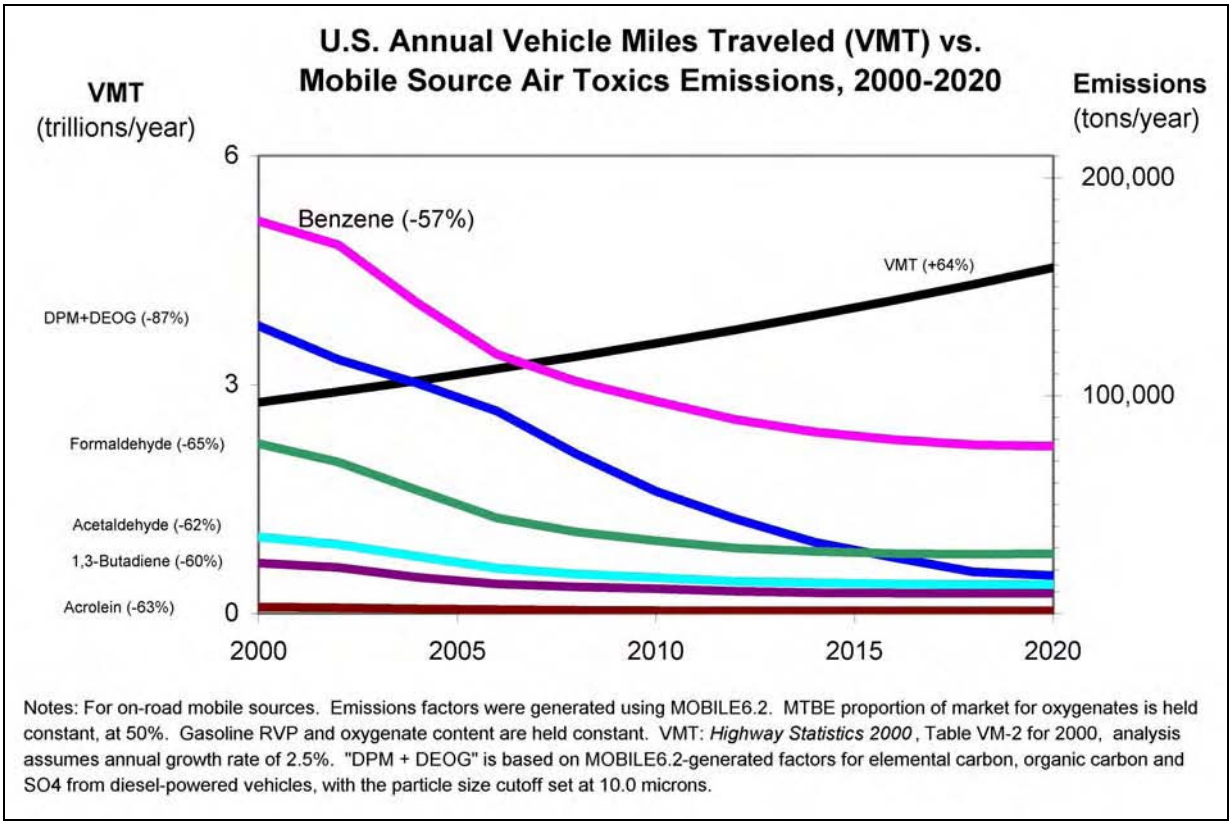
B. MSAT Background Information

In addition the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. 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 189 air toxics defined by the Clean Air Act (CAA). The MSATs are compounds emitted by highway vehicles and non-road equipment. Some toxics are present in fuel and emitted into the air when the fuel evaporates or passes through the air unburned. Other toxics are emitted

from the incomplete combustion of fuels or secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead Federal Agency for administering the CAA, and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17229; March 29, 2001). This rule was issued under the authority in Section 2020 of the CAA. In its rule, the EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel sulfur control requirements. Even with a projected 64-percent increase in VMT between 2000 and 2020, FHWA estimates that these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 to 65 percent, as shown in the following graph:



Notes: For on-road mobile sources. Emissions factors were generated using MOBILE6.2. MTBE proportion of market for oxygenates is held constant, at 50%. Gasoline RVP and oxygenate content are held constant. VMT: *Highway Statistics 2000*, Table VM-2 for 2000, analysis assumes annual growth rate of 2.5%. "DPM + DEOG" is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO4 from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns.

As a result, the EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the six primary MSATs.

C. Existing Conditions

The CLE-275-10.15 project consists of proposed capacity and safety improvements to SR 32 and the existing I-275/SR 32 and Eastgate Boulevard interchange areas in Union Township in western Clermont County, Ohio (locally referred to as the "Eastgate Area"; see Exhibits 1 and 2). The project begins on SR 32 about 0.3 miles west of Bells Lane and proceeds east through the I-275/SR 32 interchange and the Eastgate Boulevard interchange, to a point about 0.2 miles east of Eastgate Square Drive. The project also involves an approximately

2.9-mile section of I-275 beginning approximately 1.1 miles north of the existing I-275/SR 32 interchange and extending south to a point approximately 1.2 miles south of the existing I-275/SR 32 interchange.

The CLE-275-10.15 project was developed out of the Eastern Corridor Multi-Modal Projects study, a comprehensive transportation study and improvement program involving a 200 square-mile portion of eastern Hamilton County and western Clermont County (commonly referred to as Cincinnati's "Eastern Corridor"). Western Clermont County is currently the only Cincinnati suburb area that is not directly connected by interstate or major controlled-access highway to the employment and economic core of Cincinnati and Hamilton County. Consequently, commuter traffic heading west toward Cincinnati from Clermont County and other eastern outlying areas, and the reverse commuter traffic heading east toward Clermont County, is forced to use the substandard and inefficient SR 32 corridor, or one of the other local or regional non-expressway facilities serving the Eastern Corridor (such as Clough Pike, SR 125 or US 50).

Additionally, SR 32, in combination with I-275, is a key route for the regional, intrastate and interstate movement of goods and services in the eastern sector of the Cincinnati metropolitan area and OKI region. SR 32 is part of the national Appalachian Development Highway System (ADHS) network. The ADHS network connects all of the multi-state Appalachian Region to important eastern seaboard export markets, as well as midwestern, north-central and south-central regional markets. The vicinity surrounding the project area is home to numerous businesses, restaurants, and retail shopping centers. In addition to handling substantial commuter traffic and freight movement, the SR 32 corridor and the surrounding local road network is handling a substantial amount of the local and regional traffic trying to access this major commerce area.

The combination of commuter traffic, freight movement, and local business/shopping traffic in and through the Eastgate Area is resulting in high traffic volumes that, for the most part, are expected to substantially increase by 2030. The efficiency of travel and the effective movement of goods and services will continue to degrade in the project area unless capacity and access / safety improvements are implemented. Without the proposed improvements, declining transportation conditions will critically hinder the efficient movement of freight and services, as well as the ability of people to connect with local and regional employment and economic centers.

Transportation needs in the Eastern Corridor study area, including the CLE-275-10.15 project area, were evaluated in Tier 1 of the Eastern Corridor Multi-Modal projects study and has been documented in the Eastern Corridor Tier 1 EIS (September 30, 2005) and Record of Decision (June 2, 2006). Key purpose and need elements identified for the Eastern Corridor included: a) existing transportation network deficiencies within the corridor, affecting capacity, safety and accessibility, b) limited availability of alternative transportation options (modes), c) inadequate regional linkage and mobility between social and economic destinations, and d) expected future economic expansion and population growth in the project area. These corridor-level transportation issues apply to all of the multi-modal projects included in the Eastern Corridor Tier 1 recommended plan, including the CLE-275-10.15 project. Specific transportation goals for the CLE-275-10.15 project area, in support of the overall purpose and need for the Eastern Corridor Multi-Modal projects program, include the following:

- Improve safety on I-275 and SR 32 by addressing merge/weave problems, reducing motorist confusion, eliminating access point conflicts, and addressing stop-and-go conditions and left-turn conflicts.

- Meet ODOT Macro-Corridor goals for SR 32 by beginning to establish limited-access east of I-275, including, where appropriate, access point removal or consolidation and grade separations.

- Improve connectivity and establish a coordinated mainline and local road network improvement program to provide better handling of different trip types (local versus regional) and vehicular modes.

- Provide capacity to achieve minimum Level of Service "D" for peak period key elements.

- Ensure that the SR 32 and Eastgate area improvements do not result in any degradation of level-of-service on I-275.

- Preserve and possibly enhance access to the Eastgate Mall area and surrounding retail complex.

- Provide opportunity for enhanced transit access and service.

The project area is extensively developed and comprised of mixed land uses, including commercial/retail, industrial, office, and single and multi-family residential (see Exhibit 2). The larger commercial/retail facilities in the area include Eastgate Mall, Eastgate Pavilion, Eastgate Crossing, Eastgate Station, Biggs Place, Meijer and Wal-Mart. Smaller businesses occur as strip development along SR 32, including a variety of restaurants, gas stations, automotive repair/service facilities, motels, and banks. Residential development in the area mostly occurs west of the I-275/SR 32 interchange along Bells Lane, Mt. Carmel-Tobasco Road, Old SR 74 and Aicholtz Road, and to the north and south of SR 32 east of Gleneste-Withamsville Road.

Existing I-275 in the project area is classified as an Urban Interstate. SR 32 is classified as an Urban Principal Arterial. Old SR 74 serves as an alternative east-west route that crosses SR 32 at both the east and west ends of the project area. Access from the major roadways to shopping centers, businesses, and residential development in the area is provided from local side roads and drives that run both perpendicular and parallel to SR 32 (see Exhibit 2).

D. Proposed Improvements

The CLE-275-10.15 project is the first of several roadway improvement projects to be implemented as part of the Eastern Corridor work program identified in the Tier 1 EIS. The CLE-275-10.15 project is the initial stage of action for the Eastgate Area of the Eastern Corridor, and focuses on addressing transportation inadequacies associated with the existing I-275/SR 32 and Eastgate Boulevard interchanges and the adjacent segment of SR 32 from approximately Bells Lane to Gleneste-Withamsville Road. Specifically, the CLE-275-10.15 project will improve levels-of-service to "D" or better in the I-275/SR 32 and SR 32/Eastgate Boulevard interchanges and on SR 32 in the project area, and improve motorist safety by addressing high traffic volumes and access point conflicts through implementation of the following design plan (see Exhibit 3):

- Widen SR 32 from a four-lane facility to (primarily) a six-lane facility.

- Remove the existing Old SR 74/SR 32 intersection and extend Old SR 74 to the west to intersect with Mt. Carmel-Tobasco Road to provide adequate spacing between the I-275/SR 32 interchange ramps and the Old SR 74/SR 32 intersection, and eliminate the existing merge/weave problem on SR 32 in this area.

- Eliminate the existing SR 32/Bells Lane intersection to provide better traffic flow on SR 32 in the vicinity of the proposed Old SR 74/Mt. Carmel-Tobasco Road/SR 32 intersection.

- Replace the existing cloverleaf ramps in the I-275/SR 32 interchange with a combination of directional and loop ramps and appropriately-spaced signalized intersections on SR 32 in order to eliminate the merge/weave problem in the I-275/SR 32 interchange area.

- Construct a series of braided ramps between the I-275/SR 32 and SR 32/Eastgate Boulevard interchanges to eliminate the merge/weave problem on SR 32 in this area.

- Reconfigure the SR 32/Eastgate Boulevard interchange from a partial cloverleaf design to a modified diamond interchange, eliminate one signalized intersection in the SR 32/Eastgate Boulevard interchange area, and improve intersection spacing in the SR 32/Eastgate Boulevard interchange area to improve traffic

flow on Eastgate Boulevard and level-of-service and safety throughout the SR 32/Eastgate Boulevard interchange area.

- Eliminate the existing SR 32/Eastgate Square Drive and Jackson Square Drive right-in/right-out intersection to improve traffic flow and safety between the SR 32/Eastgate Boulevard interchange and the SR 32/Gleneste-Withamsville Road intersection.

In conjunction with this project, a number of other local projects are also being developed under the Eastern Corridor Tier 1 work program umbrella to improve local road network travel along the SR 32 Corridor in the Eastgate Area vicinity. The following is a summary of these local projects:

- Tina Drive Extension: This project (PID 82558) involves an extension of Tina Drive from Bells Lane to Old SR 74 (relocated/extended as part of CLE-275-10.15) to allow for the elimination of the existing SR 32/Bells Lane at-grade intersection.

- Eastgate North Frontage Road: This project (PID 82555) involves widening and other improvements to the Eastgate North Frontage Road, and is a local road network project being coordinated with improvements to the Eastgate Boulevard interchange under CLE-275-10.15.

- Old SR 74 Improvements: This is a planned local road project that involves widening and other improvements to old SR 74 between Eastgate Boulevard and Elick Lane/Bach-Buxton Road (PID 82557).

- Aicholtz Road Connector: This project (PID 82552) involves the construction of a connector road (Aicholtz Road) from relocated Old SR 74 at Mt. Carmel-Tobasco Road southeast to Eastgate Boulevard.

Since these projects are being developed in conjunction with the CLE-275-10.15 project (or are in close proximity to CLE-275-10.15), they have been included in the 2010/2030 Build condition, as shown on Exhibit 3.

II. MSAT ANALYSIS

A. Analysis Objectives

The analysis of MSAT is an emerging science with limited project-level analysis techniques. This project meets the "higher potential MSAT effects" criteria, thus requiring a quantitative MSAT analysis. ODOT has developed a quantitative analysis procedure through coordination with FHWA, U.S. EPA, and Ohio EPA. This procedure uses a variation of the conformity analysis based on regional travel demand models to calculate the regional MSAT contribution from project alternatives in the opening and design year scenarios. The analysis then compares the contribution from each project alternative and provides a recommendation based on the comparison.

In the case of the subject project, the preferred alternative was selected prior to the MSAT analysis requirement; therefore, this analysis is limited to a comparison of the preferred Build and No Build alternatives in the Opening Year (2010) and the Design Year (2030).

B. Sensitive Areas

Land uses which are sensitive to MSAT effects include residential development, schools, hospitals, nursing homes, day care facilities, and other land uses where vulnerable populations exist. An MSAT analysis focuses on land uses that are located within approximately 500 feet of the proposed edge of pavement; this distance was selected for MSAT analysis projects through coordination with Ohio EPA and FHWA, as it is consistent with the area of effect for PM2.5 (particulate matter).

The majority of MSAT-sensitive land uses within 500 feet of the proposed edges of pavement in the project area are located in residential subdivisions in the northwest and southwest quadrants of the I-275 / SR 32 interchange (see Exhibit 4). A lesser number of MSAT-sensitive land uses are located in the southeast quadrant of the I-275 / SR 32 interchange, and in the northwest quadrant of the SR 32 / Eastgate Boulevard interchange. A breakdown of approximate number and land use type of MSAT-sensitive receptors within 500 feet of the edge of pavement of roadways with planned improvements associated with this project is provided below:

I-275 / SR 32 Interchange, Northwest Quadrant

- 35 single-family residences along or adjacent to Cardinal Drive
- 20 single-family residences along Summerside Road, Elmont Drive, Vermona Drive, and Georgeann Lane
- 14 single-family residences along Bells Lane, Marjorie Drive, and Anna Mae Drive
- 10 single-family residences along Roney Lane
- 4 apartment buildings on Bells Lake Drive (Bells Lane Apartments)

I-275 / SR 32 Interchange, Southwest Quadrant

- 35 single-family residences along Rust Lane and Aicholtz Drive
- 45 single-family residences along Holiday Drive, Festive Court, Happiness Lane, and Ho Hum Drive
- 60 single-family residences along Cider Mill Drive
- 5 apartment buildings along Long Acres Drive

I-275 / SR 32 Interchange, Northeast / Southeast Quadrants

- 20 single-family residences along Melody Lane, Deer Valley Drive, Diane Drive, and Danny Drive
- 10 single-family residences along Glenridge Drive, just northeast of the SR 32/Eastgate Blvd. interchange
- 8 single-family residences along Aicholtz Road, between I-275 and Omni Drive

C. Traffic

Average Daily Traffic (ADT) volumes on I-275 and SR 32 in the project area are expected to exceed the 140,000-150,000 criterion level by 2030, thus requiring a quantitative MSAT analysis for the project. Table 1 (below) displays the traffic volume data for the primary roadways with project-related realignments or capacity improvements which could potentially impact pollution-sensitive land uses:

Table 1: Traffic Data

Roadway Segment	Base Year (2000)		Opening Year (2010) ***		Design Year (2030) ***	
	ADT	Truck %	ADT	Truck %	ADT	Trucks %
I-275						
North of SR 32	73,090*	7%	68,800	4%	75,200	4%
South of SR 32	65,770*	6%	60,500	4%	65,500	4%
SR 32						
West of I-275	30,980*	4%	33,000	3%	43,700	3%
Between I-275 and Eastgate Blvd.	64,610*	6%	77,900	2%	95,900	2%
East of Eastgate Blvd.	41,250*	5%	53,200	2%	71,900	2%
Old SR 74						
North of SR 32	14,075**	N/A	11,600	2%	16,300	2%
South of SR 32	10,815**	N/A	16,000	2%	27,000	2%

Roadway Segment	Base Year (2000)		Opening Year (2010) ***		Design Year (2030) ***	
	ADT	Truck %	ADT	Truck %	ADT	Trucks %
Eastgate Boulevard						
North of SR 32	20,191**	N/A	13,300	2%	14,200	2%
South of SR 32	17,318**	N/A	20,000	2%	21,100	2%
Eastgate North Drive						
East of Eastgate Blvd.	4,517**	N/A	10,400	2%	11,300	2%

* Source: ODOT-OTS website (2000 traffic counts).
** Source: Clermont County Engineer's Office Website (2001, 2004 and 2006 traffic counts).
*** Source: Derived from February 2007 ODOT-Certified Traffic (DHV / 10%)

III. EFFECTS ANALYSIS

The MSAT modeling for this project was performed by the ODOT-Office of Technical Services using MOBILE 6.2 conformity analysis modeling software. Regional modeling included a project Base Year (2000) scenario, Opening Day (2010) Build and No Build scenarios, and Design Year (2030) No Build and Build scenarios. Model results (divided into regional contribution for each of the six priority MSATs) are provided in the following table:

Table 2: MOBILE 6.2 Results – Project Contribution to Regional MSATs (in tons)

	Daily Exhaust					Daily Evaporative	Daily MSAT	Daily PM2.5	Totals
	Benzene	1,3 Butadiene	Formaldehyde	Acrolein	Acetaledhyde	Benzene			
Base (2000)	3.1351	0.4378	1.3921	0.0631	0.6992	0.5269	6.2542	5.0050	11.2592
2010 No Build	1.5107	0.2101	0.6686	0.0321	0.3426	0.2926	3.0567	3.1410	6.1977
2010 Build	1.5041	0.2092	0.6657	0.0319	0.3411	0.2913	3.0433	3.1340	6.1773
2010 Build - 2010 No Build	- 0.0066	- 0.0009	- 0.0029	- 0.0002	- 0.0015	- 0.0013	**- 0.0134**	**- 0.0070**	**- 0.0204**
2010 Build - 2000 Base							**- 3.2109**	**- 1.8710**	**- 5.0819**
2030 No Build	0.8194	0.1148	0.3728	0.0197	0.1922	0.1283	1.6472	2.2960	3.9432
2030 Build	0.8174	0.1145	0.3717	0.0197	0.1917	0.1281	1.6431	2.2950	3.9381
2030 Build - 2030 No Build	- 0.0020	- 0.0003	- 0.0011	0.0000	- 0.0005	- 0.0002	**- 0.0041**	**- 0.0010**	**- 0.0051**
2030 No Build - 2000 Base							**- 4.6070**	**- 2.7090**	**- 7.3160**
2030 Build - 2000 Base							**- 4.6111**	**- 2.7100**	**- 7.3211**

Both the Opening Day (2010) and Design Year (2030) Build scenarios show a reduction in MSAT emissions over the Base Year (2000) levels. The total contribution from the five toxins known to be affected by vehicle speed is combined, and particulate matter under 2.5 microns (PM2.5) is reported separately. The results for the 2030 No Build scenario show a 2.709-ton decrease in PM2.5-related MSAT contributions from the Base Year (2000) scenario, while results for the 2030 Build scenario show a 2.710-ton decrease in PM2.5-related MSAT from Base Year contributions. The difference in PM2.5-related MSAT contributions between the 2030 No Build and Build scenarios is 0.001 tons.

Given the decrease in overall contribution between the Base Year (2000) scenario and the Design Year (2030) Build scenario, and the slight decrease in MSAT contribution of the Design Year (2030) Build alternative compared to the Design Year (2030) No Build alternative, the construction of the proposed project will result in an overall improvement in MSAT effects.

IV. HEALTH EFFECTS OF MSAT

A. Unavailable Information for Project-Specific MSAT Impact Analysis

This air toxics analysis includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not provide for an accurate prediction of project-specific health impacts of the emissions changes associated with the alternatives. Due to these limitations, the following discussion is included (in accordance with CEQ regulations [40 CFR 1502.22(b)]) regarding incomplete or unavailable information:

Incomplete or Unavailable Information

Evaluating the environmental and health impacts of project-related MSAT emissions would involve several key elements, including emissions modeling, dispersion modeling (in order to estimate ambient concentrations resulting from the estimated emissions), exposure modeling (in order to estimate human exposure to the estimate concentrations), and final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science which prevents a more complete determination of this project's MSAT-related health impact.

1. Emissions

The tools used by the EPA to estimate MSAT emissions from motor vehicles are not sensitive to key variables in the context of highway projects. While MOBILE 6.2 is a useful utility in the prediction of regional emissions, it has limited applicability at the project level.

MOBILE 6.2 is a trip-based model which projects emission factors based on a typical trip of 7.5 miles at average travel speeds. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion that are likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects.

MOBILE 6.2 model results are not sensitive to the average trip speed for particulate matter (although other MSAT emission rates are dependant upon trip speeds). Furthermore, emissions rates used in MOBILE 6.2 for both particulate matter and MSAT are based on a limited number of tests, performed on mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE 6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE 6.2 is an adequate tool for projecting emissions trends and for performing relative analyses between alternatives for very large projects. However, it does not adequately capture the effects of travel changes relative to smaller projects, nor does it adequately predict emissions near specific roadside locations.

2. Dispersion

The tools which predict how MSATs disperse are limited. The EPA's current regulatory models (CALINE3 and CAL3QHC) were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide in determining compliance with the NAAQS. These dispersion models are more suitable for predicting the maximum concentrations which occur at random times and locations within a geographic area; they are less suitable for predicting accurate exposure patterns at specific times and locations within an urban area for the purpose of assessing potential health risk. Along with the general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas, which can be used in establishing project-specific MSAT background concentrations.

The National Cooperative Highway Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work will also focus on identifying appropriate methods of documenting MSAT impacts in the NEPA process and reporting these impacts to the general public.

3. Exposure Levels and Health Effects

Beyond the difficulties in accurately predicting emission levels and MSAT concentrations, the ability to reach meaningful conclusions about project-specific health impacts is further complicated by certain shortcomings in current techniques for assessing exposure and analyzing risk. Exposure assessments are hindered by the difficulty in calculating annual MSAT concentrations near roadways and quantifying human exposure to these concentrations at a specific location over the course of a calendar year. These difficulties are magnified for 70-year cancer assessments, particularly because such assessments would hinge on unreliable assumptions regarding the changes in travel patterns and vehicle technology (which affect emissions rates) over a 70-year period. Other factors such as low-dose extrapolation and translation of occupational exposure data present considerable uncertainties associated with current estimates of MSAT toxicity.

Due to these shortcomings, any calculated difference in predicted health impacts between alternatives is likely to be much less significant than the uncertainties associated with assessing the health impacts themselves. Consequently, the results of any such assessment would not be useful in the project decision-making process, as this information would be weighed against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to the Evaluation of MSAT Impacts

Research into the health impacts of MSATs is ongoing. Certain epidemiological studies based on emissions levels in occupational settings show that some emission types are associated with adverse health outcomes. Other studies have shown that certain animals demonstrate adverse health outcomes when exposed to large doses of MSATs.

A number of EPA efforts have focused on exposure to toxics. Most notable among these efforts is the 1996 National Air Toxics Assessment (NATA), which was conducted to evaluate modeled estimates of human exposure to air toxics at the county level. While not intended for use as a measure of, or benchmark for, local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a state or national level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database (http://www.epa.gov/iris) of human health effects that may result from exposure to various substances found in the environment. The following toxicity information was taken from the IRIS database *Weight of Evidence Characterization* summaries for each of the six prioritized MSATs, and represents the EPA's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures:

- **Benzene** is classified as a known human carcinogen.
- 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** is a probable human carcinogen, based on limited evidence in humans and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.

- **Acetaldehyde** is a probable human carcinogen, based on increased evidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel Exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposure.
- **Diesel Exhaust** also represents chronic respiratory effects, which is possibly the primary non-cancer hazard of MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies which address MSAT health impacts resulting from proximity to roadways. The Health Effects Institute (a non-profit organization funded by the EPA, FHWA, and industry) has undertaken a major series of studies which, among other topics, research near-roadway MSAT hotspots and the health implications of the entire mix of mobile source pollutants. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes – particularly respiratory problems[1]. Much of this research is not specific to MSATs, and instead surveys the full spectrum of air pollutants. The FHWA cannot evaluate the validity of these studies; more importantly, these studies do not provide information that would be useful in eliminating the uncertainties detailed above, and therefore do not allow for a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of Impacts Based upon Theoretical Approaches or Research Methods Generally Accepted in the Scientific Community

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxics emissions on human health cannot be made at the project level. While available tools do allow for a reasonable prediction of relative emissions differentials between alternatives for larger projects, the amount of MSAT emissions, contributions, or exposures from each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. Therefore, it is not possible to determine whether any of the alternatives would have a "significant or adverse impact on the human environment" in regard to MSAT emissions.

In this document, FHWA has provided a quantitative analysis of MSAT emissions relative to the project alternatives, and has acknowledged that the project may result in increased exposure to MSAT emissions in certain locations. Since the concentrations and duration of these exposures are uncertain, the health effects of these emissions cannot be estimated.

V. MSAT MITIGATION STRATEGIES

The objective of lessening the effects of MSAT should be considered for projects with substantial construction-related MSAT emissions that are likely to occur over an extended building period, as well as for post-construction scenarios where the NEPA analysis indicates potentially meaningful MSAT levels. Such mitigation efforts should be evaluated based on the circumstances associated with individual projects, and may not be appropriate in all cases. There are, however, a number of available mitigation strategies and solutions for countering the effects of MSAT emissions.

[1] *Multiple Air Toxic Exposure Study – II*, South Coast Air Quality Management District, 2000; *Highway Health Hazards*, Sierra Club, 2004 (summarizing 24 studies on the relationship between health and air quality); *Uncertainty in the Federal Legal Scheme Controlling Air Pollution for Motor Vehicles*, NEPA, Environmental Law Institute, 35 ELR 10273 (2005).

Mitigating Construction MSAT Emissions

Construction activities may generate a temporary increase in MSAT emissions. Project-level assessments that render a decision to pursue construction emission mitigation will benefit from a number of technologies and operational practices that should help lower short-term MSAT. In addition, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) has emphasized a host of diesel retrofit technologies in its Congestion Mitigation and Air Quality Improvement Program (CMAQ) provisions – technologies that are designed to lessen a number of MSATs.[2]

Construction mitigation includes strategies that reduce engine activity or reduce emissions per unit of operating time. Operational agreements that reduce or redirect work or shift times to reduce community exposures can have benefits when sites are near vulnerable populations. For example, agreements that stress work activity outside normal hours of an adjacent school campus would constitute operations-oriented mitigation. Other strategies that may be appropriate might include the application technological adjustments to construction equipment (off-road dump trucks and bulldozers, etc.) to reduce emissions. Such technological fixes could include the use of particulate matter traps, oxidation catalysts, and other devices that provide after-treatment of exhaust emissions. The use of clean fuels, such as ultra-low sulfur diesel, can also be a very cost-beneficial strategy.

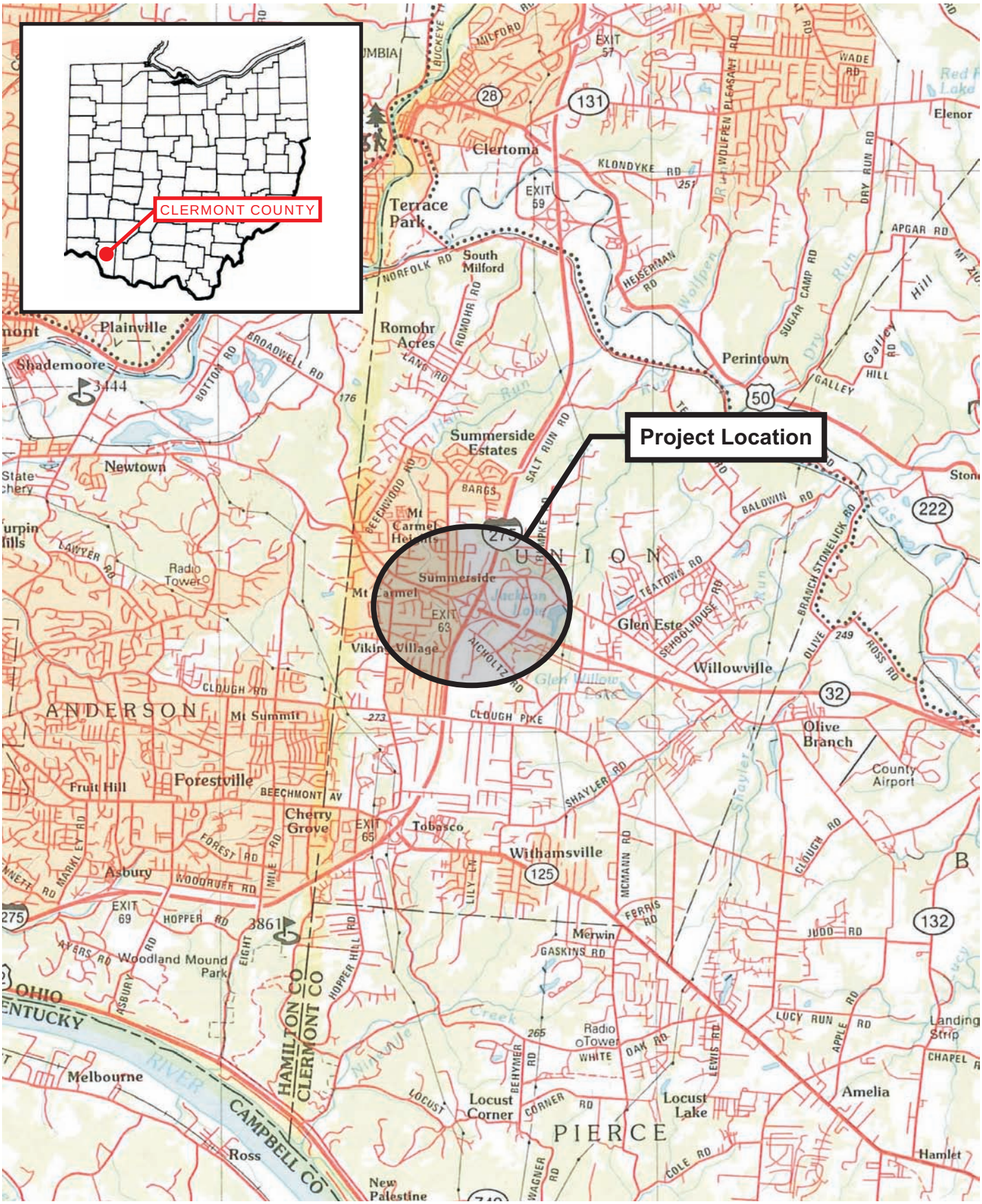
The EPA has listed a number of approved diesel-retrofit technologies; many of these technologies can be utilized as measures to mitigate emissions from construction equipment. This listing can be found at www.epa.gov/otaq/retrofit/retroverifiedlist.htm.

Longer-term MSAT emissions can be more difficult to control, as daily traffic and vehicle mix can vary. Operational strategies that focus on the enforcement of speed limits or the implementation of traffic management policies may help reduce MSAT emissions even beyond the benefits of fleet turnover. Well-traveled highways with high proportions of heavy-duty diesel truck activity may benefit from active Intelligent Transportation System programs, such as traffic management centers or incident management systems. Similarly, anti-idling strategies, such as truck-stop electrification can complement projects that focus on new or increased freight activity.

Planners may also want to consider the benefits of establishing buffer zones between new or expanded highway alignments and areas of vulnerable populations. Modifications of local zoning or the development of guidelines that are more protective may also be useful in separating emissions and receptors.

The initial decision to pursue MSAT emissions mitigation should be the result of interagency consultation at the earliest juncture. Options available to project sponsors should be identified through the careful gathering of information and the required level of deliberation to assure an effective course of action.

[2] SAFETEA-LU, Public Law 109-59, August 10, 2005



ENTRAN

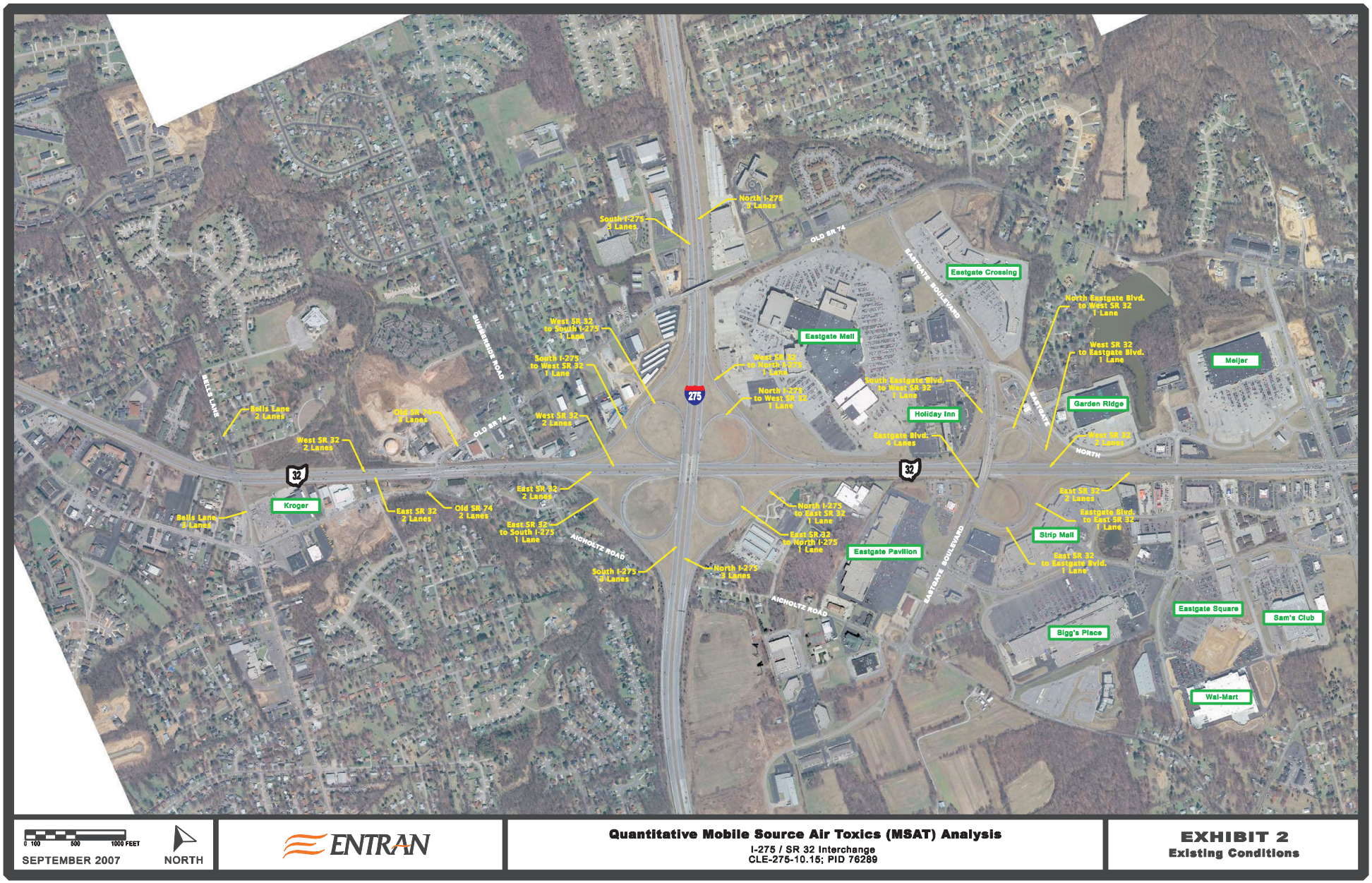
0 FEET 7,000 NORTH

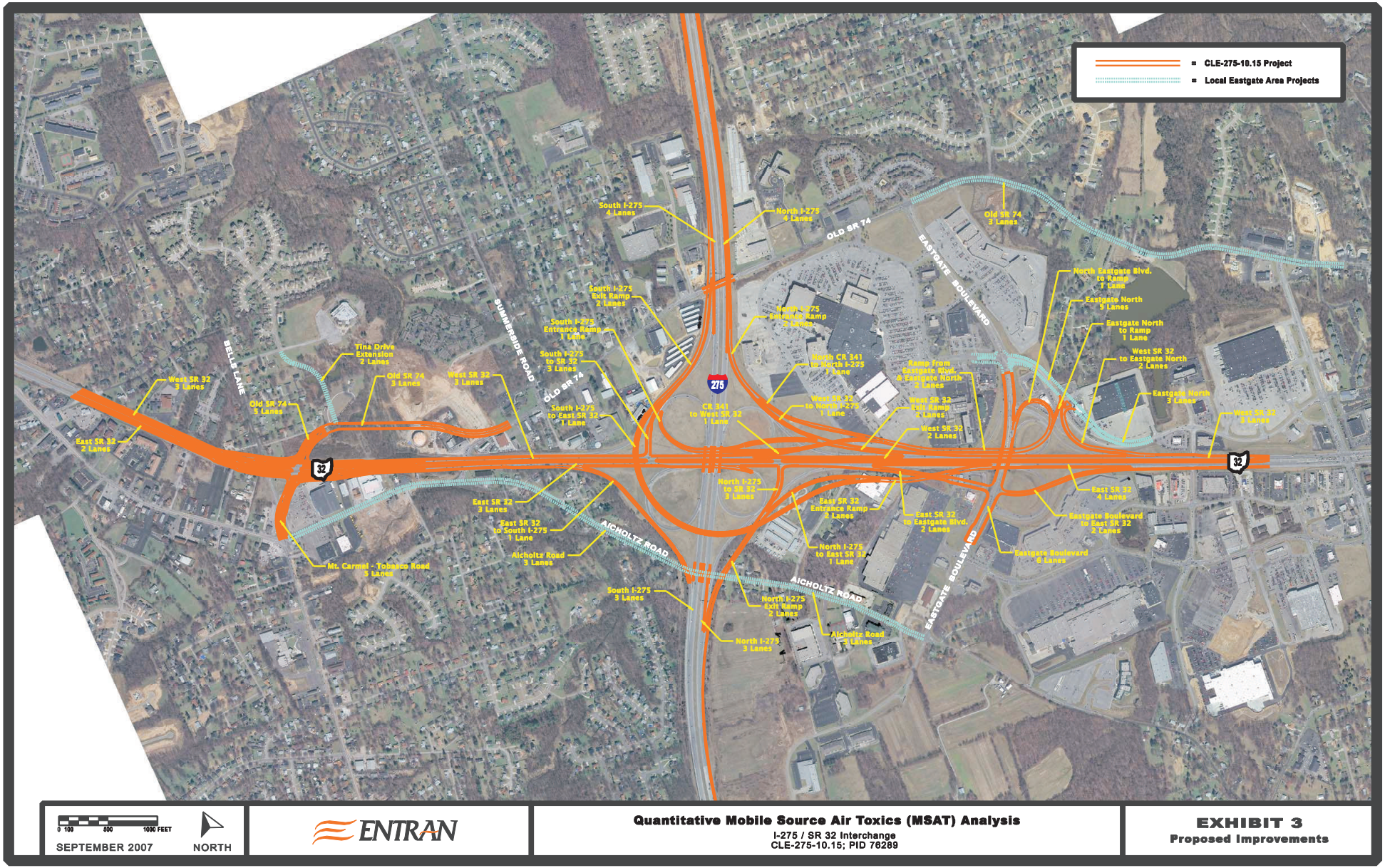
SEPTEMBER 2007

Quantitative Mobile Source Air Toxics (MSAT) Analysis

I-275 / SR 32 Interchange
CLE-275-10.15; PID 76289

EXHIBIT 1
Project Location


North I-275
3 Lanes
South I-275
3 Lanes
OLD SR 74
Eastgate Crossing
EASTGATE BOULEVARD
North Eastgate Blvd.
to West SR 32
1 Lane
West SR 32
to Eastgate Blvd.
1 Lane
Meijer
Eastgate Mall
West SR 32
to South I-275
1 Lane
South I-275
to West SR 32
1 Lane
West SR 32
to North I-275
1 Lane
North I-275
to West SR 32
1 Lane
South Eastgate Blvd.
to West SR 32
1 Lane
Garden Ridge
Holiday Inn
Eastgate Blvd.
4 Lanes
SUMMERSIDE ROAD
BELLS LANE
Bells Lane
2 Lanes
Old SR 74
2 Lanes
West SR 32
2 Lanes
275
32
Kroger
East SR 32
2 Lanes
Old SR 74
2 Lanes
East SR 32
to South I-275
1 Lane
AICHOLTZ ROAD
Bells Lane
3 Lanes
North I-275
to East SR 32
1 Lane
East SR 32
to North I-275
1 Lane
Eastgate Pavilion
Strip Mall
Eastgate Blvd.
to East SR 32
1 Lane
East SR 32
to Eastgate Blvd.
1 Lane
Eastgate Square
Sam's Club
Bigg's Place
Wal-Mart
0 100 500 1000 FEET
SEPTEMBER 2007
NORTH
ENTRAN
Quantitative Mobile Source Air Toxics (MSAT) Analysis
I-275 / SR 32 Interchange
CLE-275-10.15; PID 76289
EXHIBIT 2
Existing Conditions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= Local Eastgate Area Projects
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North I-275 4 Lanes
OLD SR 74
Old SR 74 3 Lanes
EASTGATE BOULEVARD
North Eastgate Blvd. to Ramp 1 Lane
Eastgate North 3 Lanes
Eastgate North to Ramp 1 Lane
West SR 32 to Eastgate North 2 Lanes
Eastgate North 3 Lanes
West SR 32 3 Lanes
South I-275 Exit Ramp 2 Lanes
South I-275 Entrance Ramp 1 Lane
South I-275 to SR 32 3 Lanes
SUMMERSIDE ROAD
BELLE LANE
Tiltz Drive Extension 2 Lanes
Old SR 74 3 Lanes
West SR 32 3 Lanes
West SR 32 3 Lanes
Old SR 74 3 Lanes
East SR 32 2 Lanes
South I-275 to East SR 32 1 Lane
CR 341 to West SR 32 1 Lane
North CR 341 to North I-275 1 Lane
Ramp from Eastgate Blvd. & Eastgate North 2 Lanes
West SR 32 to North I-275 1 Lane
West SR 32 Exit Ramp 2 Lanes
West SR 32 2 Lanes
32
North I-275 to SR 32 3 Lanes
East SR 32 3 Lanes
East SR 32 to South I-275 1 Lane
Aicholtz Road 3 Lanes
Mt. Carmel - Tobasco Road 3 Lanes
AICHOLTZ ROAD
East SR 32 Entrance Ramp 2 Lanes
East SR 32 to Eastgate Blvd. 2 Lanes
North I-275 to East SR 32 1 Lane
East SR 32 4 Lanes
Eastgate Boulevard to East SR 32 2 Lanes
Eastgate Boulevard 6 Lanes
EASTGATE BOULEVARD
South I-275 3 Lanes
North I-275 Exit Ramp 2 Lanes
North I-275 3 Lanes
Aicholtz Road 3 Lanes
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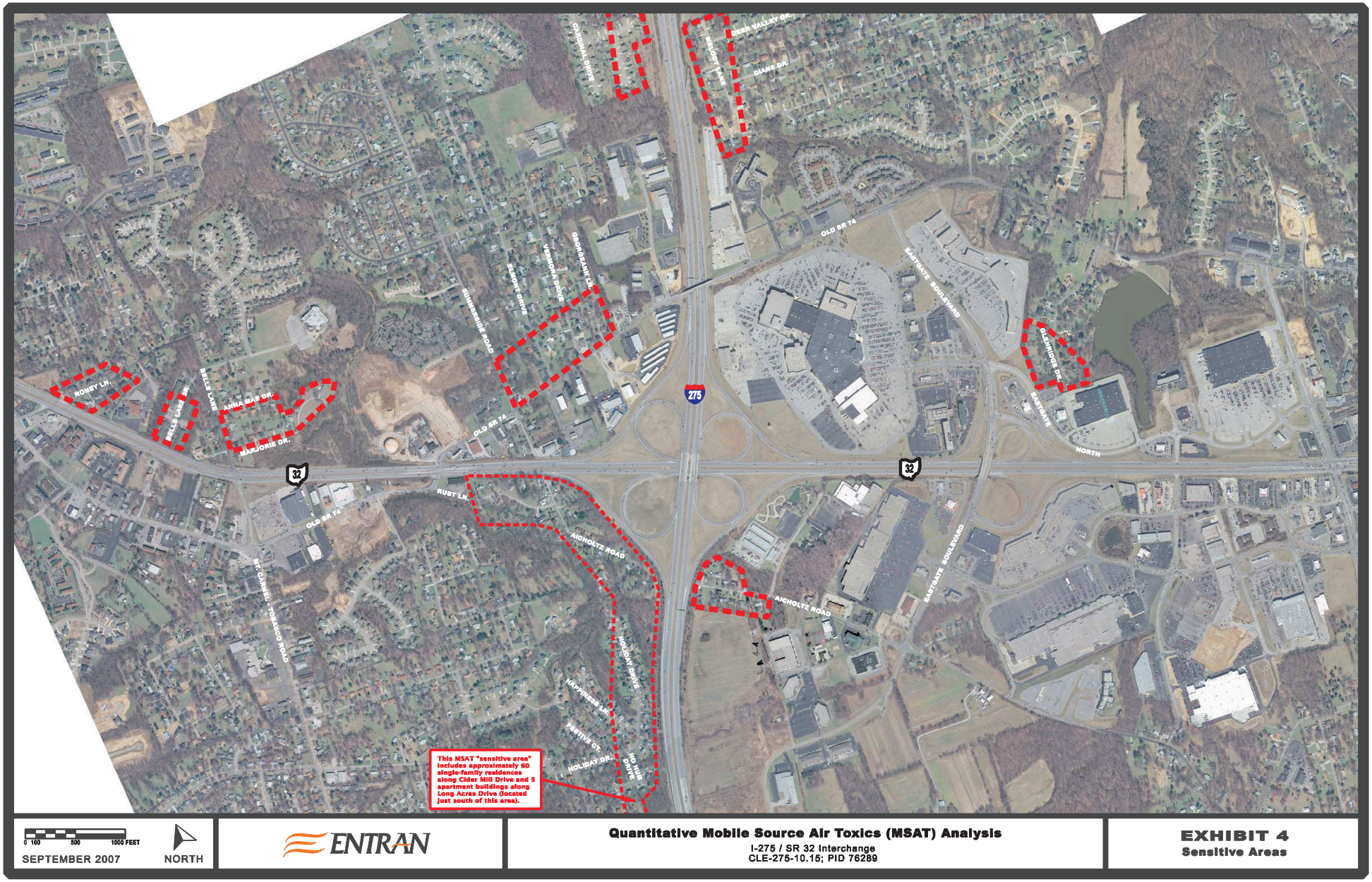
SEPTEMBER 2007
NORTH
ENTRAN
Quantitative Mobile Source Air Toxics (MSAT) Analysis
I-275 / SR 32 Interchange
CLE-275-10.15; PID 76289
EXHIBIT 3
Proposed Improvements



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Quantitative Mobile Source Air Toxics (MSAT) Analysis

I-275 / SR 32 Interchange
CLE-275-10.15; PID 76289

EXHIBIT 4
Sensitive Areas

Attachment F4

ODOT-OES IOC: Preliminary Noise Analysis, January 11, 2008

OHIO DEPARTMENT OF TRANSPORTATION
INTER-OFFICE COMMUNICATION
Office of Environmental Services

TO: Andy Flueggeman - Planning and Prog. Admin. #8
Attn: Keith Smith P.E. - District 8 DEC

DATE: Jan. 11, 2008

Elvin W. Pinckney For:

FROM: Timothy M. Hill - Admin. OES

SUBJECT: Preliminary Noise Analysis Report

PROJECT: HAM-IR275-10.15 PID #76289

The **HAM-IR275-10.15 PID #76289** Preliminary Noise Report has been reviewed by this office and is found to be acceptable. Receptor sites 1, 2, 3, and 5 will experience noise levels that exceed the FHWA Noise Abatement Criteria in the design year. Noise barriers are found to be reasonable and feasible to construct at all four sites listed on page 5 of the report. Further analysis of these potential sites will be necessary during the final design stage of the preferred alternative using updated certified traffic numbers and detailed project design plans.

Any questions, please call Elvin Pinckney of this office at 614 466-5154.

RECEIVED
JAN 15 2008
BY:_____

TMH:ALS:EWP
cc: File
Reading file

Attachment F5

Preliminary Noise Analysis Report

Preliminary Noise Analysis

CLE-275-10.15; PID 76289
Clermont County, Ohio

Prepared for:

The Ohio Department of Transportation, District 8
505 South SR 741
Lebanon, Ohio 45036

Prepared by: Simon J. Binau

ENTRAN

Engineering
Planning
Surveying
Environmental

1848 SUMMIT ROAD
CINCINNATI, OHIO 45237-2804
513.761.1700 / FAX 513.761.1728

November 2007

I. PROJECT INTRODUCTION

Project Description and Existing Conditions

The CLE-275-10.15 project consists of proposed capacity and safety improvements to SR 32 and the existing I-275/SR 32 and Eastgate Boulevard interchange areas in Union Township in western Clermont County, Ohio (locally referred to as the "Eastgate Area"; see Exhibits 1 and 2). The project begins on SR 32 about 0.3 miles west of Bells Lane and proceeds east through the I-275/SR 32 interchange and the Eastgate Boulevard interchange, to a point approximately 0.2 miles east of Eastgate Square Drive. The project also involves an approximate 2.9-mile section of I-275 beginning approximately 1.1 miles north of the existing I-275/SR 32 interchange and extending to a point approximately 1.2 miles south of the existing I-275/SR 32 interchange.

The CLE-275-10.15 project was developed out of the Eastern Corridor Multi-Modal Projects study, a comprehensive transportation study and improvement program involving a 200 square-mile portion of eastern Hamilton County and western Clermont County (commonly referred to as Cincinnati's "Eastern Corridor"). Western Clermont County is currently the only Cincinnati suburb area that is not directly connected by interstate or major controlled-access highway to the employment and economic core of Cincinnati and Hamilton County. Consequently, commuter traffic heading west toward Cincinnati from Clermont County and other eastern outlying areas, and the reverse commuter traffic heading east toward Clermont County, is forced to use the substandard and inefficient SR 32 corridor, or one of the other local or regional non-expressway facilities serving the Eastern Corridor (such as Clough Pike, SR 125 or US 50).

Transportation needs in the Eastern Corridor study area, including the CLE-275-10.15 project area, were evaluated in Tier 1 of the Eastern Corridor Multi-Modal projects study and have been documented in the Eastern Corridor Tier 1 EIS (September 30, 2005) and Record of Decision (June 2, 2006). Key purpose and need elements identified for the Eastern Corridor included: a) existing transportation network deficiencies within the corridor, affecting capacity, safety and accessibility, b) limited availability of alternative transportation options (modes), c) inadequate regional linkage and mobility between social and economic destinations, and d) expected future economic expansion and population growth in the project area. These corridor-level transportation issues apply to all of the multi-modal projects included in the Eastern Corridor Tier 1 recommended plan, including the CLE-275-10.15 project. Specific transportation goals for the CLE-275-10.15 project area, in support of the overall purpose and need for the Eastern Corridor Multi-Modal projects program, include the following:

- Improve safety on I-275 and SR 32 by addressing merge/weave problems, reducing motorist confusion, eliminating access point conflicts, and addressing stop-and-go conditions and left-turn conflicts.
- Meet ODOT Macro-Corridor goals for SR 32 by beginning to establish limited-access east of I-275, including, where appropriate, access point removal or consolidation and grade separations.
- Improve connectivity and establish a coordinated mainline and local road network improvement program to provide better handling of different trip types (local versus regional) and vehicular modes.
- Provide capacity to achieve minimum Level of Service "D" for peak period key elements.
- Ensure that the SR 32 and Eastgate area improvements do not result in any degradation of level-of-service on I-275.
- Preserve and possibly enhance access to the Eastgate Mall area and surrounding retail complex.
- Provide opportunity for enhanced transit access and service.

Existing I-275 in the project area is classified as an Urban Interstate. SR 32 is classified as an Urban Principal Arterial. Old SR 74 serves as an alternative east-west route that crosses SR 32 at both the east and west ends of the project area. Access from the major roadways to shopping centers, businesses, and residential development in the area is provided from local side roads, such as Eastgate Boulevard, and drives that run both perpendicular and

parallel to SR 32 (see Exhibit 2). The project area is extensively developed and comprised of mixed land uses, including commercial/retail, industrial, office, and single and multi-family residential (see Exhibit 2). The larger commercial/retail facilities in the area include Eastgate Mall, Eastgate Pavilion, Eastgate Crossing, Eastgate Station, Biggs Place, Meijer and Wal-Mart. Smaller businesses occur as strip development along SR 32, including a variety of restaurants, gas stations, automotive repair/service facilities, motels, and banks. Residential development in the area mostly occurs west of the I-275/SR 32 interchange along Bells Lane, Mt. Carmel-Tobasco Road, Old SR 74 and Aicholtz Road, and to the north and south of SR 32 east of Glen Este-Withamsville Road. Three noise barriers currently exist in the project area. Two are located along the east and west sides of I-275 to the north of SR 32, and one is located along the west side of I-275 to the south of SR 32 (see Exhibits 2, 4a and 4b). These barriers are further discussed in Section III.

Proposed Improvements

The CLE-275-10.15 project is the first of several roadway improvement projects to be implemented as part of the Eastern Corridor work program identified in the Tier 1 EIS. The CLE-275-10.15 project is the initial stage of action for the Eastgate Area of the Eastern Corridor, and focuses on addressing transportation inadequacies associated with the existing I-275/SR 32 and Eastgate Boulevard interchanges and the adjacent segment of SR 32 from approximately Bells Lane to Glen Este-Withamsville Road. Specifically, the CLE-275-10.15 project will improve levels-of-service to "D" or better in the I-275/SR 32 and SR 32/Eastgate Boulevard interchanges and on SR 32 in the project area, and will improve motorist safety by addressing high traffic volumes and access point conflicts through implementation of the following design plan (see Exhibit 3):

- Widen SR 32 from a four-lane facility to (primarily) a six-lane facility.
- Remove the existing Old SR 74/SR 32 intersection and extend Old SR 74 to the west to intersect with Mt. Carmel-Tobasco Road to provide adequate spacing between the I-275/SR 32 interchange ramps and the Old SR 74/SR 32 intersection, and eliminate the existing merge/weave problem on SR 32 in this area.
- Eliminate the existing SR 32/Bells Lane intersection to provide better traffic flow on SR 32 in the vicinity of the proposed Old SR 74/Mt. Carmel-Tobasco Road/SR 32 intersection.
- Replace the existing cloverleaf ramps in the I-275/SR 32 interchange with a combination of directional and loop ramps and appropriately-spaced signalized intersections on SR 32 in order to eliminate the merge/weave problem in the I-275/SR 32 interchange area.
- Construct a series of braided ramps between the I-275/SR 32 and SR 32/Eastgate Boulevard interchanges to eliminate the merge/weave problem on SR 32 in this area.
- Reconfigure the SR 32/Eastgate Boulevard interchange from a partial cloverleaf design to a modified diamond interchange, eliminate one signalized intersection in the SR 32/Eastgate Boulevard interchange area, and improve intersection spacing in the SR 32/Eastgate Boulevard interchange area to improve traffic flow on Eastgate Boulevard and level-of-service and safety throughout the SR 32/Eastgate Boulevard interchange area.
- Eliminate the existing SR 32/Eastgate Square Drive and Jackson Square Drive right-in/right-out intersection to improve traffic flow and safety between the SR 32/Eastgate Boulevard interchange and the SR 32/Gleneste-Withamsville Road intersection.

II. PRELIMINARY NOISE ANALYSIS

ENTRAN has completed a Preliminary Noise Analysis for the proposed project as part of Step 6 of the Major Project Development Process. This analysis was completed in accordance with ODOT Noise Policy (August 2006) and guidance from ODOT-District 8 and ODOT-Office of Environmental Services. The analysis predicts sound levels for Existing (2007) and Design Year (2030) Build conditions for eight receptors (referred to as Receptors 1 through 8 in this report) representing noise-sensitive land uses adjacent to I-275, SR 32, and associated interchange ramps in the project area (see Exhibits 4a and 4b). Receptor selection was based on land-use type and proximity to I-275, SR 32 and I-275/SR 32 interchange ramps.

Receptor 1 represents ground-level, roadway-facing apartment units at Bells Lake Apartments, the Christian Life Center, and adjacent single-family residences located along the north side of SR 32, west of I-275. Receptor 2 represents ground-level, roadway-facing apartment units at Magnolia Pointe Apartments and Eastgate Garden Apartments located along the south side of SR 32, west of I-275. Receptor 3 represents single-family residences located on Rust Lane and the Aicholtz Road cul-de-sac along the south side of SR 32 near the I-275/SR 32 interchange, and Receptor 4 represents single-family residences located on Aicholtz Road along the west side of I-275 near the I-275/SR 32 interchange. Receptor 5 represents single-family residences located on Aicholtz Road along the east side of I-275 near the I-275/SR 32 interchange. Receptor 6 represents single-family residences on Marjorie Lane, located just north of SR 32 off Bells Lane, and Receptor 7 represents the Summerside Methodist Church located on Old SR 74, just northwest of the I-275/SR 32 interchange. Receptor 8 represents the Eastgate Baptist Church on Barg Salt Run Road, located along the west side of I-275 approximately one mile north of the I-275/SR 32 interchange. The locations of Receptors 1-8 are displayed on Exhibits 4a and 4b.

Field measurement of ambient sound levels was conducted at (or near) the eight representative receptors selected for this analysis to serve as a baseline for evaluating noise modeling results (measurement results are included in Table 2 on Page 4). Field measurements were collected on October 15 and October 30, 2007, and November 1 and November 15, 2007 during afternoon peak hour traffic (2:30 p.m. to 6:30 p.m.). Noise modeling was completed using the FHWA TNM 2.5 Lookup Table program, which predicts sound levels at selected receptors based on distance from the noise source (roadway), traffic vehicle mix, speed of traffic, and intervening ground type (assuming free-flow traffic). Noise modeling results are further discussed on Page 4.

Project Traffic Conditions

The Existing (2007) traffic volumes used in this analysis were derived from manual traffic counts performed during field sound-level measurements. The Design Year (2030) traffic volumes used in this analysis were derived from ODOT-Certified Traffic afternoon (p.m.) peak-hour volumes provided for this project (February 2007). Table 1 presents the Existing (2007) and Design Year (2030) peak-hour volumes used in the FHWA TNM 2.5 Lookup Table modeling:

Table 1: Traffic Data

Representative Receptor Applicable Roadway Segment(s)	Existing (2007) Peak-Hour DHV [1]			Design Year (2030) Peak-Hour DHV [2]		
	Cars	Medium Trucks	Heavy Trucks	Cars	Medium Trucks	Heavy Trucks
Receptors 1 and 2						
Westbound SR 32	732	20	16	1,998	35	27
Eastbound SR 32	1,060	28	24	2,425	41	34
Receptor 3						
Westbound SR 32	1,288	32	20	2,008	38	24
Eastbound SR 32	1,532	36	24	2,230	41	29
Receptors 4 and 5						
Northbound I-275	3,536	144	160	3,802	74	84
Southbound I-275	3,228	80	56	2,486	61	43
Ramp from northbound I-275 to eastbound SR 32 *	1,094	7	17	2,076	19	45
Receptor 6						
Westbound SR 32	696	48	24	2,008	41	21
Eastbound SR 32	688	16	32	2,230	23	47
Proposed Relocated Old SR 74	--	--	--	1,597	10	23
Receptor 7						
Old SR 74	1,416	12	28	1,597	10	23
Receptor 8						
Northbound I-275	2,588	124	160	3,715	68	87
Southbound I-275	2,124	112	136	3,504	66	80

[1] Source: Manual traffic counts collected during field sound-level measurements (October 15 and 31, and November 1 and 15, between 2:30 and 6 p.m.)
[2] Source: Derived from February 2007 ODOT-Certified Traffic
* Under 2030 Build conditions, this interchange ramp will serve both eastbound and westbound SR 32 from northbound I-275.

Existing and Predicted Sound Levels

Existing (2007) and Design Year (2030) sound levels were predicted for representative Receptors 1-8 using the FHWA TNM 2.5 Lookup Table program. The model results show that the sound level at one of the eight representative receptors selected for this analysis (Receptor 3) currently approaches the FHWA Noise Abatement Criteria of 67 dBA (which applies to all the land uses represented by the noise-sensitive receptors selected for this analysis). Under Design Year (2030) conditions, the FHWA TNM 2.5 Lookup Table predicts that sound levels at four of the eight representative receptors modeled will approach or exceed the FHWA Noise Abatement Criteria of 67 dBA (Receptors 1, 2, 3, and 5). None of the representative receptors are predicted to experience Design Year (2030) sound levels which "substantially exceed" Existing (2007) levels (ODOT noise policy defines "substantially exceed" as a sound-level increase of 10 dBA or more). Exhibits 4a and 4b display the locations of the eight representative noise-sensitive receptors modeled for this analysis. Sound level results are provided in Table 2, below:

Table 2: Existing (2007) and Design Year (2030) Sound Levels

Receptor	Location	Field Measurement Sound Level (dBA)	Existing (2007) Sound Level (dBA)	Design Year (2030) Sound Level (dBA)	Predicted Change (dBA)
1	Bells Lake Apartments	63.2	64.9	**70.2**	+5.3
2	Magnolia Pointe / Eastgate Garden Apartments	65.1	64.7	**69.4**	+4.7
3	645 Rust Lane	**66.1**	**66.4**	**68.4**	+2.0
4	4465 Aicholtz Road	62.7	63.7	62.7	-1.0
5	4447 Aicholtz Road	65.8	65.8	**66.7**	+0.9
6	554 Marjorie Lane	54.5	51.1	60.1	+9.0
7	Summerside Methodist Church	65.6	65.8	65.8	no change
8	Eastgate Baptist Church	61.2	60.5	60.4	-0.1

As shown in Table 2 (above), Design Year (2030) sound levels are predicted to increase as little as 0.9 dBA or as much as 9.0 dBA over Existing (2007) levels at five of the eight receptors modeled (Receptors 1, 2, 3, 5, and 6). For Receptors 1, 2, and 3, the predicted sound level increases are due to the projected increase in overall traffic volumes for SR 32 (despite a projected decline in truck percentages), and due to the proposed widening of SR 32, which will effectively move traffic noise closer to these representative receptors (see Table 1 and Exhibit 4a). The predicted sound level increase at Receptor 5 is partly due to the proposed relocation of the interchange ramp linking northbound I-275 and eastbound/westbound SR 32 (which will move traffic noise closer to residential land uses represented by this receptor), and is also due to the substantial increase in projected traffic volumes on this ramp (under design year Build conditions, this ramp will carry traffic to eastbound *and* westbound SR 32 instead of just eastbound SR 32, as it currently does; see Table 1 and Exhibit 4a). The predicted sound level increase at Receptor 6 is due to the relocation of the Old SR 74/SR 32 intersection, which would extend Old SR 74 westward to the new intersection location and effectively move traffic noise closer to the residential receptors located on Marjorie Drive (see Exhibit 4a).

Design Year (2030) sound levels are expected to decrease from the Existing (2007) levels at Receptors 4 and 8 due to a decline in projected Design Year (2030) truck volumes on I-275 and on the interchange ramp connecting eastbound SR 32 and southbound I-275 (see Table 1). No change is predicted between Existing (2007) and Design Year (2030) sound levels at one receptor (Receptor 7), since a decline in projected design year truck percentages will serve to offset the sound-level increase that would otherwise occur with the increase in overall traffic volumes projected for Old SR 74 at this representative receptor location (see Table 1 and Exhibit 4a).

III. POTENTIAL NOISE MITIGATION CONSIDERATION

The Preliminary Noise Analysis conducted for this project identifies potential Design Year (2030) sound-level impacts at four noise-sensitive receptors representing areas of residential land use. For this level of analysis, ODOT Noise Policy stipulates that a cost reasonableness evaluation be performed for structural noise abatement

at each of the four residential areas predicted to experience Design Year (2030) sound-level impacts as identified by the FHWA TNM 2.5 Lookup Table program. According to ODOT Noise Policy, this cost reasonableness evaluation is to be performed using the following formula: (barrier length x barrier height x barrier cost per square foot) / number of residences within 600 feet of the proposed edge of pavement at the analysis site. ODOT Noise Policy further stipulates that for this level of analysis, the barrier height is to be estimated at 8 feet, and the barrier cost is to be $25 per square foot.

As a result of this noise abatement barrier cost reasonableness evaluation, it was determined that noise abatement barriers could be constructed for all four areas of residential land use with identified Design Year (2030) sound-level impacts for less than the maximum reasonable cost criterion of $35,000 per benefited receptor, as established by ODOT policy. The cost per residence of each barrier is summarized in the following table:

Table 3: Summary of Noise Abatement Barrier Cost Reasonableness

Receptor	Barrier Name and Location	Estimated Barrier Length	Total Barrier Cost	Approximate Number of Receptors Benefited	Barrier Cost Per Residence
1	Potential Noise Mitigation Site 1 - Bells Lake Apartments and Bells Lane residences	1,900 feet	$380,000	22	$17,273
2	Potential Noise Mitigation Site 2 - Magnolia Pointe & Eastgate Garden Apartments	1,350 feet	$270,000	30	$9,000
3	Potential Noise Mitigation Site 3 - Rust Lane and Aicholtz Road residences (west of I-275)	1,500 feet	$300,000	18	$16,667
5	Potential Noise Mitigation Site 4 - Aicholtz Road residences (east of I-275)	1,000 feet	$200,000	7	$28,571

Existing Noise Barriers

As described in Section I and shown on Exhibits 2, 4a and 4b, there are three existing noise abatement barriers located along I-275 in the project area. These barriers are further described below:

Existing Noise Barrier "A": This barrier is located along the west side of I-275 (southbound travel lanes) approximately 0.7 miles north of SR 32. This barrier is 1,640 feet in length and ranges from 6 to 20 feet in height (the majority of Barrier A ranges from 16 to 20 feet in height). This barrier provides noise abatement for approximately 40 residential receptors located in a subdivision immediately adjacent to I-275. As shown on Exhibit 4b, the proposed project will move I-275/SR 32 interchange ramp traffic closer to this barrier.

Existing Noise Barrier "B": This barrier is located along the east side of I-275 (northbound travel lanes) approximately 0.6 miles north of SR 32. This barrier is 1,550 feet in length and ranges from 6 to 14 feet in height (the majority of Barrier B ranges from 10 to 14 feet in height). This barrier provides noise abatement for approximately 24 residential receptors located in a subdivision immediately adjacent to I-275. As shown on Exhibit 4b, the proposed project will directly impact approximately 1,050 feet of this barrier (through I-275/SR 32 interchange ramp construction) and will move interchange ramp traffic closer to the remaining 500 feet of barrier.

Existing Noise Barrier "C": This barrier is located along the west side of I-275 (southbound travel lanes) approximately 0.3 miles south of SR 32. This barrier is 4,550 feet in length and ranges from 6 to 14 feet in height (the majority of Barrier C ranges from 10 to 14 feet in height). This barrier provides noise abatement for approximately 129 residential receptors and 8 apartment buildings located in a subdivision immediately adjacent to I-275. As shown on Exhibit 4a, the proposed project will modify the northbound I-275 to eastbound SR 32 interchange ramp and extended it south along I-275 through the area where Existing Noise Barrier C is located.

This Preliminary Noise Analysis cannot determine if these existing noise barriers will provide adequate noise abatement under Design Year (2030) build conditions. Further detailed analysis of Existing Noise Barriers "A", "B", and "C" will be conducted during final design of the project Preferred Alternative.

IV. CONCLUSION

The Preliminary Noise Analysis conducted for this project identified four areas of residential land use adjacent to SR 32 and I-275 in the project area that are predicted to experience Design Year (2030) sound-level impacts, as determined by the FHWA TNM 2.5 Lookup Table program. These areas include:

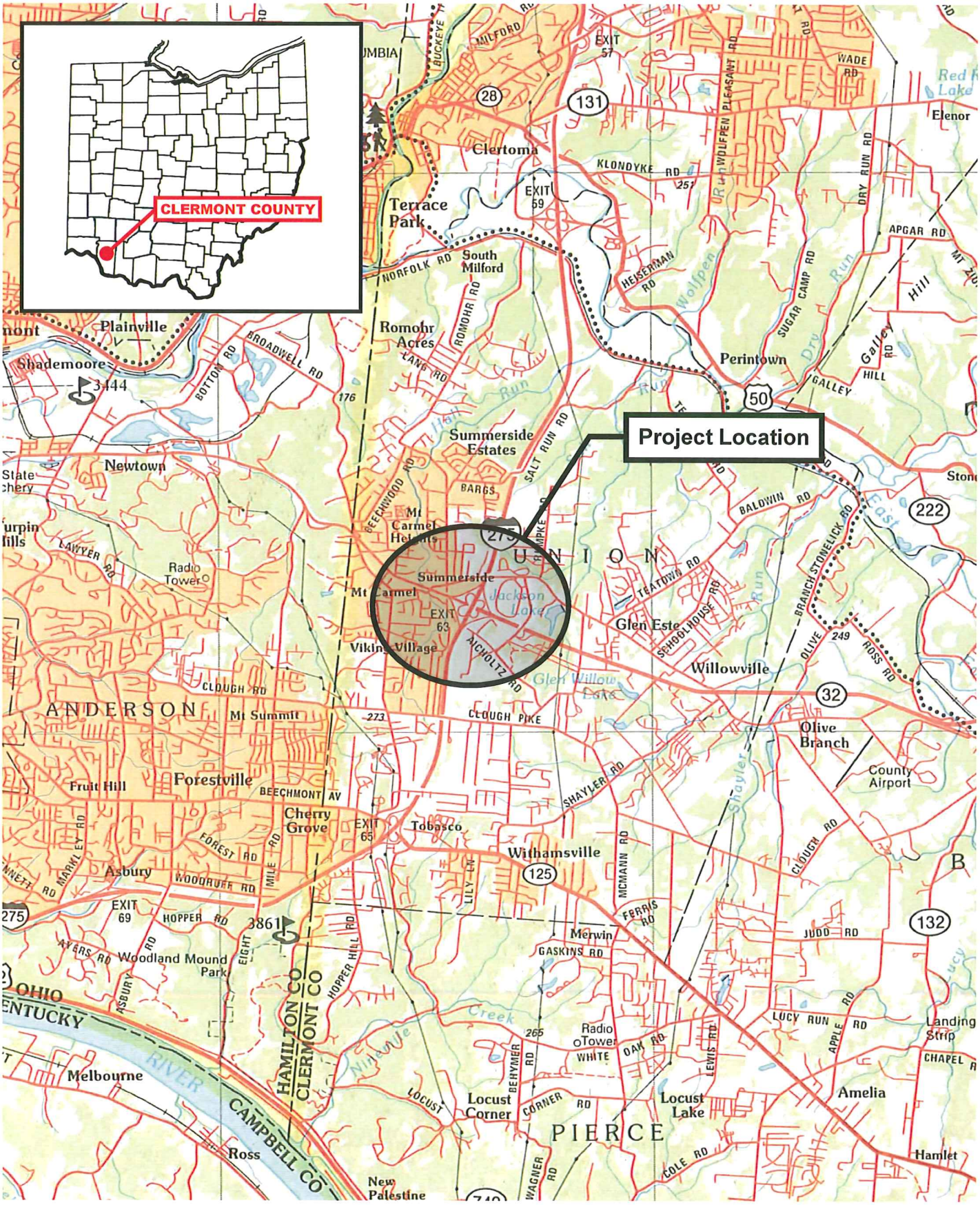
- Bells Lake Apartments, Christian Life Center, and adjacent single-family residences located along the north side of SR 32, west of I-275 (represented by Receptor 1 in this analysis),
- Magnolia Pointe Apartments and Eastgate Garden Apartments located along the south side of SR 32, west of I-275 (represented by Receptor 2),
- single-family residences located on Rust Lane and Aicholtz Road along the south side of SR 32, just west of I-275 (represented by Receptor 3), and
- single-family residences located on Aicholtz Road along the east side of I-275, just south of SR 32 (represented by Receptor 5).

In accordance with ODOT Noise Policy guidelines for a Preliminary Noise Analysis (August 2006), a cost reasonableness evaluation was conducted to determine if noise abatement barriers (measuring a uniform 8 feet in height) could be constructed within the maximum reasonable cost criterion of $35,000 per benefitted receptor for the four locations predicted to experience design year sound-level impacts (identified as Potential Noise Mitigation Sites 1-4 on Exhibit 4a). As a result of the evaluation, it was determined that noise abatement barriers could be constructed at each of the four areas of residential land use listed above for less than the maximum reasonable cost criterion of $35,000 per benefited receptor (see Table 3 on Page 5).

As shown on 4a and 4b, there are also three existing noise abatement barriers located along I-275 in the project area (Existing Noise Barriers "A", "B", and "C"). Construction of the project Preferred Alternative will result in modifications to I-275 in the immediate vicinity of each of these three barriers, and approximately 1,050 feet of Existing Noise Barrier "B" will be directly impacted by the project.

Consequently, further analysis of Potential Noise Mitigation Sites 1-4 and Existing Noise Barriers "A", "B" and "C" will be necessary during final design of the Preferred Alternative to: 1) verify Existing and Design Year sound-levels at sensitive receptors in the project area using FHWA TNM 2.5, updated ODOT-Certified Existing and Design Year traffic volumes, detailed project design plans, and updated existing and future site conditions[1], 2) confirm any Existing or Design Year noise impacts at Potential Noise Mitigation Sites 1-4, 3) confirm the feasibility of new noise barrier construction at Potential Noise Mitigation Sites 1-4 (if necessary), the modification of Existing Noise Barriers "A", "B" and "C" (if necessary), or the implementation of other noise mitigation strategies for receptors with confirmed noise impacts (if necessary), and 4) finalize design details for all feasible and warranted noise mitigation strategies.

[1] For example, the Aicholtz Road Widening and Connector projects (local Clermont County TID projects) may affect the number of residential receptors located in the vicinity of Potential Noise Mitigation Site 4. This in turn may affect the cost reasonableness of a noise barrier in this area.



ENTRAN

0 FEET 7,000 NORTH

NOVEMBER 2007

Preliminary Noise Analysis

I-275 / SR 32 Interchange
CLE-275-10.15; PID 76289

EXHIBIT 1
Project Location


Existing Noise Barrier A
Existing Noise Barrier B
Existing Noise Barrier C
275
32
Eastgate Crossing
Eastgate Mall
Holiday Inn
Eastgate Pavilion
Strip Mall
Meijer
Garden Ridge
Eastgate Square
Bigg's Place
Sam's Club
Wal-Mart
Kroger
Bell's Lane
Old SR 74
North I-275 to East SR 32 1 Lane
East SR 32 to North I-275 1 Lane
North I-275 2 Lanes
South I-275 2 Lanes
West SR 32 2 Lanes
East SR 32 2 Lanes
North Eastgate Blvd. to West SR 32 1 Lane
West SR 32 to Eastgate Blvd. 1 Lane
Eastgate Blvd. to East SR 32 1 Lane
East SR 32 to Eastgate Blvd. 1 Lane
0 100 500 1000 FEET
NOVEMBER 2007
NORTH
ENTRAN
Preliminary Noise Analysis
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CLE-275-10.15; PID 76289
EXHIBIT 2
Existing Conditions


275
32
South I-275 4 Lanes
North I-275 4 Lanes
South I-275 Exit Ramp 2 Lanes
South I-275 Entrance Ramp 1 Lane
South I-275 to SR 32 2 Lanes
South I-275 to East SR 32 1 Lane
West SR 32 3 Lanes
Old SR 74 3 Lanes
East SR 32 2 Lanes
East SR 32 3 Lanes
Mt. Carmel - Tobasco Road 3 Lanes
CR 341 to West SR 32 1 Lane
North I-275 to SR 32 1 Lane
North CR 341 to North I-275 1 Lane
West SR 32 to North I-275 1 Lane
West SR 32 Exit Ramp 1 Lane
West SR 32 2 Lanes
Ramp From Eastgate Blvd to Eastgate North 1 Lanes
North Eastgate Blvd. to Ramp 1 Lane
Eastgate North to Ramp 1 Lane
West SR 32 to Eastgate North 2 Lanes
East SR 32 4 Lanes
Eastgate Boulevard to East SR 32 2 Lanes
Eastgate Boulevard 2 Lanes
East SR 32 Entrance Ramp 2 Lanes
East SR 32 to Eastgate Blvd 2 Lanes
North I-275 to East SR 32 1 Lane
North I-275 Exit Ramp 2 Lanes
South I-275 3 Lanes
North I-275 3 Lanes
OLD SR 74
ANNOLTE ROAD
EASTGATE BOULEVARD
EASTGATE NORTH BOULEVARD
0 100 500 1000 FEET
NOVEMBER 2007
NORTH
ENTRAN
Preliminary Noise Analysis
I-275 / SR 32 Interchange
CLE-275-10.15; PID 76289
EXHIBIT 3
Proposed Improvements


Receptor 1
Bells Lake Apartments
Receptor 2
Magnolia Pointe Apartments
Eastgate Garden Apartments
Receptor 3
Rust Lane and
Aicholtz Road Residences
Receptor 4
Aicholtz Road Residences
Receptor 5
Aicholtz Road Residences
Receptor 6
Marjorie Lane Residences
Receptor 7
Summerside Methodist Church
Potential Noise Mitigation Site 1
Potential Noise Mitigation Site 2
Potential Noise Mitigation Site 3
Potential Noise Mitigation Site 4
Existing Noise Barrier C
32
275
MARJORIE DR.
BELLS LANE
OLD SR 74
RUST LANE
AICHOLTZ ROAD
SUMMERSIDE ROAD
MT. CARMEL-TOBASCO ROAD
0 100 500 1000 FEET
NOVEMBER 2007
NORTH
ENTRAN
Preliminary Noise Analysis
I-275 / SR 32 Interchange
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EXHIBIT 4a
Representative Noise-Sensitive
Receptor Locations


Receptor 8
Eastgate Baptist Church
BARG SALT RUN ROAD
CARDINAL DRIVE
275
Existing Noise Barrier A
Existing Noise Barrier B
Approximately 1,050 feet of Existing Noise Barrier B will be impacted by the project
0 50 250 500 FEET
NOVEMBER 2007
NORTH
ENTRAN
Preliminary Noise Analysis
I-275 / SR 32 Interchange
CLE-275-10.15; PID 76289
EXHIBIT 4b
Representative Noise-Sensitive Receptor Locations