



AIR QUALITY REPORT

**U.S. 301 (S.R. 41) Through Zephyrhills
From S.R. 39 to C.R. 54
Pasco County, Florida**

**Financial Project Number 256422 1
Federal Aid Program Number 1455-001-U**

This project evaluates adding through lanes on U.S. 301 from S.R. 39 to C.R. 54 through Zephyrhills. A one-way pair system using 6th Street and/or 7th Street is being considered. The approximate length of the project is 2.6.miles



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Prepared By:

**Florida Department of Transportation
District Seven
Tampa**

December 2000

EXECUTIVE SUMMARY

In accordance with the Clean Air Act Amendments (CAAA) of 1990 and the Florida Department of Transportation (FDOT) Project Development and Environment (PD&E) Manual, an air quality analysis was conducted to determine the effect of the proposed improvements to U.S. 301 (S.R. 41) from S.R. 39 to C.R. in Pasco County, Florida. Based on the FDOT's air quality screening test (COSCREEN 98), the proposed project will not cause violations of the National Ambient Air Quality Standards (NAAQS) for carbon monoxide. Therefore, this project will not have a significant impact on air quality.

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1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) is conducting a U.S. 301 Project Development and Environment (PD&E) study, which evaluates improvements to U.S. 301 from S.R. 39 to C.R. 54 in Pasco County, Florida (See Figure 1).

The objective of the PD&E Study is to provide documented information and analyses that will help the FDOT reach a decision on the type, design, and location of the necessary improvements to accommodate future transportation needs in a safe and efficient manner.

The objective of the Air Quality Report is to determine whether project-related motor vehicle emissions will cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), the most prevalent air pollutant emission from motor vehicles.

The Study also evaluates air quality conditions due to project construction-related activities.

2.0 PROJECT DESCRIPTION

The U.S. 301 corridor is a north/south primary arterial facility that connects Tampa, Zephyrhills, and Dade City. The proposed corridor study length is an approximate distance of 4.2 kilometers (2.6 miles). Portions of the Study, from S.R. 39 to Avenue C, are located in unincorporated Pasco County. The remainder, Avenue C to C.R. 54, is within the limits of the City of Zephyrhills.

The existing facility is a two-lane rural roadway with twelve-foot lanes, four-foot paved shoulders, and open drainage ditches. A one-way pair system was created in 1996 by the City of Zephyrhills using 6th and 7th Streets as an alternate route to U.S. 301. The City's one-way pair system begins at Avenue A for northbound traffic on 7th Street and terminates at Avenue C for southbound traffic on 6th Street.

2.1 Proposed Improvements

The proposed project involves widening the existing U.S. 301 and the extension of the one-way streets, either 6th and/or 7th Streets, to S.R. 39. The improvements will also include a closed stormwater system with curb and gutter along with sidewalk accommodations. The various alternatives are depicted in Figures 2, 3, & 4.

2.2 Need For Project

U.S. 301 between S.R. 39 and C.R. 54 is a two-lane roadway that has operated since the original construction without any major improvements. The 1997 traffic volume along this portion of U.S. 301 was 17,300 vehicles per day (vpd). The projected traffic volume for the design year of 2025 is expected to be 38,200 vpd. To accommodate the projected traffic increase, this section of U.S. 301 will require additional through lanes, three lanes in each direction.

The Pasco County Metropolitan Planning Organization (MPO) has the responsibility of developing a Long Range Transportation Plan (LRTP) for the county to serve the needs of the metropolitan area over the next 20 to 25 years. The adopted 2020 LRTP, updated in 1999, has identified 6th Street and/or 7th Street to be extended as one-way roads that will result in three lanes in each direction. The LRTP recognizes 6th Street to be extended from Avenue C south to connect with U.S. 301 just north of S.R. 39. Currently this portion of the road is a two-way street. The LRTP also identifies 7th Street to be extended from Avenue A south to connect with U.S. 301 just north of S.R. 39. The existing road terminates at this point.

The Department has requested the Pasco County MPO amend the LRTP to change the northern limits from Avenue A to C.R. 54. Although 6th and 7th Streets are currently two lane, one-way roads north of Avenue A, the sections from Avenue A north to S.R. 54 will need to be upgraded to accommodate the additional traffic volumes and truck traffic anticipated after the one-way roads are extended. Pavement reconstruction, drainage improvements, and C.R. 54 intersection improvements will be investigated as part of this project.

3.0 METHODOLOGY AND ANALYSIS

3.1 Methodology

The air quality analysis for U.S. 301 was accomplished by performing the computerized FDOT "Screening Test," COSCREEN 98. Built into this program are various, worst-case assumptions about meteorological, traffic, and site conditions. COSCREEN 98 uses these assumptions in the FHWA-approved MOBILE5A and CALINE3 models to determine a "critical distance." This critical distance represents the closest distance a receptor can be to an intersection roadway link without risk of a significant air quality impact.

Motor vehicle emissions are typically worse at intersections where operating speeds are slower and vehicles incur longer delay. Traffic data indicated the intersections of 6th Street and S.R. 54 is the most congested within the project limits. Traffic analysis indicates that the intersection would operate at Level of Service "F" for the No-Build and Level of Service "D" for the Build conditions during the opening (2005) and design (2025) years.

CO levels are highest near the roadway travel lanes where pollutants are emitted and become less concentrated as the distance from the roadway increases. As part of the worst-case evaluation, CO concentrations were predicted at reasonable receptor sites in close proximity to the intersection of 6th

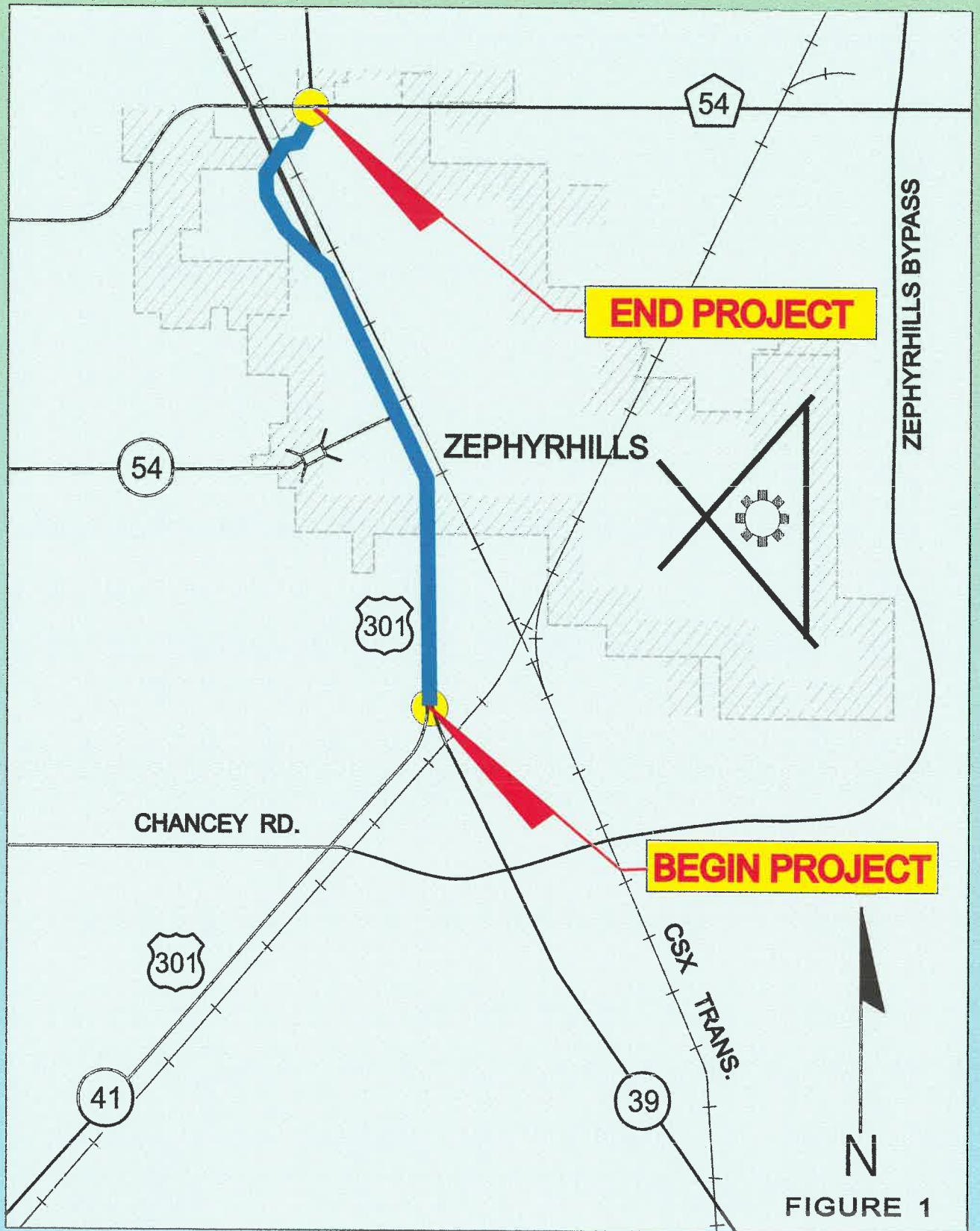


FIGURE 1



U.S. 301 PD&E STUDY
 (S.R.39 TO C.R.54)
 PASCO COUNTY

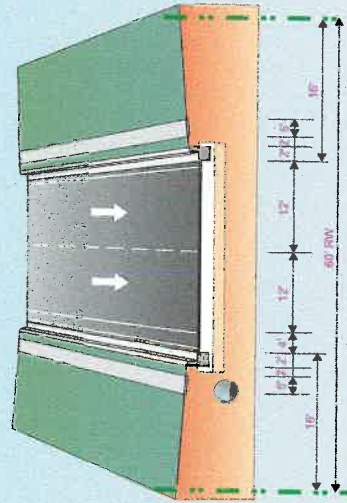
PROJECT LOCATION MAP
 W.P.I. SEG. No. 256422 1
 F.A.P. No. 1455-001-U



U.S. 301 ZEPHYRHILLS PD&E STUDY FROM S.R. 39 TO C.R. 54

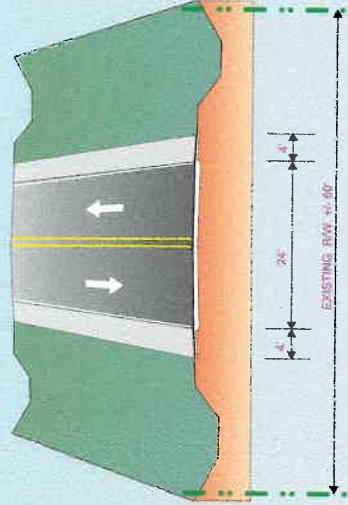
W.P.I. SEC. 2566422 1 FEDERAL AID NO. 1455-001-U

PROPOSED TWO LANE
ONE WAY
TYPICAL SECTION



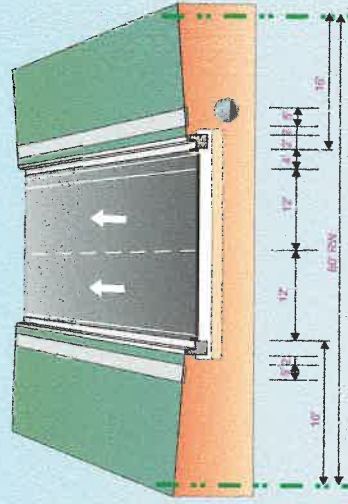
6TH STREET

EXISTING
TYPICAL SECTION



U.S. 301

PROPOSED TWO LANE
ONE WAY
TYPICAL SECTION



7TH STREET



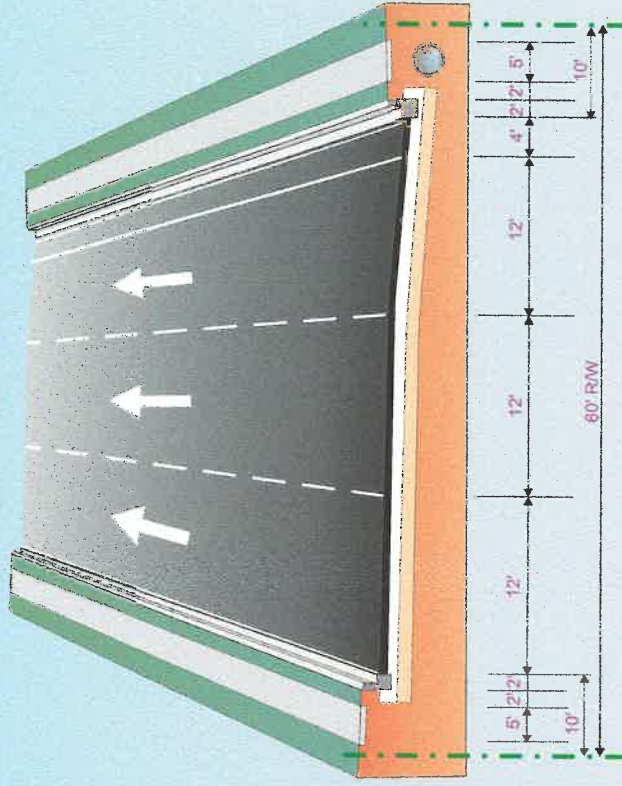
ALTERNATIVE 1

FIGURE 2

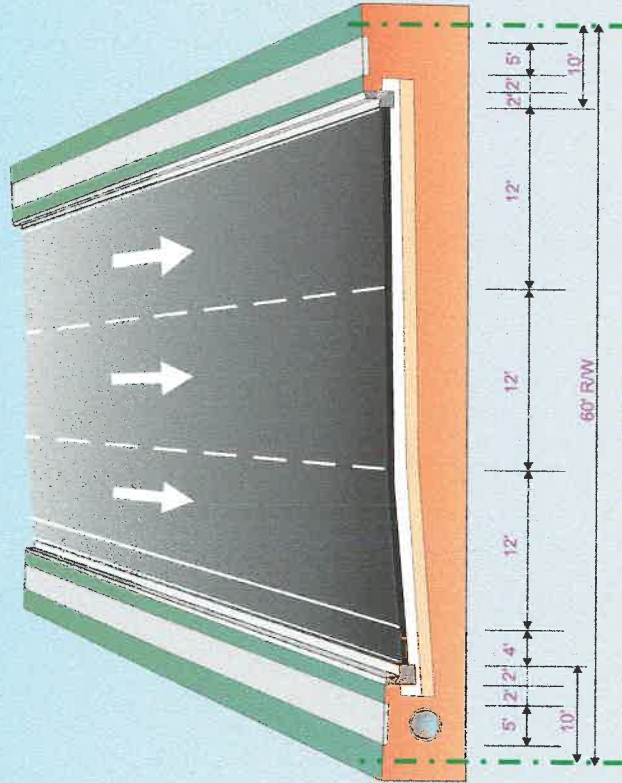
U.S. 301 ZEPHYRHILLS PD&E STUDY FROM S.R. 39 TO C.R. 54

W.P.I. SEG. 256422 1
FEDERAL AID NO. 1455-001-U

PROPOSED THREE LANE ONE WAY
TYPICAL SECTION



PROPOSED THREE LANE ONE WAY
TYPICAL SECTION



U.S. 301

6TH STREET



FIGURE 3

ALTERNATIVE 2

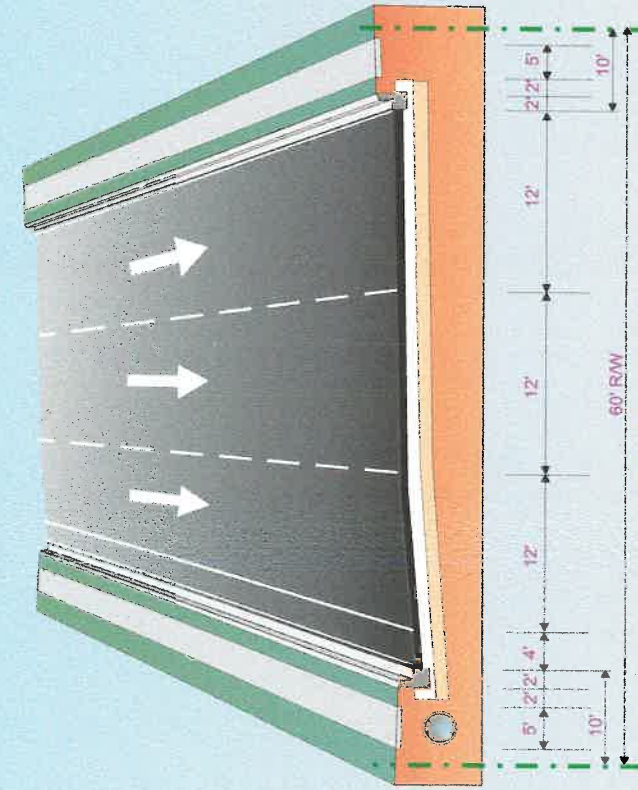
U.S. 301 ZEPHYRHILLS PD&E STUDY FROM S.R. 39 TO C.R. 54

W.P.I. SEG. 256422 1

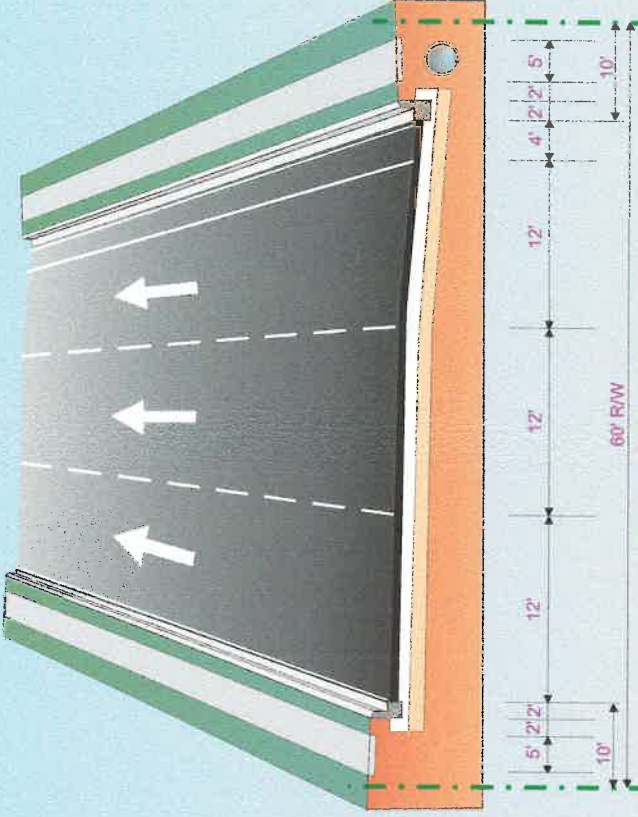
FEDERAL AID NO. 1455-001-U

PROPOSED THREE LANE ONE WAY
TYPICAL SECTION

PROPOSED THREE LANE ONE WAY
TYPICAL SECTION



U.S. 301



7TH STREET



ALTERNATIVE 3

FIGURE 4

Street and S.R. 54. Reasonable receptor sites are defined as locations where people can be expected to spend amounts of time comparable to the 1-hour and 8-hour averaging times used in the establishing the NAAQS for CO. A total of 4 receptors representing the reasonable receptor locations in closest proximity to the intersection were modeled. Receptor locations are depicted in the Appendix and include:

- R1: the entryway of an apartment building
- R2: the entryway of the First Baptist Church
- R3: the entryway of Main Street Furniture
- R4: the front door of a church building

The analysis was performed for the opening year (2005) and design year (2025) traffic conditions. The analysis year is limited in the computerized Screening Test to 2020. The computer runs located in the appendix has design year labeled as 2020, but the projected 2025 traffic conditions were used. As part of the worse case approach, peak hour traffic volumes were used. A speed of 25 mph was used for the No-Build and 35 mph for the Build conditions.

3.2 Results of the Analysis

The predicted CO concentrations are provided in Tables 1 and 2. Output sheets from the screening model are provided in the Appendix.

All predicted CO concentrations for the No-Build and Build conditions in the opening and design years are under the NAAQS for CO of 35 parts per million for a 1-hour averaging time and 9 parts per million for an 8-hour averaging time. The 1-hour CO concentration includes a background concentration of 5.0 parts per million. The 8-hour CO concentration includes a background concentration of 3.0 parts per million.

Table 1
Predicted Worst-Case CO Concentrations for the No-Build Condition

Year	Approach Speed (Mph)	Peak Hour Volume	Receiver Location	CO Concentration (parts per million)	
				1-hour	8-hour
2005	25 mph	1700	R1	10.7	6.4
			R2	10.9	6.5
			R3	12.4	7.4
			R4	9.4	5.6
2020	25 mph	2750	R1	12.1	7.3
			R2	12.1	7.3
			R3	14.1	8.5
			R4	10.7	6.4

Table 2
Predicted Worst-Case CO Concentrations for the Build Condition

Year	Approach Speed (Mph)	Peak Hour Volume	Receiver Location	CO Concentration (parts per million)	
				1-hour	8-hour
2005	35 mph	1700	R1	10.0	6.0
			R2	10.2	6.1
			R3	11.8	7.1
			R4	8.9	5.3
2020	35 mph	2750	R1	11.1	6.7
			R2	11.0	6.6
			R3	12.8	7.7
			R4	9.8	5.9

4.0 CONFORMANCE WITH THE STATE IMPLEMENTATION PLAN

The project is in an area that has been designated as attainment for all the air quality standards under the criteria provided in the Clean Air Act Amendments of 1990. Therefore conformity does not apply.

A memorandum dated January 19, 2000 from the FDOT Planning Department documents that this project is in conformance with the State Implementation Plan and is in the current FHWA approved Pasco County Urban Area Metropolitan Planning Organization's Transportation Improvement Plan. A copy of this memorandum is provided in the Appendix.

5.0 CONSTRUCTION AFFECTS

Construction activities may cause minor short-term air quality affects. These affects will be minimized by adherence to the latest edition of the FDOT Standard Specifications for Road and Bridge Construction.

6.0 AGENCY COORDINATION

All State and local agencies were provided with an opportunity to comment on this project. There were no adverse comments regarding air quality.

7.0 REFERENCES

Florida Department of Transportation Standard Specifications for Road and Bridge Construction; Florida Department of Transportation, 2000.

COSCREEN 98 Update to Windows, Final Report; Florida Department of Transportation, March 1999.

Project Development and Environment Guidelines, Volumes 1 and 2; Florida Department of Transportation.

APPENDIX

APPENDIX

COSCREEN98
(revised August 2000 to remove I/M options)

US 301 - SR 39 to CR 54
6th St and SR 54 No Build

Analyst: Robin Rhinesmith

MOBILE5 Emission Factors Based On:

User-supplied Data:
 Region: 3: Central Florida
 Year: 2005
 Speed: 25
 Default Data:
 Ambient Temperature: 60
 Maximum Temperature: 70
 Minimum Temperature: 48

Facility Data:

Max Approach Traffic Volume: 1700 veh/hour
 Environment: Urban
 Background Concentration: 1-hr = 5.0 ppm
 8-hr = 3.0 ppm

Receptor Data:

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
SEquad; Apt house	35	120	5
SWquad; Church	85	60	5
NEquad; Store	65	30	5
NW quad; Church bldg	60	220	5

All distances are in feet

RESULTS

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
SEquad; Apt house	10.7	6.4
SWquad; Church	10.9	6.5
NEquad; Store	12.4	7.4
NW quad; Church bldg	9.4	5.6

Maximum concentrations include background CO

COSCREEN98
(revised August 2000 to remove I/M options)

US 301 - SR 39 to CR 54
6th St and SR 54 No-Build

Analyst: Robin Rhinesmith

MOBILE5 Emission Factors Based On:

User-supplied Data:
 Region: 3: Central Florida
 Year: 2020
 Speed: 25
 Default Data:
 Ambient Temperature: 60
 Maximum Temperature: 70
 Minimum Temperature: 48

Facility Data:

Max Approach Traffic Volume: 2750 veh/hour
 Environment: Urban
 Background Concentration: 1-hr = 5.0 ppm
 8-hr = 3.0 ppm

Receptor Data:

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
SEquad; Apt house	35	120	5
SWquad; Church	85	60	5
NEquad; Store	65	30	5
NW quad; Church bldg	60	220	5

All distances are in feet

RESULTS

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
SEquad; Apt house	12.1	7.3
SWquad; Church	12.1	7.3
NEquad; Store	14.1	8.5
NW quad; Church bldg	10.7	6.4

Maximum concentrations include background CO

COSCREEN98
(revised August 2000 to remove I/M options)

US 301 - SR 39 to CR 54
6th St and SR 54 Build

Analyst: Robin Rhinesmith

MOBILE5 Emission Factors Based On:

User-supplied Data:
Region: 3: Central Florida
Year: 2005
Speed: 35
Default Data:
Ambient Temperature: 60
Maximum Temperature: 70
Minimum Temperature: 48

Facility Data:

Max Approach Traffic Volume: 1700 veh/hour
Environment: Urban
Background Concentration: 1-hr = 5.0 ppm
8-hr = 3.0 ppm

Receptor Data:

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SEquad; Apt house	35	120	5
SWquad; Church	85	60	5
NEquad; Store	65	30	5
NW quad; Church bldg	60	220	5

All distances are in feet

RESULTS

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
SEquad; Apt house	10.0	6.0
SWquad; Church	10.2	6.1
NEquad; Store	11.8	7.1
NW quad; Church bldg	8.9	5.3

Maximum concentrations include background CO

COSCREEN98
(revised August 2000 to remove I/M options)

US 301 - SR 39 to CR 54
6th St and SR 54 Build

Analyst: Robin Rhinesmith

MOBILE5 Emission Factors Based On:

User-supplied Data:
Region: 3: Central Florida
Year: 2020
Speed: 35
Default Data:
Ambient Temperature: 60
Maximum Temperature: 70
Minimum Temperature: 48

Facility Data:

Max Approach Traffic Volume: 2750 veh/hour
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All distances are in feet

RESULTS

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
SEquad; Apt house	11.1	6.7
SWquad; Church	11.0	6.6
NEquad; Store	12.8	7.7
NW quad; Church bldg	9.8	5.9

Maximum concentrations include background CO

MEMORANDUM

Department of Transportation
District Seven Planning MS 7-340

DATE: November 29, 2000
TO: Robin Rhinesmith, EMO Department
FROM: Fawzi Bitar, Systems Planning Coordinator
COPIES: File
SUBJECT: W. P. I. # : 256422/7116060
State Proj. #: 14050
Local Road : US 301 (SR 39 to CR 54)
County : Pasco



Per your E-Mail dated January 12, 2000 and further discussion, this is to certify that the above referenced project is in conformance with the State Implementation Plan (SIP) and is in the current Federal Highway Administration (FHWA) approved Pasco County Urban Area MPO's Transportation Improvement Plan (TIP) Fiscal Year 1999/00 thru 2003/04.

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STATE PROJ. NO. 256422-1



LEGEND

- Existing Right of Way
- Proposed Right of Way
- Property Lines
- Air Receptor

DATE	DESCRIPTION	DATE	BY	DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION

FLORIDA DEPARTMENT OF TRANSPORTATION
 Approved by: _____
 Checked by: _____
 Date: _____

MODELED RECEIVERS