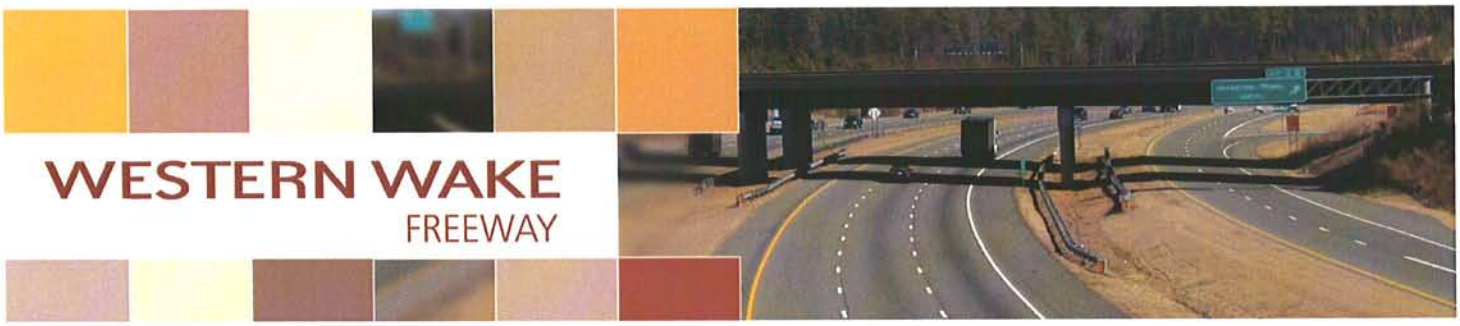

REEVALUATION REPORT

for
ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA TURNPIKE AUTHORITY
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Western Wake Freeway, from NC 55 at SR 1172 (Old Smithfield Road)
to NC 55 near SR 1630 (Alston Avenue),
approximately 12.6 miles, in Wake County, North Carolina

Federal Project No. BRSTP-000S(491)
State Project No. 6.408006T
STIP Project No. R-2635

Submitted Pursuant to the National Environmental
Policy Act 42 U.S.C. 4332(2)(C) and
23 CFR 771.129 (c)

Cooperating Agency
U.S. Army Corps of Engineers

9/7/07
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The Western Wake Freeway along with the Southern and Eastern Wake Freeways are elements of the planned Outer Wake Expressway, a multi-lane high speed facility that will provide enhanced system linkage with major radial routes in the Raleigh area, including I-40, NC 54, NC 55, US 64, and US 1 and US 401. The Outer Wake Expressway will provide improved connections to several Wake County towns, including Raleigh, Cary, Morrisville, Apex, Holly Springs, Fuquay-Varina and Knightdale. Upon completion, the Outer Wake Expressway will reduce traffic volumes on I-440 (Raleigh Beltline), I-40, NC 55 and other arterial roads by providing an alternate route for local and through traffic.

Completed in July 2007, the Northern Wake Expressway extends from US 64 in Knightdale to NC 55 near RTP and forms the northern portion of the Outer Wake Expressway. The environmental impacts were documented in *Northern Wake Expressway, from NC 55 near Morrisville to US 64 Near Knightdale, Wake and Durham Counties, North Carolina, Final Environmental Impact Statement* (1990). The EIS identified impacts on cemeteries, community cohesion, biotic communities, water resources, noise impacts and residential and business displacements. The impacts associated with the addition of a toll plaza on a section of the Northern Wake Expressway--between NC 55 and NC 54--is under study by NCTA and will be disclosed in a future environmental document.

Potential cumulative effects resulting from the Western Wake Freeway can be determined through a comprehensive analysis of factors, such as impacts from other STIP projects in the vicinity, regional development trends, and broader environmental policies related to water resource, air quality, and habitat protection. The majority of potential cumulative effects related to other reasonably foreseeable transportation projects -- a comprehensive listing can be found in Appendix A of *Land Use Analysis, TIP Project No. R-2635* (NCTA, 2007f) -- are most notable for land use and water quality. Many of the municipalities and counties within the GISA have residential density limits based on the suitability of the land for development. In addition, environmental regulations are in place to protect natural resources, particularly water resources. A comprehensive cumulative effects assessment will be conducted for the Southern and Eastern Wake Freeways as part of their environmental documents.

Most of the recent development has been occurring within RTP and within the western and southern portions of the GISA. The nature of that development is residential (including single and multi-family homes) and commercial (including highway-related growth, shopping centers and professional offices).

Examples of ongoing and planned development within the GISA include the following:

- Cameron Pond: A 143 acre Cameron Pond development near Western Wake Freeway and Carpenter Fire Station Road, which will consist of 421 dwelling units as well as recreational uses;

- Amberly: A 1,100 acre mixed use development located west of Western Wake Freeway along Yates Store Road that will feature nearly 2,900 dwelling units, over 300,000 square feet of non-residential development and recreational uses; and

- Cary Park: A 480 acre Park mixed use development located west of Western Wake Freeway at the intersection of Green Level to Durham Road and Cary Glen Boulevard that will feature 2,500 dwelling units, over 240,000 square feet of non-residential development and recreational uses.

All three developments are in varying stages of construction.

Due to the attractiveness of the Triangle Region as a place to live and work and the presence of abundant land and water/sewer service, development is anticipated to continue in these areas, with or without the Western Wake Freeway and regardless of whether the project is a toll or non-toll facility.

The project, combined with other reasonably foreseeable transportation projects, will cumulatively benefit transportation in the Triangle Region by reducing congestion on local roadways and enhancing the intrastate transportation system. If one (or more) of these projects is built as a toll facility, some potential users will divert off of the toll facility in order to avoid paying the toll and instead will use alternate non-toll routes. For example, there is projected to be from 1,400 to 2,100 additional vehicles on NC 55 with Western Wake Freeway implemented as a toll facility than if Western Wake Freeway is implemented as a non-toll facility. This diversion of traffic from a toll facility to existing non-toll routes results in a reduced benefit.

3.8 Summary of Impacts

Table 16 is a summary of new information and/or changes in projected impacts since the FEIS associated with implementing the project as a toll facility. A brief explanation of these changes is included in the table. Table 17 is a quantitative summary of impacts as reported in the FEIS for Alternative A and current impacts for Alternative A Reevaluated with Tolls.

Table 16. New Information or Changes in Project Impacts

Section of Reevaluation Report	Change in Project Concept (Toll Plazas)	Change in Affected Environment or New Information	Significant New Impacts?
3.4.1 Socioeconomic Issues	The toll facility would require users to pay a toll to use the facility, where FEIS assumed the facility would be free.	Population and income levels continue to increase in the project study area.	No. The toll facility may reduce the benefits of the project for some users, but even with tolling, the project provides a benefit to users of all income levels by reducing congestion on NC 55 and providing a new transportation option.
3.4.2 Land Use and Planning	The addition of toll plazas slightly increases the project footprint.	Several land use plans have been updated. Western Wake Freeway continues to be consistent with all updated plans.	No. Project continues to be consistent with local land use plans.
3.4.3 Relocations	Two additional relocations are necessary due to the additional footprint needed for the toll plazas. No other additional relocations were identified. There potentially will be two land-locked parcels due to the additional footprint needed for the toll plazas.	No new residential or business construction has occurred within the project footprint.	No. Relocations due to the project have increased from 46 to 48.
3.4.4 Environmental Justice	The toll facility would require users to pay a toll to use the facility, where the FEIS assumed the facility would be free. This could reduce usage by low-income users.	Two additional "pockets" of minority populations have been identified, but they are not close to the project corridor and they would be affected equally by the non-toll or toll facilities.	No. The toll facility may reduce the benefits of project for some users, but even with tolling, the project provides a benefit to users of all income levels by reducing congestion on NC 55 and providing a new transportation option.
3.4.5.1 Schools	The additional footprint needed for the toll plazas does not impact any schools.	Two schools (in addition to the 12 identified in FEIS) have opened within 1/2 mile of corridor. None of these schools are within the project footprint.	No. The two new schools are not impacted by the project.

Table 16 (continued). New Information or Changes in Project Impacts

Section of Reevaluation Report	Change in Project Concept (Toll Plazas)	Change in Affected Environment or New Information	Significant New Impacts?
3.4.5.2 Parks and Greenways	The additional footprint needed for the toll plazas does not impact parks or greenways.	No additional parks or greenways, beyond those that were identified in the FEIS and ROD, have been opened or planned in the project vicinity. A new survey of the Feltonsville Community Park found that a small amount of land – previously believed to have been acquired for highway right-of-way – was still parkland. This sliver of land is needed for improvements to Old Smithfield Road.	No. This sliver of land needed for Old Smithfield Road improvements from one property is not a significant change in the project's impacts. A finding of "*de minimis*" impacts has been made by FHWA for this sliver of parkland, and the official with jurisdiction has concurred.
3.4.5.3 Churches and Cemeteries	The additional footprint needed for the toll plazas does not impact churches or cemeteries.	Two additional churches have been identified in the Feltonsville area. Traffic noise levels are not expected to approach or exceed the thresholds inside the churches. One new cemetery has been identified in addition to 17 cemeteries identified in FEIS.	No. Traffic noise impacts would not disrupt church activities. The newly identified cemetery is outside of the project footprint.
3.4.5.4 Other Community Facilities	The additional footprint needed for the toll plazas does not impact libraries, fire stations, or other community facilities.	One new library and one new fire station have opened. These facilities are not impacted by the project.	No. These facilities are not impacted by the project.
3.4.6 Utilities	The additional footprint needed for the toll plazas does not impact utilities that would not otherwise be impacted.	In addition to the utilities noted in the FEIS, there are two more natural gas transmission lines, five more water lines and three more sewer lines that would be crossed by the project. A new landfill is being developed (South Wake Landfill).	No. NCTA and NCDOT will coordinate utility relocations with local governments and utility providers. The new landfill is not impacted.

Table 16 (continued). New Information or Changes in Project Impacts

Section of Reevaluation Report	Change in Project Concept (Toll Plazas)	Change in Affected Environment or New Information	Significant New Impacts?
3.4.7 Historic Architecture	The additional footprint needed for the toll plazas does not impact known historic architectural resources. NCTA is now the project sponsor and has agreed to meet NCDOT's commitments (under an existing Section 106 MOA) for mitigating effects on the Green Level Historic District.	No new historic architectural resources have been identified.	No. Impacts are unchanged. All existing mitigation requirements will be implemented by NCTA.
3.4.8 Archaeological Sites	The additional footprint needed for the toll plazas does not impact known archaeological sites, according to NCDOT archeologists.	NCDOT archeologists concur that no additional investigations are needed for the project.	No. Impacts are unchanged.
3.4.9.1 Section 4(f)	The addition of toll plazas does not directly or indirectly use any Section 4(f) resources.	A new survey of Feltonsville Community Park found that a small amount of land – previously believed to have been acquired for highway right-of-way – was still parkland. A finding of "*de minimis*" impacts has been made by FHWA for this sliver of parkland, and the official with jurisdiction has concurred.	No. The "*de minimis*" impact for one property is not a significant change in the project's impacts.
3.4.9.2 Section 6(f)	No Section 6(f) resources are present.	No new information.	No. Impacts are unchanged.
3.4.10 Aesthetic and Visual Resources	Toll plazas slightly increase visual impacts.	No new information.	No. Increased visual impacts from toll plazas are minor.
3.5.1 Hazardous Material and Waste	The additional footprint needed for the toll plazas does not impact any known hazardous material or waste sites.	No new information.	No. Impacts are unchanged.

Table 16 (continued). New Information or Changes in Project Impacts

Section of Reevaluation Report	Change in Project Concept (Toll Plazas)	Change in Affected Environment or New Information	Significant New Impacts?
3.5.2 Air Quality	Tolling may affect traffic volumes and flow, which may affect air emissions. New CO hotspot analysis has been done to assess impacts; no violations found. New regional emissions analysis was done for ozone; project conforms to the intent of the SIP.	There has been a regional change in air quality status; the area was designated as non-attainment for 8-hour ozone standard in June 2004 (after the ROD). New FHWA guidance on MSATs was issued in 2006.	No. New CO hotspot analysis and regional emissions analysis found project conforms to air quality standards. Reevaluation includes qualitative MSAT analysis as required by new FHWA guidance.
3.5.3 Noise	Tolling may affect traffic volumes and flow, which may affect noise levels. A new noise analysis was done following current NCDOT and FHWA procedures.	There has been additional development outside the corridor since 2005, resulting in additional homes that may be noise impacted. As a result, there would be more noise-impacted homes than estimated in the FEIS. However, under NCDOT policy, noise mitigation is not provided for development after the "date of public knowledge" which is the date of the ROD.	No. Tolling does not increase noise impacts and may reduce them. Additional development in vicinity of project may result in additional noise impacts compared to 2004 FEIS, but mitigation is not required because development occurred after date of public knowledge. All existing NCDOT noise mitigation commitments are being retained. One additional noise barrier is recommended based on an analysis which is consistent with the revised NCDOT Traffic Noise Abatement Policy and not due to increased impacts.
3.5.4 Prime and Unique Farmland	Project is in urban area so analysis of prime and unique farmlands is not required.	No change.	No. Impacts are unchanged.
3.6.1 Biotic Communities	The additional footprint needed for the toll plazas increased impacts to biotic communities by additional 37.8 acres. This is an additional 4.26 percent increase in area beyond the area needed for the non-toll facility.	Acreage estimates for each biotic community were updated using GIS mapping and aerial imagery from 2005. Habitat impacts were re-computed. Overall habitat impacts increased from that reported in the FEIS. The increase is primarily due to progression in the project design such as the inclusion of increased median width, the recommended 3:1 cut-slopes and development of the hydraulic design, and the inclusion of area previously associated with STIP Project No. R-2000 due to changes in construction limits (see footnote 4 in section 1.2).	No. These communities are common in Wake County. Impacts to biotic communities are higher than in the FEIS due to a range of factors, such as increased median width, lengthened cut slopes, and other factors related to the progression of design. Differences between the non-toll facility and the toll facility are minor.

Table 16 (continued). New Information or Changes in Project Impacts

Section of Reevaluation Report	Change in Project Concept (Toll Plazas)	Change in Affected Environment or New Information	Significant New Impacts?
3.6.2.1 Federally Protected Species	No change.	Additional surveys were performed in 2006 to update protected species information. USFWS concurred in 2007 finding of "no effect" for federally listed species. Bald eagle has been de-listed as a threatened species.	No. USFWS has concurred in finding of "no effect" to federally listed species.
3.6.2.2 Federal Species of Concern	No change. Federal protections do not apply to species of concern.	Three new species of concern have been identified for Wake County since FEIS was issued.	No. Federal protections do not apply to species of concern.
3.6.3 Water Resources	The additional footprint needed for the toll plazas slightly increases water resource impacts as compared to the non-toll facility. Project design has advanced, resulting in more refined impact estimates. Additional bridges have been added in two locations to minimize impacts on wetlands.	New delineations were done in 2006 to determine waters subject to federal jurisdiction. USACE has accepted the reverification report.	No. Water resource impacts are higher than in FEIS, due to a range of factors, such as newly formed wetlands, increased offset assumptions, and the progression of design. Differences between the non-toll facility and the toll facility are minor.
3.6.4 Floodplains and Floodways	The additional footprint needed for the toll plazas has not encroached on floodplains or floodways.	Flood maps were updated in 2006. Base flood elevations and/or the estimated 100-year floodplain encroachment widths have changed since the FEIS.	No. Four CLOMRs have been prepared for the encroachments at Jack Branch, Bachelor Branch, Panther Creek, and Morris Branch. Based on the current level of design for Sections A and B, two additional CLOMRs are likely to be needed. Additional CLOMRs and/ or LOMRs would be prepared by the Design-Build team, as needed.

Table 17. Summary of Impacts

Factors	Alternative A (Preferred Alternative from FEIS)[1]	Alternative A Reevaluated with Tolls
Length in miles	12.4	12.6
Number of interchanges	5	5
Number of railroad crossings	1	1
Number of toll plazas	--	11
Total costs	$252,162,000	$540,000,000 to $965,000,000
Residential relocations	46	48
Business relocations	0	0
Schools impacted	0	0
Parks impacted	0[2]	1[2]
Churches impacted	0	0
Cemeteries impacted	1	1
Electric transmission lines crossed	1	1
Gas lines crossed	3	5
Water lines crossed	5	10
Sewer lines	8	11
National Register districts adversely affected	1	1
Archaeology sites adversely affected	0	0
Hazardous materials sites in the footprint	0	0
Number of receivers (residential and commercial) negatively impacted by noise	389	451
Number of receivers negatively impacted after the installation of noise barriers	279	262
Prime and unique farmland in acres	0	0
Upland natural systems in acres[3]	327.7	645.7
Wetland natural systems in acres	14.50	20.14

Table 17 (continued). Summary of Impacts

Factors	Alternative A (Preferred Alternative from FEIS)[1]	Alternative A Reevaluated with Tolls
Man-dominated systems in acres	286.8	279.3
Stream crossings	28	29
Stream impacts in linear feet	10,637	15,113
Pond impacts in acres	11.09	12.07

1 Impacts noted for Alternative A are as noted in the FEIS and/or updated with information provided in the ROD. (In general, impacts are based on preliminary designs [including 78-foot median] and wetland stream delineations prepared for Alternative A in 2001. Relocations are based on Right-of-Way Estimate Report dated June 20, 2002, and Relocation Report dated August 1, 2002. However, some impacts are based on the functional designs and a 46-foot median.)

2 No impacts to parks were noted in the FEIS; however, a new survey of Feltonsville Community Park found that a small amount of land – previously believed to have been acquired for highway right-of-way – was still park property. A finding of "*de minimis*" impacts has been made for this sliver of park property, and the official with jurisdiction has concurred.

3 Upland natural systems describes all non-wetland areas in the project footprint that are not human-dominated (i.e. residential lawns and/or agricultural lands), including bottomland hardwood forests.

4. Evaluation of Major Design Changes and Revised Design Criteria

4.1 Revised Design Criteria

As noted in the FEIS (2004), the design criteria established for the proposed Western Wake Freeway were based on AADT volume projections developed at that time. Even with the reduction in estimated traffic for the year 2030 due to operation of the roadway as a toll facility, the estimated traffic volumes still warrant the proposed 6-lane cross section, based on a review of general capacity tables in the Highway Capacity Manual 2000 (Transportation Research Board, 2000). Additionally, the capacity analysis of the current 6-lane design for the design year 2030, completed for this Reevaluation Report (Section 3.3.3), found that some sections of Western Wake Freeway (even as a toll facility) may operate at a LOS D during peak hours. A reduction in the proposed cross section would reduce this anticipated LOS.

The design criteria have been updated to reflect the project-specific current design and to reflect updates to American Association of State Highway and Transportation Officials (AASHTO) policy (AASHTO, 2004). The criteria for the project meet or exceed AASHTO policy (2004). Table 18 shows the updated criteria in **bold text**. These updates have not resulted in a change in the proposed project footprint.

The mainline typical section, as shown in the FEIS, is still applicable to the project, with one minor revision. This revision has changed the recommended cut slope to a 3:1 maximum, based on current geotechnical information from NCDOT-Soils and Foundations. This recommendation for a flatter cut slope is due to the known instability of steeper slopes with the clay-based Triassic Basin soils found within the project corridor.

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Table 18. Updated Roadway Design Criteria

Design Factors	Alignment	Recommended Standards				
Classification	Mainline (-L- line)	Freeway (Interstate)				
Type of Terrain	All	Rolling				
Design Speed	-L- -Y- lines, Service road Flyovers Ramps Loops	70 mph Variable: 40 to 70 mph **60 mph** 40 to 60 mph (Upper or Mid Range) 30 mph				
Pavement Slopes	All	0.02				
Superelevation	-L- -Y- lines, Service road Flyovers Ramps and Loops Bridges	10% maximum 6% maximum 6% maximum 8% maximum 6% maximum				
Grades	-L-	4.0% maximum, 0.3% minimum				
	-Y- lines, Service road	0.3% minimum				
	Freeways	Design Speed Max. Grade %	50 mph 5	60 mph 4	70 mph 4	
	Rural Arterials	Design Speed Max. Grade %	50 mph 5	60 mph 4	70 mph 4	
	Rural Collectors	Design Speed Max. Grade %	40 mph 8	50 mph 7	60 mph 6	
	Local	Design Speed Max. Grade %	40 mph 10	50 mph 8	60 mph 6	
	Loops	**Design Speed** **Max. Grade %** 0.3% minimum	**15 to 35 mph** **10**			
	Ramps	5.0% maximum, 0.3% minimum				

Shoulders*		ADT	Total Shld. Width	Total Paved	FDPS	side
	-L-		14 ft 12 ft	12 ft 12 ft	12 ft **12 ft****	outside median
	-Y- lines					
	Freeways	≥40,000	12 ft 12 ft	12 ft 4 ft	12 ft 4 ft	outside median
		<40,000	12 ft 12 ft	10 ft 4 ft	4 ft 4 ft	outside median
	Divided arterials and Collectors	≥40,000	10 ft **6 or 10 ft**	10 ft 4 ft	4 ft 4 ft	outside median
		<40,000	8 ft **6 or 10 ft**	4 ft 2 ft	4 ft 2 ft	outside median

Table 18 (continued). Updated Roadway Design Criteria

Design Factors	Alignment	Recommended Standards				
	Two lane – two way	>8,000	8 ft	4 ft	4 ft	
		>4.000	8 ft	2 ft	2 ft	
		1,500 to 2,000	6 ft	turf	turf	
		2,000 to 4,000	8 ft	turf	turf	
	Ramps and flyovers		**12 ft**	**4 ft**	**4 ft**	inside
			14 ft	4 ft	4 ft	outside
	Loops		14 ft	4 ft	4 ft	inside
			12 ft	4 ft	4 ft	outside
Ditches		ADT	Ditch Width	Front Slope	Max. Back Slope	
	-L, Ramps, Loops, Flyovers-		18 ft	6:1	2:1	
	-Y- lines					
	freeways		18 ft	6:1	2:1	
	arterials, collectors		18 ft	6:1	2:1	
	locals	> 4,000	18 ft	6:1	2:1	
		< 4,000	12 ft	6:1 (4:1 max.)	2:1	
Slopes	All	2:1 maximum (Fill); **3:1 maximum (Cut)** as directed by Soils and Foundations				
Median Width	-L-	78 ft				
Vertical Clearance	-L-	**17 ft to 17.5 ft over Portland cement** (over Freeways and Arterials) 15 ft to 15.5 ft (over Local and Collectors) 23 ft to 23.5 ft (over Railroads)				
Pavement Widths	-L-	12 ft lane				
	-Y- lines, Service road			Lane width for specified design year ADT		
			Design Speed	1,500 to 2,000	>2,000	
	Freeways			12 ft	12 ft	
	Rural arterials		40 mph	11 ft	12 ft	
			50-60 mph	12 ft	12 ft	
	Rural locals, collectors		40-50 mph	11 ft	12 ft	
			60 mph	12 ft	12 ft	
	Ramps and Flyovers	16 ft lane				
	Loops	18 ft lane				
Vertical Alignment			Design Speed	K_{min} Crest	K_{min} Sag	
			40 mph	44	64	
			50 mph	84	96	
			60 mph	151	136	
			70 mph	247	181	

Table 18 (continued). Updated Roadway Design Criteria

Design Factors	Alignment	Recommended Standards		
Horizontal Alignment		Design Speed	Min Radius	emax
	-L-	70 mph	**1,630 ft**	0.10
	-Y- lines, Loops and Ramps	30 mph	**214 ft**	0.08
		40 mph	**444 ft**	0.08
		50 mph	**758 ft**	0.08
		60 mph	**1,200 ft**	0.08
		70 mph	**1,810 ft**	0.08
		40 mph	**585 ft**	0.06
		50 mph	**833 ft**	0.06
		60 mph	**1,330 ft**	0.06
		70 mph	**2,040 ft**	0.06

ADT: Average Daily Traffic FDPS: Full Depth Paved Shoulder
* The paved shoulders may be adjusted for truck traffic if requirements are met.
** The paved shoulder policy only requires the -L- median paved shoulder width to be 4' FDPS. Twelve-foot full depth paved shoulders were used in anticipation of future lanes being added in the median.
Source: A Policy on Geometric Design of Highways and Streets, 2004. AASHTO; NCDOT Roadway Design Manual, 2002a. Information may change based on Roadway Policy and AASHTO updates.

In addition, the toll collection plazas would each include a small parking area, a small building to house an emergency electric generator, an overhead structure to hold signs and lighting, and toll-collection equipment. The facility may also include additional pole-mounted overhead lighting, particularly at toll collection plazas and interchanges, as needed. Specifications for the overhead structure and any additional overhead lighting have not been determined.

4.2 Revised Alignment and Right-of-Way

As noted in Section 1.6, both Alternative A Reevaluated and Alternative A Reevaluated with Tolls are within the study corridor for Alternative A and follow the alignment established within the corridor as discussed in the ROD. There is no change in alignment from previous environmental documents.

The FEIS and ROD note that a right-of-way width of 300 feet would be required. This statement is still valid. However, there would be some minimal widening of the right-of-way to accommodate the designs for the mainline toll plaza and ramp toll plazas. Additionally, some minimal widening of the right-of way would be required to accommodate the flatter 3:1 cut-slope recommended for the project. This widening of the right-of-way to accommodate the revision of the cut-slope is applicable to both the Alternative A Reevaluated and Alternative A Reevaluated with Tolls.

4.3 Non-Conforming Design Elements, and Variations and Exceptions

The design exception process documents the economic, physical, social, or environmental constraints that prevent the application of a specific highway design criterion or standard. There are no anticipated design exceptions identified for this project based on the current design for either the non-toll or toll facilities.

4.4 Changes in Major Drainage Structures

As noted in Section 3.6.3.4, based on the outcome of the Fall 2006 redelineation of jurisdictional waters and an assessment of hydraulic constraints, bridges would be added at two additional locations, in addition to the bridges identified in the FEIS and ROD. The first additional bridge would be located at wetland #60 (beaver impoundment of Jack Branch) and is planned to be 270 feet in length. The second additional bridge would be located at wetland #68/69 (beaver impoundment of Panther Creek) and is also planned to be 270 feet long. At the TEAC meeting on December 15, 2006, the possibility of bridges at these two locations was presented. It was noted that based on prior agency coordination, two culverts had been approved at these locations. NCDOT, which is assisting NCTA with the hydraulics design, stated that their planned approach for designing these bridges was to size them to meet the hydraulic needs at the sites and that they would not likely span the entire wetland at either location. No objections were raised by the resource agencies to this approach for the proposed additional bridges at Jack Branch or Panther Creek. The meeting minutes for the December 15, 2006, TEAC meeting are included in Appendix G.

5. Project Commitments

5.1 Previous Project Commitments

Table 19 lists the project commitments as included in the ROD. There have been no changes to these previous commitments. Additional information has been included in Table 19 on the status of these commitments' implementation.

5.2 New Project Commitments

Additional commitments have been made by NCTA for the project and are described in the following paragraphs.

5.2.1 Commitment No. 37 – Archaeological Site Assessment

Archaeological site assessment would be conducted by the Design-Build team, as needed, on lands disturbed for project construction located outside of the currently anticipated construction footprint. These disturbed lands include those needed for alignment shifts, borrow pits, and staging areas. It has been added to Table 19 as commitment number 37.

5.2.2 Commitment No. 38 – Grade Separation

This commitment was made by NCDOT in 2004 and is documented in correspondence dated January 8, 2004. It was not included in previous commitment table published with the FEIS or ROD. It reads as follows: "The Department will consider adding a grade separation at Zeno Road extension (currently called Beaver Creek Drive) within the Western Wake Freeway project if Zeno Road extension has been constructed on each side of the Western Wake Freeway. The Zeno Road extension construction would have to be completed or underway by the time the Western Wake Freeway right-of-way acquisition begins in March 2006." Coordination among NCTA, with NCDOT, and the Town of Apex is ongoing. Current correspondence is included in Appendix I. This commitment has been added to Table 19 as commitment number 38.

5.2.3 Commitment No. 39 – Additional Bridges

Based on the outcome of the Fall 2006 redelineation of jurisdictional waters and an assessment of hydraulic constraints, bridges are being added at two additional

locations. The first additional bridge, located at wetland #60 (beaver impoundment of Jack Branch), would be approximately 270 feet long, and the second additional bridge, located at wetland #68/69 (beaver impoundment of Panther Creek), would also be approximately 270 feet long. This commitment has been added to Table 19 as commitment number 39.

5.2.4 Commitment No. 40 – Additional Noise Barrier

One additional noise barrier, beyond those noted in commitment No. 34, will be constructed along the western boundary of Western Wake Freeway adjacent to Olive Chapel Elementary School. This commitment has been added to Table 19 as commitment number 40.

These additional commitments have been included at the end of Table 19.

Table 19. Project Commitments (Green Sheet)

Western Wake Freeway
From NC 55 at SR 1172 (Old Smithfield Road) To NC 55 near SR 1630 (Alston Avenue)
Wake County
Federal Project No. BRSTP-000S(491)
State Project No. 6.408006T
STIP Project No. R-2635

Commitment as included in the Record of Decision	Update/Status as of August 27, 2007
1. A plan to mitigate impacts to jurisdictional streams and wetlands will be developed cooperatively with the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), the U.S Environmental Protection Agency, the North Carolina Wildlife Resources Commission, the North Carolina Department of Environment and Natural Resources-Division of Water Quality and the North Carolina Ecosystem Enhancement Program.	Reference to NC Wetlands Restoration Program has been updated to NC Ecosystem Enhancement Program (EEP). NCTA is coordinating with NCDOT and EEP to address the mitigation needs for the project. The current plan would track mitigation needs through NCDOT's MOA with EEP, but NCTA would pay for the mitigation via the in-lieu-fee program. The listed agencies continue to be involved in the project through the Turnpike Environmental Agency Coordination (TEAC) meetings.
2. The U.S. Fish and Wildlife Service will be consulted prior to construction contract letting to ensure that no additional species were added to the protected species list subsequent to the Record of Decision.	The threatened and endangered species list has been updated based on the USFWS' May 10, 2007 list for Wake County. No new species have been listed for the county since the ROD. Fall 2006 surveys discovered no impacts to protected species. Additional coordination with the USFWS will be completed prior to construction contract letting.
3. Bridges will be constructed over Beaver Creek in Apex and White Oak Creek in Cary to minimize impacts to streams and their associated wetlands. The bridges will be constructed so that pedestrians and bicyclists can travel under the structures along greenways planned at both locations.	NCTA and NCDOT have maintained ongoing coordination with the Towns of Apex and Cary regarding these structures and the town's respective plans for greenways at these locations. See commitment #13 for the outcome of coordination with the towns.
4. Slopes in wetland areas will be constructed at a ratio of 2:1, where possible, to minimize impacts.	A cut slope of 3:1 maximum, based on current geotechnical information from NCDOT-Soils and Foundations, has been recommended. This recommendation for a flatter cut slope is due to the known instability of steeper slopes with the clay-based Triassic Basin soils found within the project corridor. Constructed slopes adjacent to/or within wetlands in the Piedmont are primarily fill slopes, due to the location of the wetlands in valleys/floodplains and fill slopes are not affected by this recommendation.
5. No borrow or waste areas or pits will be permitted in wetland areas under the jurisdiction of the U.S. Army Corps of Engineers.	NCTA is following NCDOT's policy regarding borrow and waste sites and will coordinate with the USACE for permits, as needed.

Table 19. Project Commitments (Green Sheet) Western Wake Freeway From NC 55 at SR 1172 (Old Smithfield Road) To NC 55 near SR 1630 (Alston Avenue) Wake County Federal Project No. BRSTP-000S(491) State Project No. 6.408006T STIP Project No. R-2635	
Commitment as included in the Record of Decision	**Update/Status as of August 27, 2007**
6. Further avoidance and minimization of impacts to the natural environment, where practicable, will be addressed through completion of hydraulic design at the 30% and 90% complete review meetings.	Hydraulic design is being completed by NCDOT for Section C and avoidance and minimization was addressed at the 4C meeting on April 18, 2007. The meeting minutes are included in Appendix G. Hydraulic design will be completed for sections A and B, under design-build contracts managed by NCTA. NCTA will continue with this commitment as Section B reaches 90% complete design and Section A reaches 30% and 90% complete designs.
7. Detailed hydraulic studies will be completed to determine the impact of the proposed freeway on floodplains crossed by the project.	NCDOT – Hydraulics has prepared Conditional Letters of Map Revision (CLOMRs) for four floodplain encroachments in Section C. The CLOMRs were distributed to Wake County, the Town of Cary and North Carolina Floodplain Mapping Program on June 11, 2007. The Design-Build team will be responsible for any Letters of Map Revision (LOMRs) needed for Section C. Two additional CLOMRs are likely to be needed for Sections A and B at Beaver Creek and at Big Branch. The Design-Build teams will be responsible for any CLOMRs and/or LOMRs needed for Sections A and B.
8. Stormwater drainage systems will be designed for the project in accordance with the requirements of the National Pollutants Discharge Elimination System (NPDES) program.	Commitment will be implemented.
9. Bridge deck drains will not be discharged into surface waters.	Commitment will be implemented.
10. In accordance with the Memorandum of Agreement (MOA) signed to mitigate the adverse effects of the proposed freeway on the Green Level Historic District, NCDOT will work with the Town of Cary, the Wake County Historic Preservation Commission, and the North Carolina State Historic Preservation Office (HPO) to plan and develop highway signage for and in the vicinity of the Green Level Historic District. The purpose of the highway signage is to identify entry into the	A coordination meeting was held on February 20, 2007 with HPO, FHWA and NCDOT. At this meeting, it was decided that the MOA still adequately addresses mitigation for adverse effects. NCTA prepared a letter to FHWA stating that they agree to assume responsibility for implementing the MOA commitments. The letter also addresses archaeology, stating that the expanded footprint to accommodate the toll plazas will not impact archaeological sites on or eligible for the National

Table 19. Project Commitments (Green Sheet)

Western Wake Freeway
From NC 55 at SR 1172 (Old Smithfield Road) To NC 55 near SR 1630 (Alston Avenue)
Wake County
Federal Project No. BRSTP-000S(491)
State Project No. 6.408006T
STIP Project No. R-2635

Commitment as included in the Record of Decision	Update/Status as of August 27, 2007
Green Level Historic District. The signage project will also include small-scale landscaping around each sign. The signage project will include at least four signs and is restricted to identifying the historic district proper. It will not identify individual properties within the district. The NCDOT will partner with state and local government entities and other contributing parties to fund the historic district signage project. The NCDOT funds should not exceed 80% of the total signage project cost. The NCDOT will provide ongoing maintenance for the signs and landscaping.	Register. The letter was addressed to FHWA with copies to the Advisory Council on Historic Preservation (ACHP), HPO, NCDOT, Town of Cary and Wake County (Appendix F). FHWA has acknowledged the transfer of responsibility for implementing the MOA commitments to NCTA in correspondence dated March 30, 2007 and included in Appendix F.
11. Archaeological site 31WA1492 is located outside the currently proposed right-of-way, temporary easements, and construction limits. Therefore, the site was not further studied for its determination of eligibility for inclusion on the National Register of Historic Places. Detailed mapping showing the proposed project plans, site boundaries, and photography are included in an addendum to the archaeological report that was submitted to SHPO in January 2004. Appendix B (Editor's note: *This is a reference to Appendix B of the FEIS.*) contains a copy of the letter dated February 18, 2004, from the SHPO that states no additional archaeological studies for site 31WA1492 are needed for the freeway project as currently planned. However, if future design modifications impact site 31WA1492, an additional archaeological evaluation would need to be conducted prior to construction. Subsurface testing of Archaeological site 31WA1493 has been completed. An addendum to the original archaeological report detailing the results of the supplemental investigations was submitted to the SHPO in January 2004. The investigations determined site 31WA1493 has a poor archaeological context and is recommended not eligible for listing in the National Register of Historic Places. Appendix B (Editor's note: *This is a reference to Appendix B of the FEIS.*) contains a copy of the letter dated February 18, 2004, from the SHPO that concurs with this finding.	Site 31WA1492 continues to be located outside the currently proposed right-of-way, including the additional footprint that is needed for toll plazas. A coordination meeting was held with SHPO and FHWA and NCDOT on February 20, 2007. This finding was documented by NCDOT and provided to NCTA and is included in Appendix F. Site 31WA1493 continues to be located inside the currently proposed right-of-way for Alternative A Reevaluated with Tolls. However, as noted in the ROD, work has been completed on site 31WA1493, and it was found not be eligible for listing in the National Register of Historic Places. The commitment at this site is complete.

Table 19. Project Commitments (Green Sheet)

Western Wake Freeway
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Wake County
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State Project No. 6.408006T
STIP Project No. R-2635

Commitment as included in the Record of Decision	Update/Status as of August 27, 2007
12. Impacts to cemeteries are anticipated near the interchange of the Western Wake Freeway and Old US 1. The NCDOT will comply with the provisions of North Carolina General Statute 65-13.	Impacts to the cemetery near the interchange of Western Wake Freeway and Old US 1 are still anticipated. The removal of graves by NCTA at this location will comply with provisions of North Carolina General Statute 65-13.
13. The NCDOT will share the costs associated with incorporating grade-separated crossings of the Western Wake Freeway to ensure continuity of planned greenways across the Western Wake Freeway in Apex and Cary. The greenways are associated with Little Branch, Beaver Creek, and an unnamed tributary to Beaver Creek in Apex, White Oak Creek, Bachelor Branch, Panther Creek, Morris Branch, and Nancy Branch in Cary. Bridges are currently proposed over White Oak Creek and Beaver Creek. Each will be of sufficient height and length to accommodate a greenway or other multi-use trail under its deck. No cost sharing will be required for these bridges. Pedestrian culverts or sidewalks on parallel y-lines are proposed at all greenways except Beaver Creek and White Oak Creek. Culverts are proposed at Little Branch, unnamed tributary to Beaver Creek, Bachelor Branch, and Panther Creek. The NCDOT will utilize the October 2001 pedestrian policy guidelines for cost sharing of culverts. (Editor's Note: *The following cost sharing percentages based on municipal population data have been updated since the ROD*). Currently, based on 2007 municipal population data, NCDOT will pay 70 percent of the culvert costs for the Town of Apex and 50 percent of the culvert costs for the Town of Cary. Sidewalks are proposed for Morris Branch on the Panther Creek Parkway and for Nancy Branch on the proposed East-West Collector.	Coordination with the towns of Apex and Cary has been ongoing regarding continuity of the planned greenways across Western Wake Freeway (Appendix I). A coordination meeting was held with the Town of Apex on February 7, 2007 to discuss greenways, sidewalks and sound barriers. Apex will participate in cost-sharing associated with the greenway culvert at Little Branch. Cost-sharing details are still to be finalized. Apex is currently not interested in participating in the installation of a greenway culvert at an unnamed tributary to Beaver Creek. The planned bridge at Beaver Creek is anticipated to accommodate their greenway under the bridge. A coordination meeting was held with the Town of Cary and NCDOT on January 22, 2007. The Town of Cary's greenways will be accommodated through cost-sharing as follows: for the "14-foot wide bench in" option on the north side of the bridge at White Oak Creek; for a 12-foot by 12-foot greenway culvert on the south-side of Bachelor Branch; as a boardwalk on the north side of Panther Creek; and for the greenway at Morris Branch, via a sidewalk on the south-side of one of the McCrimmon Parkway (Panther Creek Parkway) structures over Western Wake Freeway (the Town of Cary will pay for the extra 5-foot width on the south-side of one bridge). The greenway for Nancy Branch will be accommodated via sidewalks on the proposed East-West Collector bridge over the Western Wake Freeway. Sidewalks will be paid for, in part, by the town. The cost-sharing details are still to be finalized.

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Commitment as included in the Record of Decision	**Update/Status as of August 27, 2007**
14. NCDOT will reevaluate the noise impacts to Feltonsville now that the NC 55/Holly Springs Bypass is open and trash trucks destined for the landfill should be removed from Old Smithfield Road. This will determine if feasible, reasonable, and cost-effective noise mitigation can be provided in this area.	Per the Traffic Noise Report (June 2007), a noise wall is not reasonable and feasible and is not recommended for construction at this location. This finding is consistent with the finding in the Final Design Noise Report Addendum (2004) completed just after the signing of the ROD.
15. Improvements to Old Smithfield Road will include exclusive right-in/right-out access at the intersection of Old Smithfield Road and the NC 55/Holly Springs Bypass, resurfacing of Old Smithfield Road from NC 55 to the NC 55/Holly Springs Bypass, providing left-turn lane at the intersection of Old Smithfield Road and NC 55, and evaluating signalization.	Per NCDOT, signalization was considered, but is not recommended at this intersection, due to the proximity to the Western Wake Freeway and NC 55 Bypass interchange and the potential for negative effects on traffic operations and safety.
16. The NCDOT, in cooperation with the Federal Highway Administration (FHWA) and Wake County will obtain funds for use in renovating the Feltonsville Park and its playground equipment. The heavily used park was originally built with Community Development Block Grant (CDBG) funds in 1981 and is now in a state of disrepair. (Editor's Note: *Based on additional information from Wake County, the date of the CDBG was updated from "the 1970s" to 1981*). Possible improvements will include the following: traffic warning signs along SR 1172 (Old Smithfield Road); tennis courts, volleyball area, and basketball court with new backboards and goals; facility lighting; benches, trash cans, a water fountain, and shelter with picnic tables; landscaping; crosswalk (marked and signed) on Old Smithfield Road; fencing and lockable gates; playground equipment-swings, slide, and climbing area; and a posted speed limit of 24-32 kph (15-20 mph). (Possible improvements are based on suggestions from the Feltonsville Community at a February 6, 2003 meeting.) Park amenities will be based on what the 0.10-hectare (0.25-acre) parkland can accommodate.	Coordination by NCTA and NCDOT with Wake County and the Feltonsville Community to establish park amenities and discuss details and how best to implement these improvements is ongoing. A coordination meeting was held with the Wake County Parks and Recreation Department and representatives from the Town of Holly Springs on January 31, 2007, and a Small Group Meeting was held with the Feltonsville Community on February 15, 2007. It is likely that NCTA will provide the money for the proposed park improvements to Wake County for the County to implement the project. Development of a MOA with Wake County is ongoing. It should be noted that the park consists of two parcels, for a size of approximately 0.5 acres, and not 0.25 acres as previously noted.
17. NCDOT will provide landscaping along the south side of the freeway in the Feltonsville vicinity to provide a visual buffer of the freeway and its ramps at the NC 55/Holly Springs Bypass interchange.	Commitment will be implemented.

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Commitment as included in the Record of Decision	**Update/Status as of August 27, 2007**
18. NCDOT will facilitate discussions between the Feltonsville Community Organization and the Town of Apex regarding the transfer of water meter reading responsibility to the town.	The Town of Apex has noted, during recent discussions, that they are not interested in accepting the responsibility for reading water meters in the Feltonsville Community. (Pers. Com. with Bruce Radford, March 19, 2007; included in Appendix I). NCTA is in the process of contacting Feltonsville Community leaders to inform them of the response by the Town of Apex.
19. Site conditions along the project corridor will be assessed during the right-of-way acquisition phase to ensure that no hazardous wastes or materials are encountered. Any such sites or unrecorded underground storage tanks discovered during final design and construction phases will be assessed and remediated prior to construction, in compliance with the U.S. Environmental Protection Agency and North Carolina Department of Environment and Natural Resources regulations and policies on soil and groundwater remediation.	Commitment will be implemented.
20. Geotechnical investigations for the project will include surveys to locate wells within and adjacent to the proposed right-of-way.	Commitment will be implemented.
21. The NCDOT will coordinate with Wake County Solid Waste Management concerning the project's impact, if any, on the South Wake Landfill excavation site.	The Southern Wake Landfill and borrow areas, as depicted on a map provided on the Wake County website, does not appear to be impacted by the Western Wake Freeway. (http://www.wakegov.com/NR/rdonlyres/8139DED1-4CF2-4D92-B83B-C3115540EF2C/0/swlf_gis_exhibit_color_061114.pdf; accessed March 13, 2007)
22. The NCDOT will coordinate with all public utility providers to ensure that any required interruptions in service are anticipated and short in duration.	Design-build contractors will coordinate utility relocations. NCDOT will assist in the preparation of any cost and approval agreements. Coordination is underway between NCTA and NCDOT.
23. The NCDOT will coordinate with the towns of Cary, Apex, and Holly Springs regarding any possible relocation of existing public water and sewer lines due to freeway construction.	Coordination between NCTA and public and private utility providers is ongoing.

Table 19. Project Commitments (Green Sheet) Western Wake Freeway From NC 55 at SR 1172 (Old Smithfield Road) To NC 55 near SR 1630 (Alston Avenue) Wake County Federal Project No. BRSTP-000S(491) State Project No. 6.408006T STIP Project No. R-2635	
Commitment as included in the Record of Decision	**Update/Status as of August 27, 2007**
24. Coordination will continue with CSX Transportation regarding the proposed realignment and grade separation of its railroad adjacent to SR 1011 (Old US 1) to accommodate the proposed interchange at SR 1011 (Old US 1).	Commitment will be implemented.
25. The NCDOT will include a grade separation for Panther Creek Parkway to bridge over the Western Wake Freeway. The NCDOT will commit to pay for the cost of the bridge if : (1) NCDOT reviews and approves the roadway plans for the Panther Creek Parkway in the area of the Western Wake Freeway prior to construction; (2) if the Panther Creek Parkway is completed by the time right-of-way acquisition for the Western Wake Freeway begins (currently scheduled for 2006); and (3) Panther Creek Parkway is closed while the bridge over the freeway is being constructed. The bridge will be designed to accommodate four travel lanes on Panther Creek Parkway. The NCDOT will consider pedestrian accommodations on the bridge only if the typical section for Panther Creek Parkway has curb and gutter and sidewalks. The NCDOT will pay for the structure carrying the Morrisville Parkway over the Western Wake Freeway if the Morrisville Parkway is open to traffic or is under construction by the time right-of-way acquisition begins for the Western Wake Freeway (currently scheduled for 2006). The NCDOT will include a grade separation of the East-West Collector as part of the Western Wake Freeway project as long as the East-West Collector is on Cary's thoroughfare plan and is under construction/open to traffic before right-of-way acquisition is underway for the Western Wake Freeway.	Construction on McCrimmon Parkway (previously Panther Creek Parkway) has been completed in the vicinity of Western Wake Freeway. The crossing over Western Wake Freeway will be constructed by NCTA as dual two-lane bridges. Morrisville Parkway crossing over Western Wake Freeway is planned as a two-lane bridge. The East-West Collector is planned as crossing over Western Wake Freeway; the design of the structure has not been determined at this time. It is currently assumed that these later two bridges will be constructed by NCTA. However, this is still contingent on the stipulations as outlined in the original commitment #25.
26. Coordination with the towns of Apex, Cary, and Holly Springs will continue throughout design to ensure that provisions are made in grade-separation designs to allow for future construction of sidewalks on secondary roads crossing the	A coordination meeting was held with the Town of Apex on February 7, 2007 to discuss greenways, sidewalks and sound barriers. In a follow-up e-mail dated February 8, 2007 (Appendix I), Apex requested accommodations on bridges for

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State Project No. 6.408006T
STIP Project No. R-2635

Commitment as included in the Record of Decision	Update/Status as of August 27, 2007
proposed freeway when appropriate.	future sidewalks along the north side of Old US 1/Salem Street (SR 1011); on the north side of Apex Barbecue Road; on the south side of Olive Chapel Road; on the south side of Jenks Road; and on the east side of Kelly Road.
27. Coordination with Apex will continue to determine which side of Little Branch, Beaver Creek, and an unnamed tributary to Beaver Creek should accommodate the greenways. Coordination with Cary will continue to determine which side of White Oak Creek, Bachelor Branch, and Panther Creek should accommodate the greenways.	See update for Commitment #13.
28. Coordination with Apex will continue to determine intersection options for Kelly Road at US 64.	Coordination will continue with the Design-Build contractors to investigate and document other design options at this location during the final design process.
29. Accommodations will be made for bicycle travel. SR 1615 (Green Level Road) will have 1.8 m (6 ft) paved shoulders. SR 1615 is part of the NC 2 Mountains to the Sea Bicycling Highway. SR 1011 (Old US 1) will have 1.2 m (4 ft) paved shoulders. SR 1011 is part of the US 1 Connector Bicycling Highway.	Commitment will be implemented.
30. Based on the results of the High Occupancy Vehicle (HOV) study recommendations, a 23.7 m (78 ft) median will be used on the Western Wake Freeway.	Commitment will be implemented.
31. Five dynamic message signs, six surveillance cameras, and the associated conduit, fiber optics, junction boxes, hubs, software, and transportation management center equipment will be installed.	NCTA is reevaluating its Intelligent Transportation Systems (ITS) needs to implement the project as a toll facility. Commitment may need to be adjusted due to limitations associated with integration of the proposed toll plazas. Coordination with NCTA, NCDOT and CAMPO is ongoing. Coordination with NCDOT will be ongoing for ITS designs, during the operational and interagency reviews, especially in regards to proposed links or connections to NCDOT's Operations Center or other facilities.

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STIP Project No. R-2635

Commitment as included in the Record of Decision	Update/Status as of August 27, 2007
32. Temporary off-site detours will be coordinated with county schools, emergency management, and others as necessary during construction.	Commitment will be implemented.
33. The NCDOT will consider incorporating the measures below into the final freeway design to create an aesthetically acceptable and functional roadway by minimizing visual impacts: § Integrate landscaping into the project design to promote visual continuity of the highway and blend it into the natural landscape to the extent possible; § Minimize the loss of vegetation, particularly during construction when equipment access, storage, and staging are required; § Design any necessary noise attenuation feature to be compatible with surrounding natural features and development.	NCDOT's policy is to use a separate contract after construction to manage landscaping needs. This commitment will be implemented as such. NCDOT standardized method 3 is planned for necessary clearing. In an update to previous coordination with NCDOT, the Town of Apex noted in an e-mail on February 8, 2007 (in Appendix I), that standard concrete pile panel is acceptable by the town for noise barriers.
34. Noise barriers will be constructed along the Kelly Glen, Scotts Mill, and Ashley Downs subdivisions in Apex.	Commitment will be implemented, contingent upon agreement of first row property owners. Based on an updated traffic noise analysis and the current NCDOT Traffic Noise Abatement Policy, noise walls are recommended for barrier locations 5, 6, 7, and 8. Barrier No. 5 is along the Kelly Glen Subdivision and will be 2,945 feet long. Barrier No. 6 is located along the Scotts Mill Subdivision and will be 2,943 feet long. Barrier No. 7 is located along Olive Chapel Elementary School and will be 1,050 feet long. Lastly, barrier No. 8 is located along the Ashley Downs Subdivision and will be 1,715 feet long.
35. The grade separation structure over Old Holly Springs Road-Apex Road will be of sufficient length to permit future construction of sidewalks and any additional lanes on Old Holly Springs-Apex Road.	Based on coordination between NCDOT and CAMPO the grade separation structure over Old Holly Springs Road-Apex Road will be sized to accommodate a future 4-lane, divided, curb and gutter section. This will include a 23-foot median and a 10-foot berm for sidewalks.

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Commitment as included in the Record of Decision	**Update/Status as of August 27, 2007**
36. The NCDOT's Best Management Practices for the protection of surface waters will be strictly enforced during construction to minimize sedimentation. Other design features such as vegetated berms and swales will be considered and incorporated into the roadway design where appropriate to mitigate any potential transfer of toxins or other nutrients into surface waters.	Commitment to be implemented.
37. Archaeological site assessment will be conducted by the Design-Build teams, as needed, on lands disturbed for project construction located outside of the currently anticipated construction footprint. These disturbed lands include those needed for alignment shifts, borrow pits, and staging areas.	New commitment to be implemented.
38. The Department will consider adding a grade separation at Zeno Road extension (currently called Beaver Creek Drive) within the Western Wake Freeway project if Zeno Road extension has been constructed on each side of the Western Wake Freeway. The Zeno Road extension construction would have to be completed or underway by the time the Western Wake Freeway right-of-way acquisition begins in March 2006.	This commitment was made by NCDOT in 2004 and is documented in correspondence dated January 8, 2004. It was not included in previous commitment tables published with the FEIS or ROD. Coordination among NCTA, with NCDOT, and the Town of Apex is ongoing. Current correspondence is included in Appendix I.
39. Based on the outcome of the Fall 2006 reverification of jurisdictional waters and an assessment of hydraulic constraints, bridges are being added at two additional locations. The first additional bridge, located at wetland #60 (beaver impoundment of Jack Branch), will be approximately 270 feet long, and the second additional bridge, located at wetland #68/69 (beaver impoundment of Panther Creek), will also be approximately 270 feet long.	New commitment to be implemented.
40. One additional noise barrier, beyond those noted in commitment No. 34, will be constructed along the western boundary of Western Wake Freeway adjacent to Olive Chapel Elementary School.	New commitment to be implemented.

6. Permits

As noted in the FEIS, the proposed construction of the Western Wake Freeway would require several environmental regulatory permits from various state and federal agencies. A list of anticipated required permits is provided below. NCTA would obtain all permits prior to construction.

6.1 North Carolina Division of Water Quality

6.1.1 Section 401 Water Quality Certification

For an activity that would result in a discharge to Waters of the United States and require a federal permit, a certification must be obtained that the discharge would comply with state water quality standards. A Section 401 Water Quality Certification is required in conjunction with a U.S. Army Corps of Engineers Section 404 Permit. Authority: North Carolina General Statute 143, Article 21, Part 1. The implementing regulations are provided in 15A NCAC 2H and 2B. NCDOT, in coordination with NCTA, is in the process of developing the Section 401/404 permit application. The permit application was submitted to NCDWQ and USACE on August 27, 2007.

6.1.2 National Pollutant Discharge Elimination System (NPDES) Permit

A permit is required for projects involving sewer systems, treatment works, disposal systems and stormwater runoff resulting in a discharge to surface waters. The State of North Carolina administers the NPDES program within the state. Authority: North Carolina General Statute 143, Article 21, Part 1. The implementing regulations are provided in 15A NCAC 2H.0100.

6.2 United States Army Corps of Engineers (USACE)

6.2.1 Section 404 Permit

A permit issued by the USACE is required for any discharge of dredged or fill material into Waters of the United States, including wetlands. Issuance of a permit first requires that impacts to wetlands be avoided or minimized through a sequential process, which refers to avoidance, minimization and compensatory actions, as stipulated in the MOA between the EPA and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines (February 1990). Authority: Federal Water Pollution Control Act of 1972 and Section 404 of the Clean

Water Act of 1977. Implementing regulations are provided in 33 CFR Part 323 and 40 CFR 230. As noted previously, NCDOT, in coordination with NCTA, is in the process of developing the Section 401/404 permit application. The permit application was submitted to USACE and NCDWQ on August 27, 2007.

6.3 United States Fish and Wildlife Service

6.3.1 Section 404 Permit Review

The U.S. Fish and Wildlife Service (USFWS) is responsible for administering the Endangered Species Act of 1973, as amended, and is also required to provide comments on other agencies' permitting decisions under the Fish and Wildlife Coordination Act, as amended. The Service's responsibility under the Fish and Wildlife Coordination Act includes review of all Section 404 permit applications to determine a project's impact on fish and wildlife resources, including federally-protected species. The USFWS provides recommendations to the USACE on how the project could avoid or minimize impacts to fish and wildlife and their habitat. The USFWS would review the permit application as part of the joint NCDWQ and USACE review process.

7. Coordination and Public Involvement

As noted in the FEIS, a Public Involvement Plan was developed for the Western Wake Freeway planning and environmental study to ensure that every reasonable opportunity is available to interested citizens, civic groups and state and federal resource agencies to participate in the planning process.

7.1 Agency Coordination

One component of the Public Involvement Plan, noted in the FEIS, involves coordination with a number of federal and state regulatory and resource agencies. The FEIS includes information regarding the following coordination: Notice of Intent; Scoping Letters and Meetings; Steering Committee; and Interagency Coordination including Merger Team meetings. The ROD includes agency comments on the FEIS and responses from NCDOT.

After completion of the ROD, but prior to NCTA's involvement in the project, NCDOT held the Concurrence Point 4B Merger Team Meeting on June 15, 2005 for Sections B and C. The meeting minutes are included in Appendix G.

NCTA is supplementing this previous agency coordination with ongoing coordination through Turnpike Environmental Agency Coordination (TEAC) meetings to address concerns arising from the implementation of the project as a toll facility. Agencies invited to these meetings include FHWA, NCDOT, USACE, EPA, NCDWQ, North Carolina Department of Environment and Natural Resources - Wildlife Resources Commission (NCWRC), USFWS, HPO and CAMPO. The minutes from the TEAC meetings are included in Appendix G. In addition, NCTA held a one-day meeting – known as Turnpike 101 – to introduce the agencies to issues associated with turnpike projects. The Turnpike 101 and TEAC meetings are summarized below.

November 21, 2006. Turnpike 101 – NCTA conducted a day-long workshop for NCDOT, FHWA, resource and regulatory agencies and selected consultants assisting with NCTA projects. The focus of the workshop was to provide an information base on the policies, procedures and issues unique to NCTA, such as tolling. The information presented covered the NCTA/NCDOT agreement, project selection process, the environmental review process and guidance from FHWA, traffic forecasting and analysis, NEPA issues for toll roads, general tolling information, toll options and recommendations, toll traffic and revenue forecasts, toll road financing, project delivery process, and a general Frequently Asked Questions.

December 15, 2006. TEAC - The meeting included a presentation by NCTA to provide background, current project status, general information and projected schedules related to the implementation of Western Wake Freeway as a toll facility. Questions and comments by the agencies covered the following: toll collection payment methods; how collecting of tolls would affect traffic flow, acceleration weave/merge conditions - especially in regard to the need for additional or lengthened ramps/lanes; the non-toll alternate route; the Indirect and Cumulative Impact analysis, and the PLOAD model (a nutrient overland-flow model used for larger scale quantitative water quality modeling); the project schedule, especially in regards to Section 401/404 permitting; the merger process Concurrence Point 4C[16] meeting planned for April 2007; and based on the updated jurisdictional delineation, the potential need to bridge some wetlands because of hydraulic constraints instead of the previously agreed to culverts. It was noted, for this final item, that the potential bridges may not span the entire wetland. No objections were voiced to this approach.

January 17, 2007. TEAC - The agenda included discussion of the toll facility traffic forecast, the planned Citizens Informational Workshop (CIW) (February 8, 2007); the planned Feltsonville Community small group meeting (February 15, 2007); the project schedule; protected species; the details regarding natural resource avoidance and minimization efforts in selection of proposed toll plaza locations; the redelineation of jurisdictional waters and updated pond, stream and wetland impacts; and requests for early identification of any outstanding issues and/or concerns from the resource agencies. Questions and comments by the agencies covered the following: the public notice required for the permitting process and that the CIW may be used to satisfy the public outreach portion of this requirement; the USFWS support for the "No Effects" determinations proposed for the protected species listed for Wake County; the parking provisions at the toll plazas and layout at the toll plazas; the proposed new bridge sites at Jack Branch and Panther Creek; and the ongoing coordination with the Ecosystem Enhancement Program (EEP) to provide off-site mitigation for the project.

February 14, 2007. TEAC - The agenda included the stream, pond, and wetland impact methodology and calculations; the "No Effects" determinations for protected species; the date and location of the Concurrence Point 4C Meeting for Section C; the use of EEP for off-site mitigation; the status of the Feltonsville Park improvements; the Local Officials Meeting highlights; and the CIW highlights. Questions and comments

[16] See Footnote 8 in Section 3.1.2 for a discussion of the merger process and milestone concurrence points.

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by the agencies covered the following: the quantity of reduction of wetland impacts due to the proposed new bridges, noted to be roughly 3.0 acres; and the need to review avoidance and minimization during the upcoming 4C meeting.

(Coordination was held on February 20, 2007 with the HPO to review the Determination of Effect and status of the MOA for the Green Level Historic District. This coordination is discussed in Section 3.4.7 and the meeting minutes are included in Appendix G.)

April 18, 2007. The merger process Concurrence Point 4C meeting, review of permit drawings, for Section C of the Western Wake Freeway was conducted at this time. The meeting minutes from the Concurrence Point 4C meeting are included in Appendix G.

7.2 Public Involvement

The exchange of information about a proposed project is integral to the environmental analysis process. During the development of the FEIS and ROD, a variety of communication techniques were deployed to ensure the citizens had ample opportunities to comment on the project. The techniques included: maintaining a project mailing list, mailing periodic project newsletters, a telephone "hot-line," project website, CIWs, small group meetings, public officials meetings and a corridor public hearing. Details on these activities are included in the FEIS (2004). A Design Public Hearing was held in May 2005, after publication of the ROD.

The following techniques are being employed to update the public about the potential change in project concept from a non-toll facility to a toll facility and to provide opportunities to comment on the project: continued maintenance of the mailing list, project website, CIW, small group meetings, and public officials meetings. These activities are discussed below.

7.2.1 Mailing List

A mailing list has been maintained since the beginning of the planning study. The list was originally formed with the names of interested citizens that participated in public meetings and provided written comments during the corridor preservation process in 1992 and 1993. The mailing list is continually updated with the names and addresses of individuals who telephone, write letters, or e-mail about the project and those who sign-in at the CIWs and small group meetings. The Western Wake Freeway mailing

list was updated with current study area property owner information and merged with the list developed for the Triangle Parkway prior to mailing notices for the CIW, which was held on February 8, 2007. The list currently includes approximately 16,500 names.

7.2.2 Project Website

NCTA established a project website to provide citizens with an information resource concerning the project (www.ncturnpike.org/projects/Western_Wake/).

7.2.3 Citizens Informational Workshop

A CIW was held on February 8, 2007, at Apex High School in Apex from 5:00 to 8:00 p.m. to provide area residents and other interested parties an opportunity to discuss the project with NCTA and NCDOT officials. Maps of the project area were available for review and a slide presentation describing the workshop format, the Western Wake Freeway project, the NCTA, a general overview of toll roads, and the public involvement process was presented. A handout was distributed that provided information about the project. A copy of the handout is provided in Appendix J. Approximately 400 citizens attended the meeting. Citizens discussed the project with representatives from NCTA and NCDOT and 84 written comments about the project were submitted at the meeting. An additional 81 comments were received prior to or during the comment period that followed the meeting. The following is a summary of the citizens' written comments:

General Comments

- 56 people noted support for Western Wake Freeway as a toll road (31 of these are business leaders providing comments as a form letter/e-mail);
- 107 people noted opposition to Western Wake Freeway as a toll road. Of these 107, the majority felt if there is a toll road then all of I-540 should be a toll road;
- 8 people requested maps or information;
- 2 people wanted the project to be subject to a public vote;

- 6 people noted concern with construction and environmental impacts along with impacts of cost;
- 6 people questioned traffic issues related to intersections at NC 55 and US 64 (Kelly Road and Green Level Church Road); and
- 3 people made suggestions or expressed concern over location of the toll road and tolling exits.

Right-of-way, Access, and Community Impacts

- 2 people expressed concern over right-of-way acquisition;
- 1 person noted concern regarding access to his property;
- 2 people noted concern for noise pollution;
- 5 people expressed concern over the number and placement of sound barriers; and
- 1 person expressed concern over the material to be used for construction of the sound barrier.

General Toll Funding Concerns

- 2 people wanted to know the proposed date by which the road will be paid for.

Toll Rates

- 1 person was concerned with the toll rate for large vehicles and heavy equipment; and
- 2 people expressed concern over the cost of the toll, one would like to see it be $1 (for the whole length) and another would like to see the costs reduced for daily users.

Transponder System

- 1 person expressed concern over privacy and use of the EZ Pass system.

The Scotts Mill Homeowners Association has concerns about noise barriers, particularly along the boundary between Scotts Mill subdivision and the freeway, the bridge over Beaver Creek, and a continuation of the noise barrier along Apex Barbeque Road. They also have concerns over access next to the wall for maintenance, as well as the proposed pedestrian path identified in the Apex Pedestrian Plan. There is also a concern about the anticipated noise levels that could affect a proposed elementary school near the Western Wake Freeway and Scotts Mill for which the Wake County Public School System has already purchased land.

The following is a summary of verbal comments made to NCTA and other staff during the CIW:

General Comments

- The road is very much needed, so please build it even if it has to be a toll road;
- Most people supported the road but questioned why tolls, why us, why not toll all of I-540. Several people asked about other funding options;
- Several questioned whether the US 64 and Kelly Road Interchange would function properly. Beaver Creek Commons is causing major traffic problems and some remembered a flyover being promised to facilitate access to the shopping center;
- Make sure the signing is adequate, so that people don't accidentally end up on the toll road; and
- When will a “vote” occur on the project becoming a toll road?

Right-of-way, Access, and Community Impacts

- When will the R/W acquisition begin?
- How does the appraisal/acquisition process work?
- Many asked about placement of noise walls;

- Several asked about the elevation of the roadway relative to surrounding properties;

- Several property owners asked how their access would change (e.g., at Old US 1 and Tingen Road) and whether it would be possible to provide service roads rather than have their property purchased;

- What is the schedule for implementing the project and when will right-of-way acquisition begin?

- People were wondering when they should move as they wanted to sell to us (NCTA/NCDOT) and a developer; and

- Several were concerned about the proximity of the road to their property.

General Toll Funding Concerns

- Perceived inequity between the “free” section of I-540 and the toll road;

- There was considerable skepticism that the toll plazas would ever be removed;

- The State should refund the money it "borrowed" from the trust fund so that Western Wake would not have to be tolled;

- Make the developers pay for the road in the form of impact fees, etc;

- Toll the entire loop to help pay for the Southern and Western Loops. Change the legislation to allow for tolling of existing... this was done for the section of I-540 under construction now; and

- Tolls should be placed on I-95 and the revenue used to fund Western Wake Freeway. This would put the burden of paying for road construction on out-of-state users of our roadways (who pay no North Carolina taxes) rather than on the local community.

Toll Rates

- Some people were confused over the toll rate. One person discussed with one of the TV anchors that they misrepresented the toll as $2.00 for a short section;

- Some people said that they would never use the road. One gentleman stated that even though it would save him approximately 20 minutes each way that it was not worth the toll. The same gentleman said that the rate was much too high compared to other toll roads. He quoted the Pennsylvania turnpike rate at $0.02 per mile;

- The gas tax needs to be raised enough to eliminate the need for toll roads, even if that means $4.00/gallon;

- How much are the tolls going to cost? and

- There was some confusion about the toll rate structure (car vs. truck).

Other Toll Concerns

- Several expressed concern that traffic waiting to pay in the cash lanes would back up into the through (i.e., ETC) lanes and cause congestion for all; and

- Many people have the impression of traffic queuing endlessly at toll booths. Consequently, they had difficulty understanding how a toll road would ease congestion and reduce travel time.

Transponder System

- E-ZPass was the preferred transponder as many people were transplants from E-ZPass states;

- Everyone wanted an “open road system” but no one thought that we could eliminate cash; and

- Will I have to slow down to pay the toll?

It should be noted that among those commenting who voiced support or opposition to tolling the project, approximately two-thirds of them voiced opposition to tolling the project. Among those commenting that opposed the tolls on the project, the majority indicated that the other portions of the Outer Wake Expressway should also be tolled if this project is implemented as a toll road. Additionally, it was noted that there was very limited opposition voiced to constructing the road and only one suggestion that the location of the road be moved (to better accommodate the needs of southern Wake County communities).

7.2.4 Small Group Meeting

A small group meeting with the Feltonsville Community was held February 15, 2007, at 6:00 p.m., at 5836 Old Smithfield Road. The meeting discussion included the community's interests and how to best plan for the proposed improvements to Feltonsville Community Park, to discuss proposed improvements to Old Smithfield Road, to collect comments and to solicit feedback on tolling Western Wake Freeway. Over 160 invitation letters were mailed to property owners, residents and local government representatives from Apex, Holly Springs and Wake County to notify them of the meeting. Additionally, fliers were distributed to each residence in the community and posted in public locations. Feltonsville Community leaders were also contacted to solicit their assistance in notifying the community of the small group meeting. Approximately 33 citizens attended the meeting.

A presentation by NCTA included an overview and update of the Western Wake Freeway project; potential enhancements for the Feltonsville Community Park; and proposed improvements to Old Smithfield Road. Old Smithfield Road improvements include:

- provide an exclusive right-in/right-out access at the intersection of Old Smithfield Road and NC 55 Bypass;
- widen Old Smithfield Road to three lanes with curb and gutter; and
- provide a left-turn at the intersection of Old Smithfield Road and NC 55.

(The planned improvements to Feltonsville Community Park and to Old Smithfield Road are the result of project commitments made by NCDOT in the FEIS and adopted by NCTA. These commitments were made by NCDOT to mitigate for cumulative impacts to the Feltonsville community.) Maps of the project area were available for

review. The handout provided for the CIW was distributed, along with a community specific comment sheet and a preliminary design of the proposed park improvements. A copy of the handouts is provided in Appendix J. The comments and concerns discussed at the meeting primarily focused on the Feltonsville Community Park and Old Smithfield Road as noted below:

7.2.4.1 Feltonsville Community Park

- Additional park features mentioned included restrooms, outside showers, and an area for younger children;
- A majority of those attending the meeting expressed support for improving the park;
- Safety/law enforcement and maintenance are the primary concerns related to the park;
- A citizen stated that he currently maintains the park by picking up trash and making repairs; however, maintenance is an ongoing concern for the future; and
- People primarily ride their bicycles or walk to the park. Participants expressed the desire for a sidewalk and bicycle racks.

7.2.4.2 Old Smithfield Road

- The request was made to maintain full access at the intersection of Old Smithfield Road and NC 55 Bypass and to make it a signalized intersection. In response to the request for a traffic light, it was noted that a light would not make the intersection safer since the intersection is too close to the ramps from Western Wake Freeway and thus would create a traffic hazard by increasing the likelihood of rear-end collisions. It would also tend to increase the volume of cut-through traffic on Old Smithfield Road and it would cause traffic to back up on NC 55 Bypass from the light to the proposed Western Wake Freeway ramps;
- Traffic volumes for the right-in/right-out scenario, including cut-through traffic on Old Smithfield Road, were requested by community members;

- A majority of those present did not want cut-through traffic on Old Smithfield Road;

- The original proposal from NCDOT was to dead end Old Smithfield Road when NC 55 Bypass opened and it was clearly not what the community wanted;

- Some community members voiced opposition to the access restrictions proposed at Old Smithfield Road and NC 55 Bypass (right-in/right-out scenario). Specifically, they desired direct access to the landfill across NC 55 Bypass and opposed the 7-mile long route to and from the landfill, created if access across NC 55 Bypass is restricted. In response, the project team restated the safety issues and traffic management concerns related to full-access at this intersection; and

- Children getting on or off school buses on Old Smithfield Road were a safety concern.

7.2.4.3 Western Wake Freeway (Toll Facility)

- The change of Western Wake Freeway to a toll facility would not affect the NC 55 Bypass because there are no toll plazas planned for this area.

- It is anticipated that the toll collection would be removed in 30 to 35 years.

At the meeting, no one expressed any concern with Western Wake Freeway being proposed as a toll road.

Two comment sheets were submitted at the meeting and no additional comments were received through the deadline of March 12, 2007. The primary issues raised are outlined below:

- Traffic on Old Smithfield Road has increased a lot since NC 55 Bypass opened and Old Smithfield Road is more dangerous;

- Why will only this section of Outer Wake Expressway be a toll road?

- The park needs to have a restroom (both comment sheets);

- The park needs benches, chairs, picnic shelter, water fountain, basketball, horse shoes, tennis, swings, toys for kids, landscaping, walking path around the park, and lighting; and

- The president of the Feltonsville Community Organization indicated that the organization will do their part in maintaining the park into the future.

7.2.5 Local Officials Meeting

A Local Officials Meeting was held at 10:00 a.m. at Apex Town Hall-Council Chambers on February 8, 2007. The meeting was held to provide a briefing on the project, preview the CIW presentation and displays, and answer any questions. Over 100 invitation letters were distributed to representatives of the North Carolina General Assembly, FHWA, NCDOT, environmental agencies and the local governments of Apex, Cary, Fuquay-Varina, Garner, Holly Springs, Morrisville and Wake County. A presentation was made by NCTA and FHWA. NCTA reviewed the budget shortfall and lack of funding for the Western Wake Freeway through conventional means, detailed the current public involvement activities, provided an overview of the project, the NCTA, and discussed toll technology. FHWA discussed their review of and interest in congestion management, alleviating critical roadway bottlenecks, increasing transportation network capacity, and their interest in alternative ways to fund transportation projects.

Current design plans of the project were available for review. Thirty-four people signed-in at the meeting, including approximately 21 local officials. The following is a brief summary of questions and answers discussed at the meeting:

- *Is there a Southeastern consortium of agencies/states related to continuity of toll collections?* Texas, Florida, and Georgia are using the same transponder and they are coordinating about continuity. With existing toll facilities, an unresolved issue is how to process transactions across state lines.

- *How will information privacy be managed for the data gathered during the electronic toll collection process?* It was noted that a common policy among toll agencies, about privacy, is that a court order is required to obtain information captured from toll collection data.

- *What are the anticipated toll rates and will toll collections include financing the future capacity?* A preliminary traffic and revenue study is complete and a

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1 Vicinity Map

2 Toll Plaza Sites

3 Area Projects

4A 2030 Build Alternative A Reevaluated with Tolls – Daily Forecast Volumes

4B 2030 Build Alternative A Reevaluated with Tolls – Daily Forecast Volumes

5 2030 Build Alternative A Reevaluated with Tolls – AM and PM Peak Hour Volumes

6 2030 Build Alternative A Reevaluated with Tolls – AM and PM Peak Hour Level of Service (LOS)

7 Existing and Proposed Subdivisions

8 Feltonsville Community

9 Community Facilities

10 Utilities

11 Green Level Historic District

12 Hazardous Material and Waste Sites

13A Noise Barrier Locations 1

13B Noise Barrier Location 2

13C Noise Barrier Locations 3

13D Noise Barrier Location 4

14A Jurisdictional Waters and Ponds

14B Jurisdictional Waters and Ponds

15A Floodplains Map – UT to Harris Reservoir & Big Branch

15B Floodplains Map – Beaver Creek & Reedy Branch Tributary

detailed financial feasibility study is underway. Toll rates have not been determined, but are likely to be roughly 12 cents per mile and do not cover future capacity improvements.

§ *Explain the need for tolls on Western Wake Freeway when other parts of Outer Wake Expressway were built without tolls?* The cost of construction and materials has risen 45 percent in 3 years and continues to rise. Traditional funds are not available for construction and the project would not be built in the foreseeable future without innovative financing, such as tolling.

§ *What is the current NCDOT Transportation Improvement Program (STIP) budget?* This year NCDOT has a budget of approximately $3.8 billion. However, they have a projected $65 billion budget shortfall over the next 25 years. More NCDOT funds are currently allocated to maintenance than new construction.

§ *What is the response to the public noting that motorists on the Expressway travel without tolls?* Tolls are needed to build Western Wake Freeway. Existing roads provide non-toll options for drivers not interested in toll roads.

§ *Could the entire Outer Wake Expressway be tolled?* Current legislation prohibits tolling of existing facilities.

§ *Will NCTA develop a long-range plan related to future toll projects?* The NCTA has strategically identified six specific projects as candidate toll projects with the support of local governments. As a relatively new agency, NCTA is educating the public and will not advocate specific projects to be implemented as toll roads. The public will need to understand and absorb the tolling concept while NCTA proves itself as an organization that can deliver transportation projects in a timely fashion using innovative financing.

- *What is the status of the Southern Wake Freeway?* The NCTA understands the importance of that section of the Outer Wake Expressway, but the project is currently not included as one of the candidate toll projects[17].

- *Is there potential to modify legislation and add tolls to the existing parts of the Outer Wake Expressway?* Yes, but it is unlikely that the public will accept tolls for existing facilities. (Editor's note: *Legislation can be modified by the North Carolina General Assembly. At this time, legislation to authorize tolling is not under consideration and there has been no indication that such legislation is likely to be considered in the future.*)

- *Is there adequate capacity at the US 64 interchange with Western Wake Freeway?* Studies regarding US 64 improvements are underway by NCDOT to evaluate the needed capacity.

- *What is the potential time travel savings with Western Wake Freeway?* A trip from Holly Springs to I-40 may be reduced by roughly 20 minutes each way.

- *What is the potential gasoline savings?* NCTA does not currently have information regarding gasoline savings.

- *Would drivers' gasoline cost savings virtually match the toll cost?* It is not likely. However, there is a potential for employers to assist employees/ commuters with the cost of toll transponders.

Three comment sheets were submitted at the meeting and the primary issues raised are outlined below:

- Support for Western Wake Freeway as a toll road;

- Preference for the section between NC 55 Bypass and US 1 to be built first;

[17] The response documented here is the response provided to this question at the Local Officials Meeting. The combined Southern and Eastern Wake Freeway consists of STIP Project Nos. R-2721, R-2828 and R-2829. NCDOT is currently conducting initial planning and environmental studies for these projects. With the exception of these initial studies, the projects are unfunded in the 2007-2013 STIP.

- Benefits of Western Wake Freeway were noted (decreased travel time and reduced congestion); and

- Request for a separate/additional ramp at the NC 55 Bypass interchange with Western Wake Freeway for truck traffic traveling to the Southwest Wake Landfill, noting that the ramp would improve safety, cleanliness, congestion, noise and aesthetics in the vicinity of the interchange.

In addition to the Local Officials Meeting, coordination is ongoing with local governments as needed. This coordination takes many forms including formal and informal meetings, telephone conversations, letters and e-mails. Some local organizations have adopted resolutions supporting the project. Copies of letters or resolutions from the organizations are provided in Appendix K.

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8.2 List of Preparers

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North Carolina Turnpike Authority

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Jennifer Harris, P.E. Staff Engineer	B.S. in Civil Engineering and a B.S. in Environmental Engineering with 7 years experience in transportation, project development, impact analysis, public involvement, and NEPA analysis.

HNTB/NCTA General Engineering Consultant

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Tracy Roberts, AICP Senior Transportation Planner	M.S. in Public Administration and B.S. in Urban and Regional Planning with 12 years experience in NEPA studies and municipal planning.
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Nathan Phillips, P.E. Traffic Engineering Project Manager	Master of Science in Civil Engineering, B.S. in Civil Engineering; 12 years experience in traffic analysis, access management, signal design, corridor studies, sign design and unconventional structures concept analysis.
Donna Keener, P.E. Senior Design Engineer	B.S. in Civil Engineering with 19 years of experience in transportation engineering, including roadway and drainage design, highway capacity analysis, and traffic control design.
John Jaeckel, P.E. Principal Engineer Environmental Quality	BS in Applied Science and Engineering – Energy Conversion, 34 years of experience in air quality and noise analysis for NEPA documents.

ARCADIS G&M of North Carolina

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Kristina S. Miller, P.E. Project Manager	B.S. in Civil Engineering with 13 years of experience in transportation, project development, impact analysis, public involvement, and NEPA analysis.
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Keven Duerr Biologist	B.S. in Biology; over 5 years experience in GIS analysis and field investigations, including wetland/stream, plant community and wildlife identification.
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Byron J. O'Quinn, P.E. Senior Technical Advisor	Professional Degree in Transportation Engineering and B.S. in Civil Engineering with more than 40 years of experience in transportation and environmental planning.
Robin Pugh, AICP Senior Community Planner	Master of City and Regional Planning, B.A. in Design; 18 years of experience in local government planning and over 3 years experience in environmental assessment and NEPA compliance.

Lindsey Riddick Senior Scientist	Master of Business Administration, B.S. in Natural Resources; over 10 years experience as environmental professional with a thorough knowledge of both state and federal environmental regulations.
Kevin Scott, P.E. Project Engineer	B.S. in Civil Engineering; over 14 years of experience providing air quality consulting services including industrial source air permitting, regulatory compliance assistance, and periodic compliance reporting.
Roy Shelton Senior Technical Advisor	B. S in Civil Engineering with over 42 years experience in transportation and environmental planning, design and construction.
Steve Smallwood, P.E. Senior Roadway Design Engineer	B.S. in Civil Engineering with 15 years experience in roadway design.
Ann Steedly, P.E. Senior Planner	Master of Business Administration, B.S. in Civil Engineering; over 10 years of experience in socioeconomic impact analyses, environmental assessment and NEPA compliance.

15C Floodplains Map – Jack Branch & White Oak Creek

15D Floodplains Map – Bachelor Branch

15E Floodplains Map – Panther Creek and Morris Branch

Appendices

A Wake County Mayors' Resolution

B Air Quality Conformity Concurrence

C NCTA and CAMPO Memorandum of Understanding

D *De Minimis* Finding

E Cemetery Locations Report

F Memorandum of Agreement in Compliance with Section 106 of HPA and Associated Letters

G Agency Meeting Minutes

H Water Resources Characteristics

I Local Government Correspondence

J Public Involvement Handouts

K Resolutions

FIGURE 1: VICINITY MAP

WESTERN WAKE FREEWAY
NCDOT STIP NO. R-2635
WAKE COUNTY, NORTH CAROLINA

NORTH CAROLINA Turnpike Authority

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Sources: North Carolina Center for Geographic Information and Analysis (2006, 2007); Wake County GIS Department (2006)

0 0.5 1 Miles

1 inch equals 4,000 feet

N W E S

Legend

- Roads
- Streams
- Project Footprint

Extra-Territorial Jurisdiction

- Apex
- Cary
- Holly Springs

Municipal Boundary

- Apex
- Cary
- Holly Springs

End Project

PROPOSED WESTERN WAKE FREEWAY

Begin Project

DURHAM COUNTY

WAKE COUNTY

ALSTON AVE

NC 55

CARPENTER FIRE STATION RD

GREEN LEVEL TO DURHAM RD

TWYLA RD

CARPENTER UPCHURCH RD

LEWTER SHOP RD

GREEN HOPE SCHOOL RD

GREEN LEVEL RD

GREEN LEVEL CHURCH RD

ROBERTS RD

OLD JENKS RD

JENKS RD

US 64

OLIVE CHAPEL RD

APEX

KELLY RD

APEX - BARBECUE RD

SALEM ST

TINGEN RD

HOLLAND RD

OLD US 1

US 1

PLEASANT PLAINS RD

OLD HOLLY SPRINGS - APEX RD

NC 55 BYPASS

OLD SMITHFIELD RD

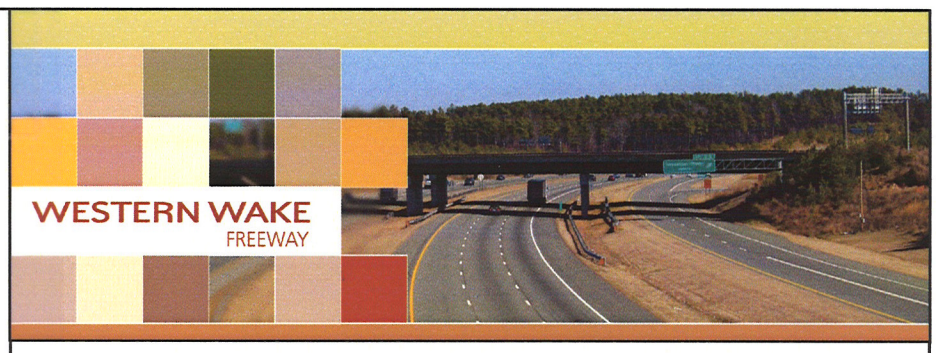
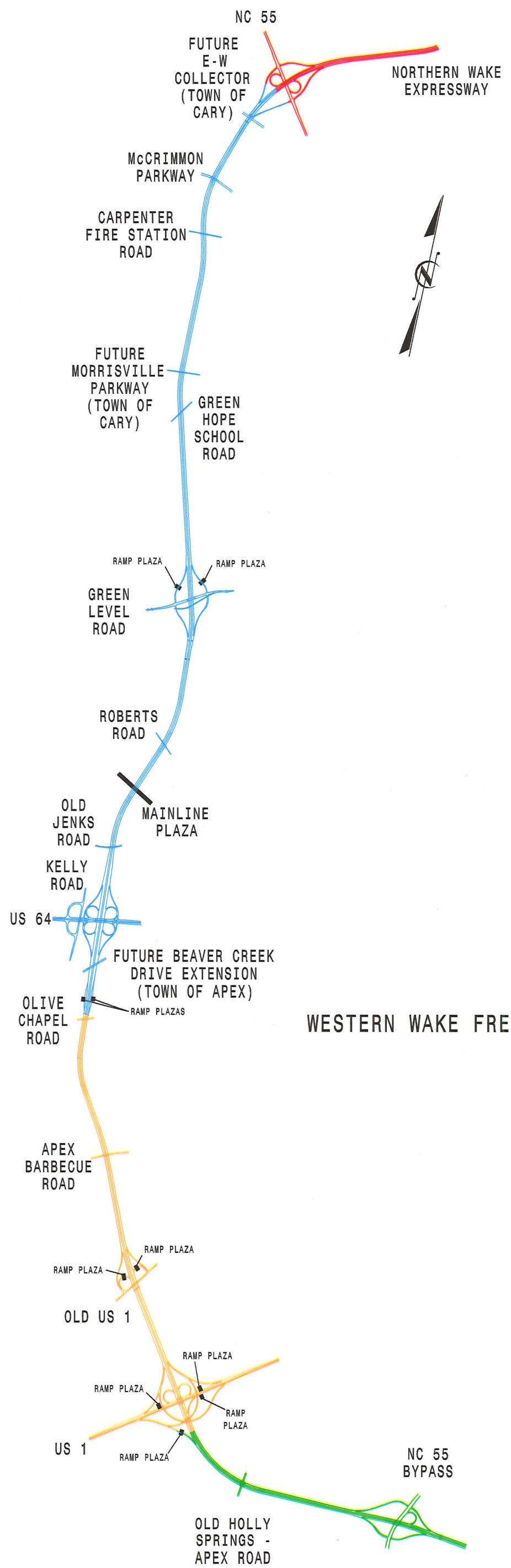


FIGURE 2: TOLL PLAZA SITES

WESTERN WAKE FREEWAY
NCDOT STIP NO. R-2635
WAKE COUNTY, NORTH CAROLINA

NORTH CAROLINA Turnpike Authority

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



WESTERN WAKE FREEWAY

TOLL COLLECTION SITE(RAMP PLAZA)

TOLL COLLECTION SITE(MAINLINE PLAZA)

WESTERN WAKE FREEWAY SECTION A (NCTA)

WESTERN WAKE FREEWAY SECTION B (NCTA)

WESTERN WAKE FREEWAY SECTION C (NCTA)

NORTHERN WAKE EXPRESSWAY NC-540 (NCTA)

(NCTA) = NCTA proposed project

PRELIMINARY

-NOT TO SCALE-

FIGURE 3: AREA PROJECTS

WESTERN WAKE FREEWAY
NCDOT STIP NO. R-2635
WAKE COUNTY, NORTH CAROLINA

NORTH CAROLINA Turnpike Authority

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

N
W E
S

DURHAM
STIP No. U-4763B
East-West Collector
540
Morrisville Parkway
55
Section C
STIP No. R-2906
Under Construction
CARY
STIP No. U-2901
64
APEX
1
Section B
STIP No. R-2635
Alternative A
(Preferred Alternative)
Section A
HOLLY SPRINGS
1
FUQUAY-VARINA
I-40
54
MORRISVILLE
70
50
I-540
1
401
64
RALEIGH
I-440
I-40
GARNER
401
STIP No. R-2721
50
70
STIP No. R-2829
CLAYTON
STIP No. R-2828

Legend

- Western Wake Freeway STIP No. R-2635
- Triangle Parkway STIP No. U-4763B
- Southern Wake Freeway STIP No. R-2721
- Southern Wake Freeway STIP No. R-2828
- Eastern Wake Freeway STIP No. R-2829
- NC 55 STIP No. R-2906
- NC 55 STIP No. U-2901
- East-West Collector (Town of Cary)
- Morrisville Parkway (Town of Cary)

NOT TO SCALE

Drawing Not to Scale

LEGEND

###	VPD---# of vehicles per day
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE WAY MOVEMENT
DHV —PM→ D (d, t)	
DHV	DESIGN HOURLY VOLUME (%) = K30
K30 =	30th HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
	REVERSE FOR AM PEAK
(d,t)	DUALS, TT-ST'S (%)

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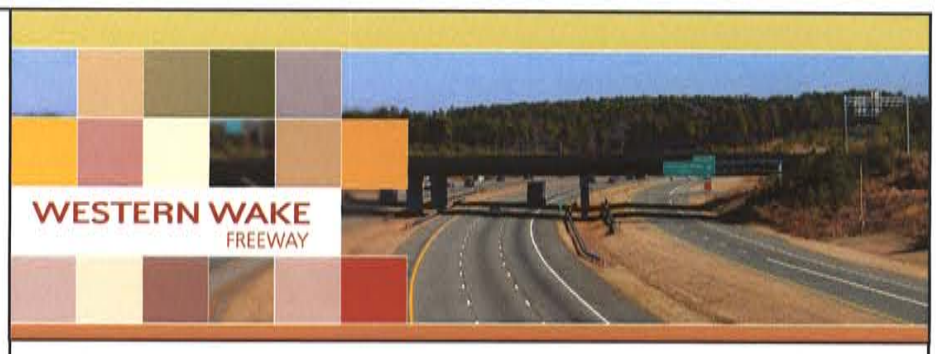
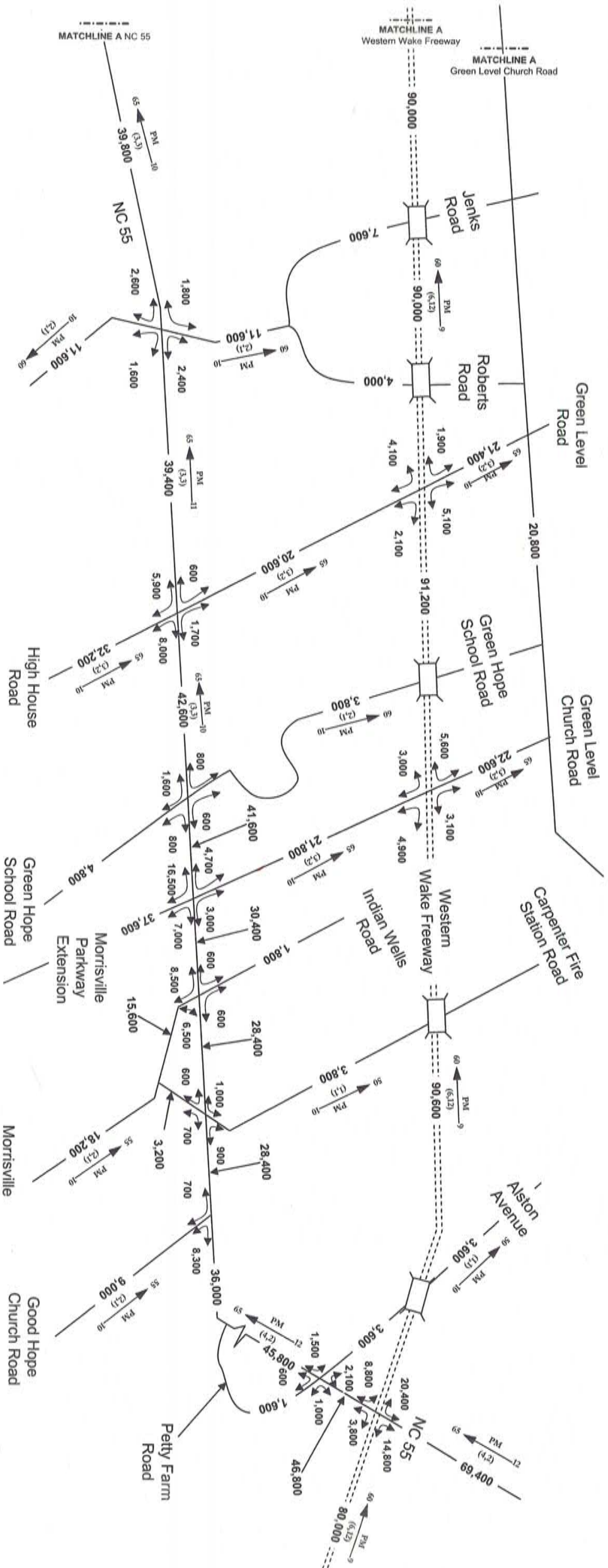


FIGURE 4A: 2030 BUILD ALTERNATIVE A REEVALUATED WITH TOLLS DAILY FORECAST VOLUMES

WESTERN WAKE FREEWAY
NCDOT STIP NO. R-2635
WAKE COUNTY, NORTH CAROLINA

NORTH CAROLINA Turnpike Authority

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



Drawing Not to Scale

LEGEND

###	VPD---# of vehicles per day
###	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE WAY MOVEMENT
DHV —PM→ D (d, t)	

DHV DESIGN HOURLY VOLUME (%) = K30
K30 = 30th HIGHEST HOURLY VOLUME
PM PM PEAK PERIOD
D DIRECTIONAL SPLIT (%)
→ INDICATES DIRECTION OF D
REVERSE FOR AM PEAK
(d,t) DUALS, TT-ST'S (%)

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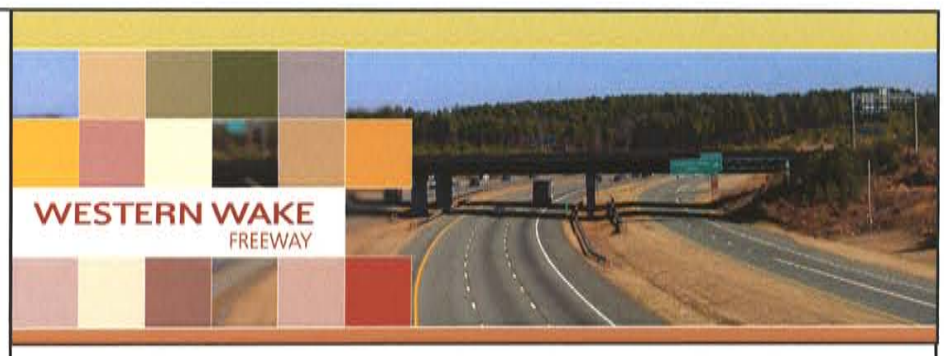

FIGURE 4B: 2030 BUILD ALTERNATIVE A REEVALUATED WITH TOLLS DAILY FORECAST VOLUMES

WESTERN WAKE FREEWAY
NCDOT STIP NO. R-2635
WAKE COUNTY, NORTH CAROLINA

NORTH CAROLINA Turnpike Authority

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

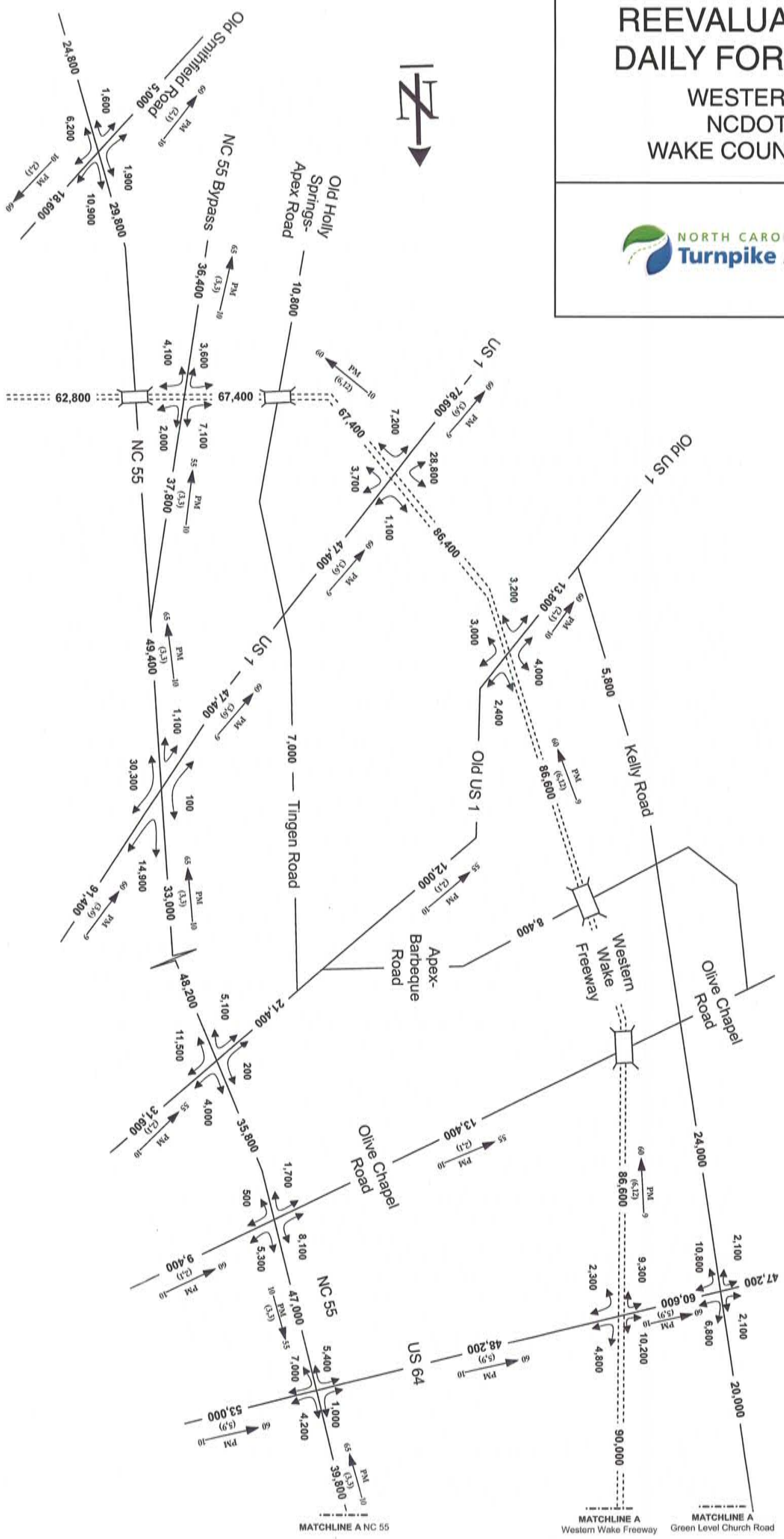

FIGURE 5: 2030 BUILD ALTERNATIVE A REEVALUATED WITH TOLLS AM AND PM PEAK HOUR VOLUMES

WESTERN WAKE FREEWAY
NCDOT STIP NO. R-2635
WAKE COUNTY, NORTH CAROLINA

NORTH CAROLINA Turnpike Authority

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWING IS NOT TO SCALE

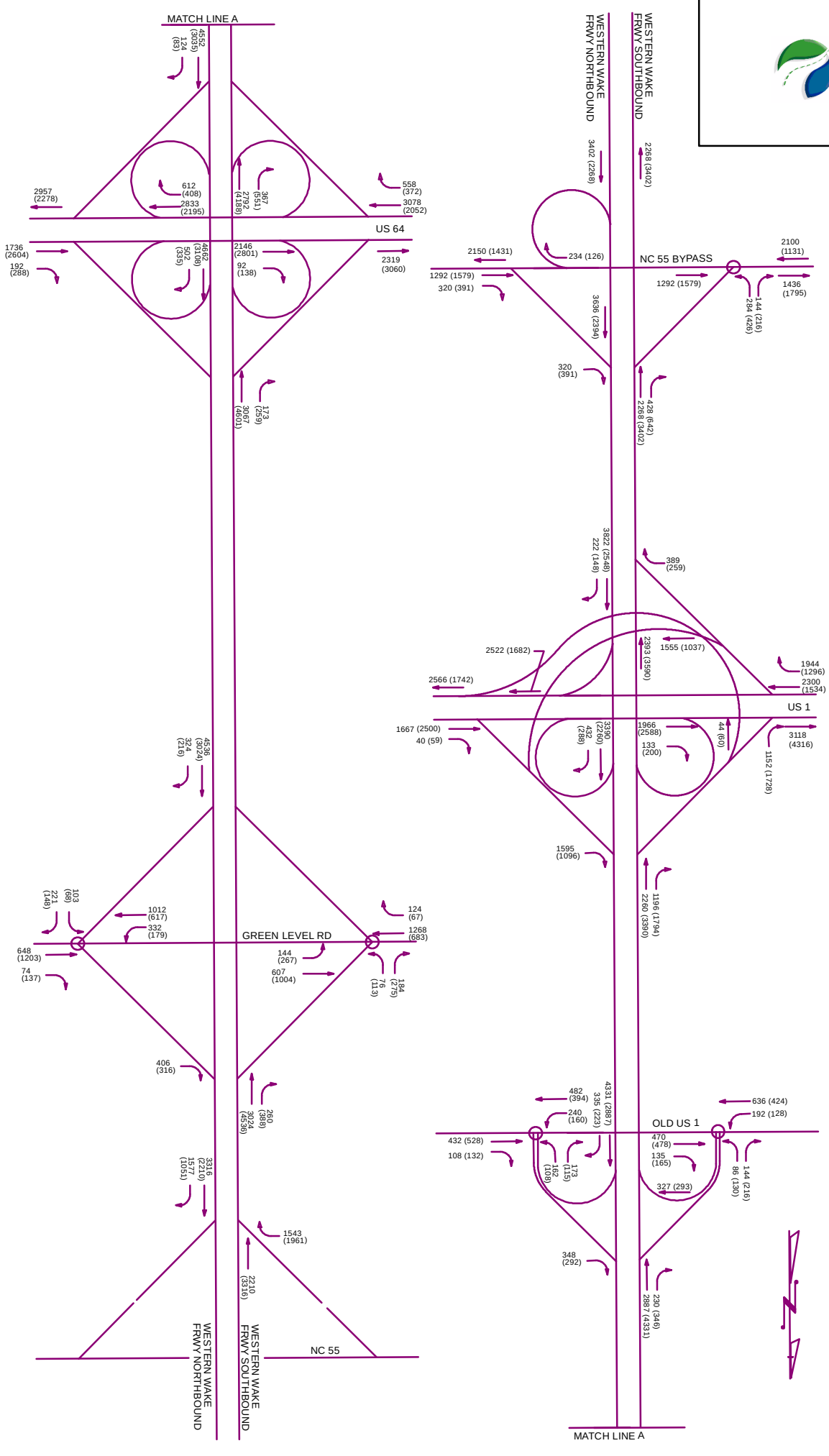

FIGURE 6: 2030 BUILD ALTERNATIVE A REEVALUATED WITH TOLLS AM AND PM PEAK HOUR LEVEL OF SERVICE (LOS)

WESTERN WAKE FREEWAY
NCDOT TIP NO. R-2635
WAKE COUNTY, NORTH CAROLINA

NORTH CAROLINA Turnpike Authority

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWING IS NOT TO SCALE

FIGURE 7: EXISTING AND PROPOSED SUBDIVISIONS

WESTERN WAKE FREEWAY
NCDOT STIP NO. R-2635
WAKE COUNTY, NORTH CAROLINA

NORTH CAROLINA Turnpike Authority

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

N
W E
S

0 0.5 1 Miles

1 inch equals 4,000 feet

Source: North Carolina Center for Geographic Information and Analysis (2006, 2007); Wake County GIS Department (2007)

Legend

- Roads
- Streams
- Existing Subdivisions
- Proposed Subdivisions
- Parcels
- ★ Ramp Plaza
- ★ Mainline Plaza
- Project Footprint

SUBDIVISIONS LABELED BY LETTER ONLY

A = TOWNS OF CARRIAGE DOWNS
B = CARRIAGE DOWNS
C = JOHN W PEARSON
D = L'HERMITAGE AT BEAVER CREEK
E = ROMAN CATHOLIC DIOCESE
F = HADDON HALL - PHASE 6
G = FAIRVIEW ROAD
H = DOGWOOD ACRES
I = JOSEPH IANNONE
J = HELTON
K = COURTYARD AT SALEM OAKS
L = BLADESTONE
M = SARA P PEARSON
N = DAVID F RAYMER
O = JOSEPH & FRANCES MILLS
P = CARLYLE FRANKLIN
Q = SUNNY SIDE
R = ROSE GARDEN
S = WINSLOWE
T = PERRY VILLAGE
U = THE TOWNES AT SUGARLAND
V = BUNGALOW PARK AT SCOTTS MILL
W = RUSSELL G BOOTH
X = TREYLAND ESTATES
Y = THE ENCLAVE AT WINDEMERE
Z = EDWARDS
AA - SAPONI HILLS
BB = ALLENDALE ACRES
CC = GREENWOOD ACRES
DD = SUNSET POINTE
EE = WRENNS NEST
FF = HOLLY RUN
GG = HAZEL HINTON
HH = DEWAYNE & JILL GAFFIN
II = SUMMERCREST II

End Project

PROPOSED WESTERN WAKE FREEWAY

Begin Project

PLEASANT PLAINS RD

OLD SMITHFIELD RD

DURHAM COUNTY
WAKE COUNTY
ALSTON AVE
NC 55
CARPENTER FIRE STATION RD
GREEN LEVEL TO DURHAM RD
TWYLA RD
CARPENTER UPCHURCH RD
LEWTER SHOP RD
GREEN HOPE SCHOOL RD
GREEN LEVEL RD
GREEN LEVEL CHURCH RD
ROBERTS RD
OLD JENKS RD
JENKS RD
US 64
OLIVE CHAPEL RD
KELLY RD
APEX - BARBECUE RD
SALEM ST
HOLLAND RD
TINGEN RD
US 1
OLD US 1
OLD HOLLY SPRINGS - APEX RD
NC 55 BYPASS
GLADYS L SMALLWOOD
JOHN R RICHARDSON JR
WHISTLING QUAIL RUN
WINDING CREEK
KELLY GLEN
CROCKETTS RIDGE
BRADLEY TERRACE
LEXINGTON
SOMERSET
HIGHCROFT
WEYCROFT
RIDGEFIELD FARMS
AMBERLY
CARY PARK
TROY M HOWARD
CAMERON POND
INDIAN WELLS
BRECKENRIDGE
MANOR AT BRECKEN
TERRACE AT BRECKENRIDGE
MCCRIMMON AT THE PARK
WESTPORT AT WEXFORD
LEGACY AT CARPENTER VIL
MAGNOLIA ESTATES
CARPENTER VILLAGE
OLDE CARPENTER
LAKERIDGE TOWNHO
HUNTINGTON
HERITAGE PINES
PRESTON
SOUTHBRIDGE
WELDON RIDGE
GABEL FARMS
HILLIARD
DAIL
THE RESERVE
THE OVERLOOK
FIELDSTONE VILLAGE
WHITE OAK ESTATES
LANDSDOWNE
BERKELEY
HADLEY PLACE
STONE CR
BETTIE HILLIARD
CHESTER R HENDRICKS
COPPERLEAF
ASHLEY WOODS
PARKCANYON
WELLSLEY
UPCHURCH FARMS
ASHLEY MEADOWS
CHESNEY GLEN
PARKGATE
PARKCREST
BROOKSTONE
ROBERT W JOCKISH
GLENWOOD & JANICE JOHNSON
BETSY GAY
BECKWITH FARMS
AMITY FIELDS
GREEN LEVEL FARMS
THE VILLAGE AT GREEN LEVEL CROSSING
GLOVER ACRES
JASPER C GRIMES
DEVEREAUX
SHIRLEY & JAMES
MONTCLAIR
PAGE WOOD FOREST
SUTTON PLACE PUD
DON SUTTON
SCOTT FARM
CHARLESTON VILLAGE
FALCONS REACH
CASTLEREAGH NORTH
OUR ESTATE
ANNIE C REAMS
WALDEN WOODS
BROOKFIELD
CAITLIN POND
SUNNYBROOK FARMS
WILLIE T & ANN WOLFE
LAKE MARSHA
WALDEN CREEK
WALDEN TOWNES
CASTLEWOOD
BEAVER CREEK CROSSINGS
CASTLEREAGH
DECK AIR PARK
WINDSOR AT ABBINGTON PUD
ABBINGTON
GREEN PLAINS
CHAPEL RIDGE
BECKETT CROSSING
THE GLEN TOWNHOMES
GOLDERS GREEN
HADDON HALL
HUNTER VALLEY
REEDY CREEK FARMS
HOMESTEAD PARK
CREEKSIDE
ASHLEY DOWNS
PEAKWAY VILLAGE
GLEN ARBOR
DOGWOOD RIDGE
PEARSON FARMS
CAMERON PARK
AMHERST
PRICEWOOD FARMS
WOODRIDGE
GREENBRIER
KELLY WEST
SCOTTS MILL
GREEN AT SCOTTS MILL
WHITEHALL MANOR
WHITEHALL VILLAGE
JUSTICE HEIGHTS
SUGARLAND RUN
BEAVER CREEK
KELLY GROVE
HOLLAND CROSSINGS
BELLA CASA
REBECCA CASH STEPHENSON
PERRY HILLS
PERRY FARMS
WESTHAVEN TOWNHOMES
BRADLEY PARK PH1
IRON GATE
HOLLAND FARM
WESTWINDS
JV SCOTT
JOHN H EVANS
WOODGATE FARMS
J BUNCH & A HARRIS
J FRANK K GOLDSTON & WIFE
FRIENDSHIP ACRES
CHARLES C & EDITH B TANNER
KIRKWOOD
PLEASANT PLAINS
CREEKS BEND FARMS
CREEKS BEND
WINDING WAY ESTATES
BENNETT WORKMAN & OAKS
KING FAMILY
GREENVALE
FAIRFIELD
THE GROVES TOWNHOMES
LILLIAN W BUTTS
LAKEFIELD
CLAIRMONT
DAMONT HILLS
J D BARNHILL
COOKE
LANDS HELTON HOMES
OLD MILL VILLAGE
CENTER PARK
SURREY MEADOWS
VINTAGE GROVE
BUCKINGHAM
WATERFORD EAST
WATERFORD GREEN
CAMBRIDGE
BARRINGTON PARK
SOUTHCHASE
WYNDFALL
RENAISSANCE MANORS AT REGENCY
THE RENAISSANCE AT REGENCY ESTAT
REGENCY PARK ESTA
MAGNOLIA WOOD
WINDSOR OAKS
KENSINTTON AT REGENCY
FERNWOOD
DANBURY
SUMMERCREST
HERNDON ESTATES
CARCILLAR HORTON
SYMPHONY RUN
WINDERMERE
COTSWOLD
HARMONY GLEN
KILDAIRE ESTATES
HEAVNER TRACT
MERION
MIRAMONTE
BRIARWOOD FARMS
HOLLYBROOK
HALLMARK WEST
HALLMARK
KILT VALLEY
SCOTS LAUREL
INDIAN HILLS
SUNSET HILLS
FAIR OAKS
HERITAGE TRACE

1. General Information

1.1 Introduction

The proposed Western Wake Freeway is a 12.6-mile section of the circumferential Outer Wake Expressway, which first appeared on the region's transportation plan in 1968 and has been included in all subsequent updates to the plan. Since that time, there has been continued support for and efforts expended toward planning and constructing the Outer Wake Expressway. A portion of the Outer Wake Expressway, from US 64 in Knightdale, around the northern side of Raleigh to NC 55 at Alston Avenue (SR 1630), has been constructed and is open to traffic. The remaining sections of the Outer Wake Expressway have yet to be constructed[1].

The proposed Western Wake Freeway is a north-south route that traverses the western portion of Wake County. This project was evaluated by the North Carolina Department of Transportation (NCDOT) in a Draft Environmental Impact Statement (DEIS) in October 1999. The Final Environmental Impact Statement (FEIS) for this project was completed in January 2004, and a Record of Decision (ROD) was signed in April 2004. At that time, the new highway was being considered as a non-toll facility. The project is not funded in the 2007-2013 State Transportation Improvement Program (STIP) and is not likely to be constructed in the foreseeable future without the use of innovative financing, such as tolling.

In December 2005, the North Carolina Turnpike Authority (NCTA) agreed to consider the financial feasibility of developing Western Wake Freeway as a toll road, in response to a request from the mayors of five Wake County towns[2]. A preliminary traffic and revenue (T&R) study was completed for the project in June 2006[3]. The study found that the project was feasible to develop as a toll road. Based on the results of the preliminary T&R study, the NCTA is seeking Federal Highway Administration's (FHWA) authorization to proceed with the Western Wake Freeway as a toll road.

---

[1] The Outer Wake Expressway has also been referred to in some planning documents as the Raleigh Outer Loop. For purposes of this study, the term Outer Wake Expressway is used.

[2] The five southwestern Wake County mayors represented the towns of Apex, Cary, Holly Springs, Fuquay-Varina, and Garner. A copy of the mayors' December 2005 resolution is included in Appendix A.

[3] The Preliminary Traffic and Revenue Study is available on the NCTA website: http://www.ncturnpike.org/projects/Western_Wake/documents.asp.

The purpose of this Reevaluation is to determine whether there is a need to prepare a Supplemental EIS (SEIS) before proceeding with the project. In general, an SEIS is needed if there are significant environmental impacts that were not previously evaluated.

1.2 Project Description

The Western Wake Freeway is proposed as a 12.6-mile long, 6-lane, fully access-controlled, new location roadway. The project would run generally in a north-south direction, roughly parallel to and just west of existing NC 55. On the south, the project begins at NC 55 at Old Smithfield Road (SR 1172) between Apex and Holly Springs; on the north, it ends at NC 55 near Alston Avenue north of Cary in Wake County (Figure 1).

The Western Wake Freeway was originally planned by NCDOT as a non-toll facility. It is now being proposed by NCTA for construction as a toll facility. This document continues to refer to the project as a "freeway" because the project would have the design characteristics of a freeway – that is, it would be an interstate-type roadway with full control of access. The use of the term freeway in this report is not intended to imply or convey that the facility is "free" or not tolled; rather, it is a descriptive term used to define the type of roadway that is planned for construction.

The Western Wake Freeway is part of the proposed Outer Wake Expressway, an element of the Wake County Thoroughfare Plan. Western Wake Freeway is intended to relieve congestion on I-440 and other local roadways, such as NC 55 and NC 54. NC 55 is the closest non-toll alternate route for the Western Wake Freeway. Due to limitations on tolling on the Interstate System, NCTA will sign the Western Wake Freeway as NC 540, rather than I-540.

On the southern end, the proposed roadway begins at NC 55 just north of its intersection with Old Smithfield Road, where the facility would eventually tie into the portion of the planned Outer Wake Expressway known as the Southern Wake Freeway. The roadway crosses NC 55 Bypass and continues west across Old Holly Springs-Apex Road (SR 1153) before turning northwest across US 1 and Old US 1. The roadway alignment would proceed north, parallel to and east of Kelly Road (SR 1163), and across Apex-Barbecue Road (SR 1162). Continuing its northerly track east of Kelly Road (SR 1163), the roadway would cross Olive Chapel Road (SR 1160), US 64, Green Level Church Road (SR 1600), Jenks Road (SR 1601), Roberts Road (SR 1608) and Green Level Road (SR 1615). The roadway alignment would continue

north, parallel to Green Level to Durham Road (SR 1625), before crossing Green Hope School Road (SR 1621) and Carpenter Fire Station Road (SR 1624). It would turn northeasterly to the interchange with NC 55 near Alston Avenue at the Northern Wake Expressway[4]. Interchanges are planned at NC 55 Bypass, US 1, Old US 1, US 64 and Green Level Road.

As a toll road, the Western Wake Freeway would include toll plazas. The locations of the toll plazas have been determined based on the *Preliminary Traffic and Revenue Study – Proposed Western and Southern Wake Parkways* (NCTA 2006a). Toll plazas are proposed at the following locations on Western Wake Freeway:

- Mainline Toll Plaza. The mainline toll plaza would be located north of the US 64 interchange (Figure 2) with three electronic toll collection (ETC) lanes and two cash lanes for each direction.

- Ramp Toll Plazas. Ramp toll collection sites would be located at four places: the US 1 interchange, the Old US 1 interchange, the US 64 interchange and the Green Level Road interchange (Figure 2). Each of the proposed toll collection plazas associated with these interchanges has one ETC lane and one cash lane.

The toll collection plazas would each include a small parking area, a small building to house an emergency electric generator, an overhead structure to hold signs and lighting, and toll-collection equipment. The facility may also include additional pole-mounted overhead lighting, particularly at toll collection plazas and interchanges, as needed.

NCTA is considering two potential toll collection methods at each toll plaza: electronic collection and on-site payment. Electronic collection would generally involve pre-registration with NCTA and a transponder/receiver system that would allow the user to move through the toll-collection plaza at highway speeds. On-site payment would

[4] The project's termini remain unchanged from the FEIS. The northern terminus of the Western Wake Freeway, for the FEIS and this Reevaluation Report, is the Northern Wake Expressway (STIP Project No. R-2000) at the NC 55 interchange near Alston Avenue. Construction of STIP Project No. R-2000 was completed in July 2007. However, portions of the NC 55 interchange (i.e., the ramps and roadway necessary to connect to the Western Wake Freeway) were not constructed as part of R-2000. They will be completed as part of the Western Wake Freeway project. This modification of construction limits and documentation of associated natural environment impacts in the vicinity of NC 55 and Alston Avenue has been incorporated into this Reevaluation Report. The change in construction limits does not alter the project's termini.

allow a user to pay the toll with cash or potentially credit/debit cards at the collection plaza.

For the purposes of design and construction, the 12.6-mile long Western Wake Freeway project is separated into three sections: A, B and C. These sections are illustrated on Figure 2.

- Section A. The southernmost section is Section A, which is 2.1 miles long. Section A begins at NC 55 just north of its intersection with Old Smithfield Road and ends just south of the interchange at US 1.

- Section B. Section B is 3.3 miles long. It includes the interchange at US 1 and continues northward to just north of Olive Chapel Road.

- Section C. Section C is 7.2 miles long. It begins just north of Olive Chapel Road and continues northward to the interchange with NC 55 near Alston Avenue at the Northern Wake Expressway.

1.3 Project History

1.3.1 Wake County and Raleigh Thoroughfare Plan

The proposed Western Wake Freeway is a component of the circumferential Outer Wake Expressway, which first appeared on the region's thoroughfare plan in 1968. Although its location has varied through the years, the proposed project was included in all updates to the Wake County and Raleigh Thoroughfare Plan since 1972. A "thoroughfare plan" is the roadway element of the region's long range transportation plan.

1.3.2 Reservation of Corridor under Official Map Act

During the early 1990s, the NCDOT recognized that rapid development in the western portion of Wake County could foreclose any desirable corridors for the proposed action or result in extraordinary community impacts, including a large number of relocations and the division of neighborhoods. Therefore, the NCDOT determined that implementation of the state's Transportation Corridor Official Map Act (Map Act) (G.S. 136-44.50 to .54) was appropriate.

REEVALUATION REPORT

for
ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA TURNPIKE AUTHORITY
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Western Wake Freeway, from NC 55 at SR 1172 (Old Smithfield Road)
to NC 55 near SR 1630 (Alston Avenue),
approximately 12.6 miles, in Wake County, North Carolina

Federal Project No. BRSTP-000S(491)
State Project No. 6.408006T
STIP Project No. R-2635

September 7, 2007

Documentation prepared by ARCADIS G&M of North Carolina, Inc.

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September 7, 2007

The Map Act permits the preservation of highway corridors when specified conditions are met. Several alternative corridors were developed and analyzed, and a public hearing was held on May 13, 1993. Subsequently, a 300-foot wide corridor was selected. This preserved corridor was formally adopted by the North Carolina Board of Transportation on August 6, 1993.

With this adoption and once the transportation corridor official map is filed with the register of deeds, no building permit can be issued for any building or structure within the transportation corridor nor shall approval of a subdivision be granted with respect to property within the transportation corridor. However, per the Map Act, an application for building permit issuance or subdivision plat approval for a tract subject to the Map Act shall not be delayed for more than 3 years from the date of the original submittal of the application.

1.3.3 2004 FEIS and ROD

The NCDOT and FHWA issued a notice of intent to prepare an environmental impact statement (EIS) for the Western Wake Freeway in 1996. A DEIS, evaluating three new location Build Alternatives; the No-Build Alternative, a Mass Transit Alternative; and a Transportation System Management (TSM) Alternative; was approved in October 1999. In January 2004, the project's FEIS was signed by NCDOT and FHWA. The FEIS identified Alternative A, the corridor that followed the alignment preserved for the project under the Map Act, as the Preferred Alternative (NCDOT, 2004a).

In April 2004, FHWA approved the ROD, and it was published in the North Carolina Bulletin in May 2004. The ROD selects Alternative A for the project (NCDOT, 2004b). Alternative A minimizes the social, economic and environmental impacts.

1.3.4 Consideration as a Toll Road

In December 2005, mayors of five Wake County towns requested that the NCTA conduct a financial feasibility study for building the western and southern Wake County sections of the Outer Wake Expressway as a toll road (Appendix A). The Preliminary Traffic and Revenue Study, completed in June 2006, found that: (1) there is considerable need for the proposed Western Wake Freeway; (2) the facility would generate considerable benefits; (3) the facility is necessary to support the anticipated population and economic growth in the corridor; and (4) a significant revenue potential would occur with the project.

The request, noted above, by local officials in December 2005 for a financial feasibility study by NCTA, per NCTA project approval process (NCTA 2006b), initiated the process by which the Western Wake Freeway would be considered as a toll road.

1.3.5 Funding Status

The project is included in the NCDOT 2007-2013 State Transportation Improvement Program (STIP) as STIP Project No. R-2635. However, with the exception of the planning and design processes, which are currently in progress, the project is unfunded.

1.3.6 LRTP Amendment and Air Quality Conformity Findings

On September 15, 2004, the Capital Area Metropolitan Planning Organization (CAMPO) adopted the 2030 Long Range Transportation Plan (LRTP) which included Western Wake Freeway as a non-toll facility. Subsequently, Western Wake Freeway has been designated for construction using toll financing, thus providing the opportunity to accelerate its construction schedules. This change to the scope and schedule for Western Wake Freeway and modifications to other regional projects' scopes and completion dates did not coincide with the adopted 2030 LRTP. CAMPO amended its 2030 LRTP in May 2007 to reflect these changes. This amendment required CAMPO to complete a new regional air emissions analysis and to demonstrate that the total project emissions are within the limits established in the State Implementation Plan (SIP) for air quality. CAMPO completed its conformity determination for the amended 2030 LRTP in May 2007 and the U.S. Department of Transportation (USDOT) signed a letter of concurrence on June 29, 2007. The USDOT letter is included in Appendix B.

In June 2007, CAMPO and NCTA signed a Memorandum of Understanding (MOU) to facilitate coordination regarding NCTA projects in the CAMPO planning region. The MOU is included in Appendix C.

1.3.7 Construction

The Western Wake Freeway is currently being managed for implementation by NCTA, in consultation with NCDOT. NCTA plans to construct the project through Design-Build contracts, beginning in 2008, following NCDOT guidelines for such contracts. Design-Build is a collaboration between a roadway design contractor and a roadway construction firm. The team is responsible for completing the final design of a roadway and completing/managing the construction of the roadway. Through the use of

innovative designs and efficient construction methodologies, the team has the potential to more quickly implement the project.

1.4 North Carolina Turnpike Authority

The NCTA was created by the General Assembly of North Carolina in October 2002 (codified in General Statutes 136-89.180 to .198). The NCTA's goal is to implement alternative financing to pay for much-needed roads during a time of rapid growth, dwindling resources, and skyrocketing costs. This statute allows the NCTA to "study, plan, develop, and undertake preliminary design work" on up to nine turnpike projects, and to "design, establish, purchase, construct, operate, and maintain" those projects. The statute additionally provided NCTA with the legal authorization to "fix, revise, charge, and collect tolls and fees for the use of the Turnpike Projects."

1.5 Purpose of the Reevaluation Report

In accordance with 23 CFR 771.129, a reevaluation must be conducted to assure that the environmental documentation (FEIS) for the proposed action is still valid prior to proceeding with major project approvals or authorizations. The reevaluation report is a decision-making tool developed to assist the FHWA in determining whether or not a Supplemental Environmental Impact Statement (SEIS) is necessary. A reevaluation should focus on the changes in the project, its surroundings and impacts, and any new issues identified since the FEIS approval. Under FHWA regulations, a SEIS is necessary when "(1) changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS; or (2) new information or circumstances relevant to environmental concerns and bearing on the proposed action or its impacts would result in significant environmental impacts not evaluated in the EIS" (23 CFR 771.130(a)).

To assist FHWA in determining whether an SEIS is needed, this Reevaluation considers the following issues:

- the changes in impacts resulting from tolling; and

- other design changes that have been made to the project since the ROD was issued in April 2004, as well as any other relevant changes in, or new information about, the existing environment[5].

1.6 Changes Considered in this Reevaluation

The 2004 FEIS and ROD approved Alternative A for the Western Wake Freeway project. As a baseline for comparison, this Reevaluation summarizes the impacts of Alternative A as it was presented in the FEIS. Using Alternative A from the FEIS as a baseline for comparison, this Reevaluation considers the impacts of a Reevaluated Alternative A, both as a tolled and a non-tolled facility.

- Alternative A Reevaluated (Non-Toll Facility). The "Alternative A Reevaluated" discussed in this Reevaluation Report corresponds to Alternative A as discussed in the 2004 FEIS and ROD with impacts updated, as necessary, to reflect changes in the affected environment and/or continued progression of the project design. Preliminary designs have been completed for Alternative A Reevaluated. Designs for Sections A and B have been completed to 25 percent and designs for Section C have been completed to 65 percent.

- Alternative A Reevaluated with Tolls (Toll Facility)[6]. The "Alternative A Reevaluated with Tolls" is the same as the Alternative A Reevaluated, except that it has been modified to include toll collection. Preliminary design has been completed for Alternative A Reevaluated with Tolls. Designs for Sections A and B have been completed to 25 percent and designs for Section C have been completed to 65 percent. The toll plazas are at the preliminary design level for Sections A, B, and C.

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[5] A written reevaluation report is normally required under 23 CFR 771.129 if FHWA has not taken any major steps to advance a project within any 3-year time period after approval of the FEIS. In the years since the Western Wake Freeway FEIS, there have been continued steps taken by NCDOT and NCTA to advance the project. Therefore, the 3-year requirement in Section 771.129 does not apply. However, the change in concept from a non-toll facility to a toll facility necessitated a review of the impacts undertaken in this Reevaluation Report. As part of that review, this Reevaluation also considers changes in the project and in the affected environment.

[6] Alternative A Reevaluated with Tolls was referred to as the "Toll Alternative" in the technical reports for this Reevaluation (*Capacity Analysis for Western Wake Freeway 2030 Build Toll Alternative; Environmental Justice Technical Memorandum*; *Air Quality Analysis Technical Report*; and *Traffic Noise Report – Western Wake Freeway*). The name changed in this document to reflect that the addition of toll plazas is a design change and collection of tolls is a concept change to the pre-existing Alternative A.

1.7 Traffic Forecasts

Two traffic forecasts are noted in this Reevaluation Report – the National Environmental Policy Act (NEPA) traffic forecasts and the traffic and revenue (T&R) forecasts. These forecasts have been prepared for different purposes, and therefore somewhat different methodologies were used for each. In general, the T&R forecasts tend to be somewhat lower than NEPA forecasts. Additional details about these two sets of traffic forecasts are provided in Section 3.3.1.

2. Statement of Project Purpose and Need

The purpose and need statement for the project was first developed for the DEIS in 1999 and was brought forward for inclusion in the FEIS in 2004. This statement from the FEIS is replicated here. As described in the FEIS:

> "The purpose of the proposed project is to provide a high speed, multi-lane, controlled-access facility to accommodate the increasing transportation demand in the western Wake County area. The Western Wake Freeway, as a link in the Raleigh Outer Loop, has remained an important element of the urbanized area's thoroughfare plans for more than 30 years.
>
> The need for the project is demonstrated by the area's increasing travel demand and the limited number of north-south arterials available to serve this demand. Many of these local roadways have reached or exceeded their practical capacity and are very congested during peak hours. The existing arterial system is comprised predominantly of rural two-lane roads, which cannot accommodate substantial increases in traffic volumes. Capacity analyses show that the programmed roadway improvements in the area are not adequate to serve the projected traffic volumes. (Editor's Note: *Some of these roadway improvements have already been implemented prior to this Reevaluation Report*). The 2020 projected traffic volumes on NC 55, without the proposed project, perhaps best illustrate the need for the Western Wake Freeway. NC 55 is projected to carry up to 44,400 vehicles per day by 2020, more vehicles than the widening improvements to the roadway can accommodate at an acceptable level of service. (*Editor's Note: Approximately 30,000 vehicles per day can be accommodated, at an acceptable level of service, level C or better, on a 4-lane uncontrolled access road*[7]). This project is also expected to alleviate traffic on NC 54 and SR 1613 (Davis Drive), which also serve commuter traffic to the RTP.
>
> A secondary benefit of the Freeway is the link it will provide by connecting the Northern Wake Freeway, portions of which are now in design, under construction, or open, with the planned Southern Wake Freeway. When

[7] Definitions of LOS and a discussion of the capacity analysis completed for this Reevaluation Report are included in Section 3.3.3.

completed, the entire Outer Loop will provide needed congestion relief to I-440, particularly to its section south of Raleigh.

The Western Wake Freeway will also function as a regional facility, dispersing traffic from western and southern Wake County to the RTP, to the Raleigh-Durham International Airport, and to the office and institutional developments in north Raleigh. The freeway will substantially reduce travel times for commuters from Holly Springs, Fuquay-Varina and northern Harnett County bound for points north and west.

The North Carolina General Assembly recognized the need for the proposed freeway in its 1989 passage of the North Carolina Highway Trust Fund. To accelerate construction, the Act specifically designated several urban loops for funding, including the Western Wake Freeway.

Improved safety is another important factor in the purpose of and need for the proposed project. The congestion experienced on area roadways has resulted in an increase in the number of accidents, particularly on NC 55, during recent years. The roadway's current accident rate is substantially higher than the statewide average for similar type routes. Without the construction of a major transportation facility within the area, the number of accidents can be expected to increase along with the congestion.

The Capital Area Metropolitan Planning Organization (CAMPO) works with the Statewide Planning Branch of NCDOT to maintain the *Wake County Thoroughfare Plan*, which was most recently updated in August 2002. The purpose of the Plan is to ensure an adequate street system exists to meet existing and future traffic needs within the urban area for its twenty-year planning period. The Plan was developed cooperatively with the planning and engineering staffs of each local jurisdiction within the urbanized area, based on existing and planned land use and projected traffic volumes."

The design year (2030) traffic forecasts for Western Wake Freeway for average annual daily traffic (AADT) for the toll facility ranges from a low of 62,800 vehicles at the southern end of the project (south of US 1) to a high of 91,200 vehicles north of Green Level Road. Specifics on the design year (2030) traffic forecasts for Western Wake Freeway are discussed in Section 3.3.2. These forecasts for the Western Wake Freeway confirm that there continues to be a demand for this facility.

In addition, as noted previously, NC 55, the closest non-toll alternate facility is projected to carry up to 44,400 vehicles per day without the project by 2020. NC 55 is being widened to four lanes. As noted in the FEIS, some mainline sections and some intersections of NC 55 under the No-Build scenario are predicted to operate at a level of service (LOS) D, E or F in the year 2020. Without construction of an additional facility, such as Western Wake Freeway, it is likely that the level of service on NC 55 would further decline. This existing insufficiency in the capacity for NC 55 perhaps best illustrates the continuing need for the Western Wake Freeway. If Western Wake Freeway is not constructed, NC 55 cannot accommodate the anticipated increase in traffic growth for the corridors. As traffic volumes continue to increase, it is likely that the need for this project in 2030 (the design year) would be even greater than the need in 2020.

The purpose and need statement from the FEIS adequately reflects the purpose of this project and the needs of the area. Alternative A Reevaluated and Alternative A Reevaluated with Tolls each meet purpose and need. Updated information on the toll facility's traffic projections and level of service is included in Section 3.3.2 and 3.3.3, respectively.

3. Changes in Project Impacts

The study area defined for the Western Wake Freeway in the FEIS roughly covers a 2-mile wide corridor located immediately west of NC 55 that tapers to end-points that correspond to the Western Wake Freeway project limits. However, the exact limits of the study area for each impact topic varied based on the inherent nature of each topic discussed.

3.1 Alternatives Considered

3.1.1 Alternatives Considered in the FEIS

This section provides a summary of the alternatives considered for the proposed project, as discussed in the FEIS, including the No-Build Alternative, the Transportation System Management (TSM) Alternative, widening improvements to NC 55, the Mass Transit Alternative, and the Build Alternatives.

- The No-Build, or "do nothing" Alternative provides a baseline condition for comparing the impacts of the other study alternatives. As noted in the FEIS, the No-Build Alternative would not serve the transportation objectives and projected needs of the study area.

- TSM involves a variety of strategies for maximizing the efficiency and effectiveness of existing transportation facilities. TSM can include new construction as well as operational and institutional improvements. Typical TSM improvements include constructing turn lanes, widening shoulders, coordinating signal systems, and improving signage to manage traffic movement. As discussed in the FEIS, the TSM alternative does not meet the purpose and need of the project.

- Previously planned widening improvements to NC 55, to upgrade the road to a 4-lane uncontrolled-access facility, will increase the roadway capacity to approximately 26,000 vehicles per day. As noted in the FEIS, widening NC 55 would not accommodate the forecasted regional traffic demand for the area or meet the purpose and need for the project.

- As discussed at the time of the FEIS, Mass Transit Service is currently unavailable within the project area. Plans have been developed which call for the provision of certain transit services in the study area by 2020. It was concluded in the FEIS that "Mass transit can assist in serving the

transportation needs of the region's expanding population, however it cannot accommodate the projected transportation demand generated by the urbanization of western Wake County during the next twenty-five years. Therefore, the Mass Transit Alternative cannot accommodate the transportation demand in the area and does not meet the project's purpose and need."

- The selection of Build Alternatives was based on an evaluation of likely impacts to the human and natural environments within the Western Wake Freeway study area, in addition to engineering criteria/constraints. Generalized corridor segments which avoided or minimized impacts were identified. The segments were then incorporated into five preliminary corridors which were reviewed for geometric conformance to the established design criteria and adjusted accordingly. The five preliminary corridors were evaluated and compared, and two were eliminated from further study. The preliminary corridors retained in the FEIS were Corridors A, C, and D. Corridor D was later eliminated from consideration as a reasonable and feasible alternative when land located within the corridor was purchased and designated as a public recreational facility, Thomas Brooks Park. As a public recreational facility, the land became protected by Section 4(f) of the U.S. Department of Transportation Act. Corridors A and C avoided impacts to Thomas Brooks Park.

3.1.2 Selection of Alternative A

As discussed in Section 1.3, a preserved corridor was identified and formally adopted by the NCDOT Board of Transportation on August 6, 1993, in accordance with the State's Transportation Corridor Official Map Act (G.S. 136-44.50 to .54). Alternative A follows the alignment of the preserved corridor. The ROD notes the following primary reasons for identifying Alternative A for the project as the Recommended Alternative:

- Public support, as demonstrated at the Corridor Public Hearing, was overwhelmingly for Alternative A and in opposition to Alternative C. This public preference for Alternative A was also expressed at the FEIS Citizens Informational Workshop held on April 24, 2003, in both verbal and written comments.

- Fewer relocations would result (46 residential relocations for Alternative A versus 146 residential relocations and 4 business relocations for Alternative C). The estimated number of relocations for Alternative A increased between

Findings and Conclusions

The purpose of this Reevaluation, in accordance with 23 CFR 771.129, is to assess whether any changes that may have occurred in project design concept or scope, the affected environment, or proposed mitigation measures would require supplemental environmental documentation or if the environmental document and resultant project decisions are still valid. This Reevaluation Report assesses the implementation of tolling to Western Wake Freeway (STIP Project No. R-2635) and identifies any changes to the design of the Recommended Alternative, Alternative A, and to the natural and human environment that have occurred since the previously approved Final Environmental Impact Statement (FEIS). This Reevaluation will specifically address tolling Western Wake Freeway from NC 55 at Old Smithfield Road (SR 1172) between Apex and Holly Springs to NC 55 near Alston Avenue north of Cary in Wake County, a distance of 12.6 miles.

The Record of Decision (April 2004) for the Western Wake Freeway notes the following primary reasons for identifying Alternative A for the project as the Recommended Alternative:

- Public support, as demonstrated at the Corridor Public Hearing, was overwhelmingly for Alternative A and in opposition to Alternative C;
- Fewer relocations would result (46 residential relocations for Alternative A versus 146 residential relocations and 4 business relocations for Alternative C);
- Impacts to the Charleston Village and Cameron Park neighborhoods in Apex were avoided; and
- Alternative A demonstrated lower overall construction costs and right-of-way costs, as compared to the other alternatives.

Additionally, it is noted in the ROD (2004) that:

- The Section 404/NEPA Merger Team selected Alternative A as the least environmentally damaging practicable alternative (LEDPA) in August 2000 and continues to support Alternative A.

the DEIS and FEIS: the DEIS estimated 22 relocations based on functional designs, which included a 46-foot median; the FEIS estimated 46 relocations based on preliminary designs, which included 78-foot median. However, the higher estimate in the FEIS (46 relocations) is still less than the estimated number of relocations for Alternative C (146 relocations).

- Impacts to the Charleston Village and Cameron Park neighborhoods in Apex were avoided.

- Alternative A demonstrated lower overall construction costs and right-of-way costs, as compared to the other alternatives.

Additionally, it is noted in the ROD (2004) that:

> The Section 404/NEPA Merger Team[8] selected Alternative A as the least environmentally damaging practicable alternative (LEDPA) in August 2000 and continues to support Alternative A.

There has been no information developed as part of this Reevaluation Report that would call into question the original basis for selecting Alternative A. The additional area needed for toll plazas would slightly increase project impacts, by comparison to a non-toll facility, but the differences are minor and would not affect the choice among alternatives, because the extent of additional impacts for toll plazas would be similar for all Alternatives studied in the DEIS and FEIS, including Alternative A and C.

3.1.3 The Changes Considered in the Reevaluation Report

The Selected Alternative in the ROD was Alternative A. The changes in this Reevaluation Report include design refinements that have been made since the ROD and the implementation of tolling. Implementing tolling would add toll collection facilities at five locations (the mainline plaza north of the US 64 interchange and ramp

[8] The FHWA and the USACE (as part of USACE's Section 404 permitting process) are required to assess environmental impacts of proposed actions in accordance with NEPA. In North Carolina, to satisfy the needs of both agencies, the FHWA and the USACE created a mechanism to merge the NEPA highway development and Section 404 permit processes. The merged process includes the Corps of Engineers' participation and concurrence at several key milestones in the development of each highway project. These milestones include development of the purpose and need statement, selection of detailed study alternatives, selection of the LEDPA, and avoidance and minimization of impacts to Waters of the United States. In addition to the FHWA and USACE representatives, the Section 404/NEPA Merger Team (Merger Team) consists of a variety of state and federal regulatory and resource agencies.

toll collection sites at: the US 1 interchange, the Old US 1 interchange, the US 64 interchange, and the Green Level Road interchange) along the project.

3.2 Other Projects

Some other transportation projects in the Triangle Region are recently completed, currently underway, or under consideration and may influence the use of Western Wake Freeway. These projects include:

3.2.1 Outer Wake Expressway

The Western Wake Freeway is part of the Outer Wake Expressway (Figure 3), which also includes the following projects:

- Northern Wake Expressway as I-540. The Northern Wake Expressway (STIP No. R-2000) is completed and open to traffic from I-40 in the west to US 64 in the east. This section is signed as I-540.

- Northern Wake Expressway as NC 540. The section of the Northern Wake Expressway from NC 55 at Alston Avenue to I-40 opened to traffic in July 2007. A portion of this section -- from NC 55 to NC 54, including the interchange with the proposed Triangle Parkway (discussed below) -- is under consideration by NCTA as a toll facility. The section being considered for tolling includes Sections “AA” and “AB” of STIP No. R-2000. NCDOT has signed this recently opened section as NC 540, rather than I-540, because of limitations on tolling on the Interstate System.

- Southern and Eastern Wake Freeway. The Southern and Eastern Wake Freeway consists of STIP Project Nos. R-2721, R-2828 and No. R-2829. These projects would generally run east-west, connecting the southern terminus of the Western Wake Freeway to I-40, and then run north-south from I-40 to terminate at US 64. NCDOT is currently conducting initial planning and environmental studies for these projects. With the exception of these initial studies, the projects are unfunded in the 2007-2013 STIP.

3.2.2 Triangle Parkway

The Triangle Parkway (STIP No. U-4763B) is a new location, median-divided roadway from Northern Wake Expressway in Wake County north to I-40 at NC 147 in Durham County. This new roadway would be approximately 3.4 miles in length. It is scheduled

to be open to traffic in fall 2010. This project is under consideration by the NCTA as a toll facility.

3.2.3 NC 55 Improvements

NC 55 is a major existing arterial roadway that generally parallels the Western Wake Freeway to the east. This roadway is the closest non-toll alternate route to the Western Wake Freeway. It is currently two lanes in some places and four lanes in others. It is generally an at-grade roadway with signalized intersections. As noted in the FEIS, this roadway is expected to continue to have increasing traffic volumes. Multiple widening improvement projects to sections of NC 55 in the area are noted in the FEIS (STIP Nos. R-2906, U-2901, R-2905 and R-2907). Of these, R-2906 is currently under construction; U-2901 is unfunded in the current STIP; and R-2905 and R-2907 have been completed. These projects are being or have been implemented by NCDOT.

3.2.4 Other Projects

In addition, planned projects in proximity to Western Wake Freeway include the East-West Collector and the Morrisville Parkway, all of which are east-west facilities that would cross the Western Wake Freeway. See Figure 3.

3.2.5 Potential Toll System in Triangle Region

The NCTA intends to operate three roadways in the Triangle region as a single toll system. These projects are: the Western Wake Freeway, the portion of the Northern Wake Expressway from NC 54 to NC 55 (STIP Nos. R-2000AA and AB), and the Triangle Parkway. Together, these roadways would connect to form one contiguous tolled roadway system from the NC 55 Bypass in Holly Springs to I-40 at the NC 147 interchange (Figure 3). This contiguous tolled roadway system would be approximately 18.8 miles in length. The projects have logical termini and independent utility. Applicable environmental documentation will be completed for the Triangle Parkway and for the addition of a toll plaza to Northern Wake Expressway (between NC 55 and NC 54). For purposes of financing, marketing, and operations, they will be treated as a single integrated system, which NCTA refers to in its 2006 Annual Report as the “Triangle Expressway.”

3.3 Traffic Operations and Cost Estimates

3.3.1 Traffic Forecasts

Two traffic forecasts, NEPA and T&R, are noted in this Reevaluation Report. In general, the traffic volumes predicted for the proposed toll road in the T&R study tend to be lower than the NEPA traffic forecasts. The difference between the two forecasts is due to the purposes that each forecast serves, and the fact that each forecast utilizes different standards for analyses that were designed for that particular purpose. Somewhat different methodologies were used for each, as explained below.

- NEPA Forecasts. For purposes of evaluating impacts and determining the preliminary design of the facility, traffic forecasts were developed using standard procedures for FHWA NEPA documents. These forecasts are developed based on the existing regional travel demand model, which is approved by local MPOs (CAMPO and Durham-Chapel Hill-Carrboro Metropolitan Planning Organization [DCHC-MPO]), and state and federal regulatory agencies for transportation studies in this region. These forecasts are documented in *Traffic Forecasts for the Toll Scenarios for TIP No. R 2635, Western Wake Parkway, Wake County, North Carolina* (NCTA, 2007a).

- T&R Forecasts. For purposes of forecasting revenue, a separate set of traffic forecasts were developed. These forecasts are documented in *Preliminary Traffic and Revenue Study – Proposed Western and Southern Wake Parkways* (NCTA 2006a). In addition, the NCTA has commissioned a more detailed "investment-grade" T&R study which is expected to be completed in September 2007. The preliminary T&R study is available on NCTA's web site.

The two traffic forecasts were developed for different purposes. They differ in several ways:

- *Purpose*. The NEPA forecast was developed as part of the NEPA study and was used to design and assess impacts of the proposed roadway. The impacts to the human and natural environments that are discussed in the environmental document in the NEPA study are based on that design. The T&R forecast was developed for the purpose of estimating the revenues the toll road is anticipated to generate over the bonding period.

- *Population and Employment Assumptions*. The NEPA study forecast was developed using a transportation model adopted by CAMPO, which includes

assumptions of future population and employment within the region. The estimates of future population and employment affect the number of vehicles that are predicted to use regional roadways over a 20-year horizon. The NEPA forecasts use the established, CAMPO-approved assumptions regarding population and employment growth. The T&R forecasts modified the assumptions regarding population and employment growth. This adjustment was needed to ensure conservative estimates of future revenues.

- *Calibration*. The traffic model used to develop the NEPA forecast is calibrated by the CAMPO according to regional traffic volumes. This ensures consistency in traffic forecasts for different projects in the region. By contrast, the traffic model used to develop T&R forecasts was calibrated according to observed volumes within the narrow confines of the project study area. As a result, T&R study forecasts are based on a version of the model that was not approved by CAMPO or NCDOT. The adjustments made in the T&R study model are appropriate given the purpose of that study; it is used by the financial community to evaluate the financial return that could be expected from their investment. The T&R study is not used for developing engineering designs or evaluating project impacts.

In sum, there are differences between the NEPA and T&R forecasts, but those differences reflect the different purposes that each forecast serves. In general, the traffic volumes predicted for the proposed toll road in the T&R study tend to be lower than the NEPA traffic forecasts. The T&R forecasts are used by the financial community and potential investors to evaluate project financial risk and the financial return that could be expected from the investment. From the financial standpoint, a conservative assumption is one that is based on the low end of the predicted range for population and employment growth and traffic volumes, which correlate to lower toll revenues. These “low-end” assumptions help reduce the risk of overstating the revenue potential of the proposed toll road. The NEPA traffic forecast, as previously noted, is used to design the proposed roadway, to assess the potential impacts, to predict design year traffic demand and to document the environmental impacts associated with the construction of the road. Therefore, population and employment growth and traffic volumes are based generally on the higher end of the range, which reduces the risk of under-design and facility failure in the horizon years. The two sets of traffic forecasts are developed independently by two different engineering firms using traffic models that are calibrated based on different parameters and inputs, therefore, the results are often different.

3.3.2 NEPA Traffic Forecasts

The NEPA traffic forecasts for the Western Wake Freeway and nearby intersections were developed for the years 2011 and 2030. These forecasts are discussed in the traffic technical report for this Reevaluation, *Traffic Forecasts for the Toll Scenarios for TIP No. R-2635, Western Wake Parkway, Wake County, North Carolina* (NCTA, 2007a). That technical report details the implementation of a tolling methodology on the Triangle Regional Model (TRM) provided by the CAMPO. Details on the model methodology and outcome are included in the technical report (NCTA, 2007a) and are summarized in the following paragraphs.

3.3.2.1 Methodology

All non-toll (base) and toll forecasts were developed using previous Western Wake Freeway forecasts performed for the NEPA process by the NCDOT in July 2001 and July 2003. All design data were adopted from the previous NCDOT forecasts and remained consistent through all scenarios.

The previous Western Wake Freeway forecasts assumed a non-toll roadway and were developed for the years 2005 and 2025. The traffic forecasts for this Reevaluation were developed in two steps. First, NCDOT's traffic forecasts for the years 2005 and 2025 scenarios were used to develop estimated traffic volumes for the Alternative A Reevaluated scenario for the years 2011 and 2030. This was done by projecting a straight line (constant rate of increase) from the year 2005 forecast volume through the year 2025 forecast volume and beyond. This projection was done to generate the non-toll traffic volume for the years 2011 and 2030. Once the *non-toll* forecasts had been developed for 2011 and 2030, the *toll* forecasts were developed by applying toll-diversion percentages to the non-toll forecasts. (The diversion percentages are intended to reflect the amount of traffic that will divert to other facilities in order to avoid paying a toll.) Finally, individual intersection turning movement volumes were balanced and smoothed through manual adjustments and percentages obtained using turning movement forecasting software. The software employs methodologies described in National Cooperative Highway Research Program's (NCHRP) *Report 365: Travel Estimation Techniques for Urban Planning* (Martin, W. A., and N. A. McGuckin, 1998).

3.3.2.2 Findings

Design year (2030) traffic toll forecasts are shown in Figure 4.

- The AADT for the toll facility ranges from a low of 62,800 vehicles at the southern end of the project (south of US 1) to a high of 91,200 vehicles north of Green Level Road. This is a decrease from the year 2025 traffic volumes reported in the FEIS for Alternative A. The FEIS reported volumes ranging from 82,000 to 113,500 AADT. The reduction in traffic volume reflects the effect of tolling on travel demand.

- Despite the reduction in the estimated traffic for the year 2030, the current traffic volumes for the toll facility still warrant the proposed 6-lane cross section based on a review of general capacity tables in the *Highway Capacity Manual 2000* (Transportation Research Board, 2000). Additionally, the capacity analysis of the current 6-lane design for the design year 2030, completed for this Reevaluation Report (Section 3.3.3), found that some sections of Western Wake Freeway may operate at LOS D during peak hours. A reduction in the proposed cross section would further reduce this anticipated LOS.

The year 2025 traffic forecasts from the FEIS do not include the proposed Morrisville Parkway extension and its proposed interchange with Western Wake Freeway. The FEIS notes that the Morrisville Parkway was not part of the regional thoroughfare plan and it was not funded in the STIP. The new traffic forecasts for the year 2030 (non-toll and toll) for this Reevaluation Report do include this facility and its proposed interchange. The Morrisville Parkway extension and interchange is included in CAMPO's fiscally constrained 2030 LRTP.

3.3.3 Capacity Analysis

A roadway capacity analysis was completed for the toll facility and is documented in *Capacity Analysis for Western Wake Freeway 2030 Build Toll Alternative* (NCTA, 2007b). The purpose of this analysis was to evaluate the operation of the toll facility for Western Wake Freeway for design year 2030 along with the mainline of NC 55, the nearest alternate route to Western Wake Freeway. The methodology and findings from that analysis are summarized here.

3.3.3.1 Methodology

Level of service (LOS) is a quality measure describing operational conditions for highway facilities. The *Highway Capacity Manual 2000* (*HCM 2000*), published by Transportation Research Board, outlines the procedures of capacity analysis and defines LOS. Six levels of service are defined in the *HCM 2000* ranging from A to F, with LOS A representing the condition where vehicles are almost completely

unimpeded in their ability to maneuver within the traffic stream and LOS F representing the condition where there are breakdowns in vehicular flow.

In this study, *Highway Capacity Software (HCS+) 5.21* was used for the analysis of basic freeway segments, weaving segments, merge and diverge areas for Western Wake Freeway, the unsignalized intersection of US 64 at the westbound on-ramp from Kelly Road and the mainline sections for NC 55. *Synchro 6,* a second capacity model software, was used for analyzing signalized intersections in this study.

Design year (2030) traffic forecast for AADT were taken from *Traffic Forecasts for the Toll Scenarios for TIP No. R-2635, Western Wake Parkway, Wake County, North Carolina* (NCTA, 2007a) are included in Figures 4A and 4B. The AADT were converted to AM and PM peak hour volumes by applying the design hourly volume percentage and directional split percentage provided in the forecast. Since the directional split percentage and the design hourly volume percentage for Western Wake Freeway mainline and the intersecting roadways were different, as provided in the AADT forecast, the converted mainline peak hour volumes between interchanges were not balanced. AM and PM peak hour volumes for Western Wake Freeway are illustrated in Figure 5.

For the mainline toll plaza located to the north of US 64, it was assumed that no cash lanes would be provided in design year, and electronic toll collection would not have any impact on traffic flow. Therefore, the traffic operation at the mainline toll plaza was analyzed as that of a basic freeway segment[9].

3.3.3.2 Findings

- § All critical locations, with two exceptions, on Western Wake Freeway would operate at LOS D or above during peak hours for the design year (2030) if Alternative A Reevaluated with Tolls is implemented (Figure 6).
    - o The first location that does not achieve LOS D is the merge area of the US 1 southbound on-ramp from Western Wake Freeway. This area is

[9] As planned for the opening year 2011, Western Wake Freeway will have cash collection lanes at all of the toll plazas locations along with ETC lanes. A common example of ETC is the transponder based system such as EZ-Pass. As the ETC technology advances and it becomes more widely used by the public, it is anticipated that ETC, in one or more formats (such as an upgraded transponder system and/or license plate recognition capabilities), will become the sole means of collecting tolls. At that time, assumed to be prior to the design year 2030, the cash collection lanes will be eliminated.

projected to operate at LOS F during PM peak hour. This is due to exceeding the capacity of US 1 mainline downstream of the on-ramp and the collector-distributor west of the on-ramp from Western Wake Freeway southbound.

- The second location that does not achieve LOS D is the diverge area of Western Wake Freeway northbound off-ramp to Green Level Road. This area is projected to operate at LOS E during AM peak hour due to the insufficiency of the deceleration lane length.

- The eastbound and westbound direction of the weaving segment on US 64 between Western Wake Freeway and Kelly Road would operate at LOS F during AM and PM peak hours, respectively, for the geometric conditions shown in roadway design.

- All of the signalized intersections at the intersecting roadways' interchange ramps of Western Wake Freeway would operate at LOS B or C during peak hours for the design year.

- The intersection, assumed to be under signal control, of Kelly Road at US 64 eastbound ramp would operate at LOS F during both AM and PM peak hours, and the intersection of Kelly Road at US 64 westbound ramp would operate at LOS D and F during AM and PM peak hours, respectively, for the geometric conditions shown in roadway design.

- The analysis indicates that the mainline toll plaza would operate at LOS C and D during peak hours in the design year.

- Based on the planning level analysis, NC 55 mainline would operate at LOS D and better during peak hours in the design year.

3.3.4 Estimated Project Costs

The estimated project costs for the Western Wake Freeway is $695.3 million (August 2007 dollars) with a range from $540 million to $965 million (September 2007 dollars). This range is necessary with current estimate which is a planning level D cost estimate. This broad range is the best available cost estimate based on current design plans.

3.3.5 Estimated Toll Costs and Revenue

The preliminary T&R study, discussed above, was completed in June 2006. The study was conducted at a preliminary feasibility study level and was intended to provide preliminary estimates of traffic, revenue and toll rate sensitivity. The study included a toll sensitivity analysis, which showed a potential maximum revenue toll range between $1.25 and $1.50 for the project. An opening-year toll rate of $1.25 for the mainline toll plazas was selected for the revenue analysis to allow for flexibility in future rate setting.

An Investment Grade Traffic and Revenue Study is being prepared and is expected to be completed in September 2007.

3.4 Impacts to the Human Environment

3.4.1 Socioeconomic Issues

Based on socioeconomic forecasts included as part of the TRM, the population within the Western and Southern Wake Freeway corridors is expected to grow extensively over the next three decades. Population is expected to grow from 153,700 in 2002 to over 447,000 by 2030. Population growth for both corridors is expected to increase by 3.9 percent annually, which is significantly higher than the expected 2.5 percent growth annually for the Triangle region.

The average household income as included as part of the TRM, in 2002 dollars, in the Triangle region was $54,411. It was noted that the Western and Southern Wake Freeway study area has an average household income that is 133 percent of the Triangle Region, at $72,556. By 2030, the forecast average household income, in 2002 dollars, in the study area is approximately 117 percent of the regional average, at $67,740. This relatively high household income level correlates with the study area's high number of residents with college degrees[10].

While these population and income forecasts differ from those discussed in the FEIS, the overall trends of population and economic growth are consistent with the trends that were presented in the FEIS. Both the FEIS and the current estimates predict substantial increases in population and income levels.

[10] These population and employment forecasts are reported in *Preliminary Traffic and Revenue Study – Proposed Western and Southern Wake Parkways* (NCTA, 2006a).

Findings and Conclusions

There has been no information developed as part of this Reevaluation Report that would call into question the original basis for selecting of Alternative A. Tables 16 and 17, in the body of the report, summarize the new information and impacts due to changes in the affected environment and the addition of tolling.

The following reasons continue to support the validity of the selection of Alternative A:

- Public comments received during the Citizens Informational Workshop (February 8, 2007) and associated comment period indicated continued support for constructing the road;

- Fewer relocations would still result from the implementation of Alternative A, even as a toll facility. The additional footprint for the toll plazas increases the number of relocations from 46, as reported in the FEIS, to 48. However, this is still well below the 146 potential relocations reported in the FEIS for Alternative C;

- Impacts to the Charleston Village and Cameron Park neighborhoods in Apex are still being avoided; and

- Although the construction costs for Alternative A, as a toll facility, have increased, the costs for Alternative C would have increased by a similar amount if the same design changes and inflationary rates were applied to that alternative. Alternative C had higher original costs and therefore is expected to have higher adjusted costs. Alternative A still demonstrates lower overall construction costs and right-of-way costs, as compared to the other alternatives.

The FEIS has been reevaluated as required by 23 CFR 771.129 and the FHWA has concluded:

- Changes to the proposed action will not result in significant environmental impacts that were not evaluated in the EIS;

- No new information relevant to the environmental concerns and bearing on the proposed action or it's impacts would result in significant environmental impacts not evaluated in the EIS;

Collection of the toll would have an economic impact on the users of the facility. The magnitude of the impact on each individual user would depend on their individual economic status. However, there is currently no funding for a non-toll facility. The freeway would not be constructed in the foreseeable future without the use of innovative financing, such as tolling. If built as a toll facility, users can choose not to utilize the freeway, and instead, can use alternate non-toll routes, such as NC 55. These users would have the benefit of less traffic on the alternate non-toll routes as compared to the No-Build scenario. However, due to diversion of some users off of the toll facility (i.e., users who choose not to pay the toll and instead use the alternate non-toll route), there would be slightly more traffic on alternate non-toll routes, such as NC 55, with implementation of Western Wake Freeway as a toll facility as compared to a non-toll facility. This diversion is not an *impact* of the project, because the project still reduces traffic volume on the parallel route compared to the No-Build condition. Instead, diversion results in a *reduced benefit*, to the alternate non-toll route. According to the 2030 traffic forecasts in *Traffic Forecasts for the Toll Scenarios for TIP No. R-2635, Western Wake Parkway, Wake County, North Carolina* (NCTA, 2007a), AADT on NC 55 with a toll facility would range from 27,000 to 43,700 vehicles and with a non-toll facility the AADT on NC 55 would range from 28,400 to 45,800 vehicles. Therefore, while the benefits of reduced traffic on existing alternate routes, such as NC 55, of a toll facility may be lower than the benefits of the non-toll facility, a toll facility provides benefits sooner, and represents an improvement over the No-Build condition for users of all income levels.

3.4.2 Land Use and Planning

The project is located within the planning and zoning jurisdictions of Wake County and the towns of Apex, Cary and Holly Springs. The municipal limits and extraterritorial jurisdictions of the towns of Apex, Cary and Holly Springs are illustrated in Figure 1[11]. The Town of Morrisville is located near the northern terminus of the proposed Western Wake Freeway. However, only a small western portion of Morrisville is located within the study area, as defined in the FEIS. The project footprint is not included within the planning and zoning jurisdictions of the town.

[11] An extraterritorial jurisdiction (ETJ) is an area outside of a town's municipal limits that is likely to become part of the town's limits within the next 10 years and is part of a municipal planning area. An area within an ETJ designation is subject to the town's zoning and building regulations to enable the town to better ensure that development patterns and associated infrastructure will allow the efficient provision of urban services as the town grows into that area. Regulations regarding ETJs are codified as GS 160A-306 to 366.

3.4.2.1 Existing Land Use

As noted in the FEIS, the project would impact existing and proposed neighborhoods and communities in western Wake County. These communities are shown in Figure 7. The majority of these impacts would occur due to the proximity of the proposed freeway and may include noise level increases and changes in viewscapes, access and land use. Due to preservation of the transportation corridor under the Transportation Corridor Official Map Act, no additional impacts to existing and proposed neighborhoods and communities, beyond those noted in the FEIS, are expected to result from changing the project from a non-toll facility to a toll facility.

3.4.2.2 Land Use Plans

Updates to area land use plans since the FEIS are identified below. All land use planning documents continue to incorporate the Western Wake Freeway corridor. The Western Wake Freeway has been, and continues to be, consistent with planned growth in the study area.

3.4.2.2.1 Wake County

The following Wake County planning documents have not been updated since the FEIS: *Land Use Plan*, *Southwest Wake Area Land Use Plan*, *Growth Management Strategy*, *Watershed Plan* and *Transportation Plan*. Wake County is in the process of updating the *Southwest Wake Area Land Use Plan*. Wake County revised the March 2003 *Wake County Consolidated Open Space Plan* in September 2006. Goals of the open space plan were identified in the FEIS and are consistent with the revised plan. All land use planning documents incorporate the Western Wake Freeway corridor.

3.4.2.2.2 Town of Morrisville

The Town of Morrisville is located near the northern terminus of the proposed Western Wake Freeway, within close proximity to the RTP and the RDU Airport. Only the small western portion of Morrisville is actually located within the study area, as defined in the FEIS. The portion of Morrisville within the study area is designated as high density residential. The proposed Western Wake Freeway is identified on the Town of Morrisville 1999 *Land Use Plan*. Town of Morrisville planning documents have not been updated since the FEIS.

3.4.2.2.3 Town of Cary

The following Town of Cary planning documents have not been updated since the FEIS: *Land Use Plan*, *Northwest Cary Area Plan*, *Comprehensive Transportation Plan*, *Open Space and Historic Resources Plan* and *Growth Management Plan*. The *Carpenter Community Plan* and the *Southwest Area Plan* were adopted after the FEIS was completed and are discussed below. All of these planning documents incorporate the Western Wake Freeway corridor.

Carpenter Community Plan

The Town of Cary prepared the *Carpenter Community Plan* and adopted it in September 2005. The *Carpenter Community Plan* area is located south of the future McCrimmon Parkway (currently Old Maynard Road [SR 1632]) and north of Morrisville Parkway (SR 3060). It is bounded in the west by NC 55 and extends just east of the future Louis Stephens Drive (currently Koppers Road [SR 1635]). The primary objective of the plan is to restore the Carpenter crossroads area as a "destination focus area," with the rural village as its centerpiece. The Plan vision describes the area as convenient to the Outer Wake Expressway, via the interchange at NC 55 at the northern end of the Western Wake Freeway.

Southwest Area Plan

The Town of Cary created the *Southwest Area Plan* to complement the *Northwest Cary Area Plan*. While the northwest area is expected to have extensive development, the *Southwest Area Plan* is a policy document that emphasizes environmental protection, low-density residential development and preservation of rural land-use patterns. The southwest area covers the area west of NC 55 to east of the Chatham County line and north of Green Level Road West (SR 1605) and Roberts Road. The northern border is shared by the *Northwest Cary Area Plan*. Land use along the Western Wake Freeway is designated primarily as parks, buffers, open space, community recreation, mixed use development and residential development that is split fairly equally between very low, low, and medium-density, as well as a small portion that is designated for office/ institutional development. The *Southwest Area Plan* notes the proposal of a new thoroughfare joining Green Level Church Road with Green Level Road to serve the Gateway Community Center at the Western Wake Freeway interchange with Green Level Road. The proposed thoroughfare would divert traffic on southbound Western Wake Freeway away from the Green Level Historic District.

3.4.2.2.4 Town of Apex

The following Town of Apex land use plan, mentioned in the FEIS, has not been updated since completion of that document: *Apex 2010 Land Use Plan*.

Apex Comprehensive Plan, Achieving Our Vision

The Town of Apex adopted its current comprehensive plan, the *Apex Comprehensive Plan, Achieving Our Vision* in April 2004. The plan addresses Apex's goal of maintaining its small town atmosphere and identifies current and future needs necessary to achieving that goal. These needs include residential development, growth management, transportation and accessibility to pedestrians and bicycles, improved infrastructure, local economic growth, environmental concerns, historic preservation and improved school facilities.

The plan notes the accelerated growth rate of Apex, from 4,968 in 1990, to 28,130 in 2003, a growth rate of 14.3 percent. This is 11.2 percent higher than the metropolitan statistical area's (MSA's) growth rate of 3.1 percent. The Apex plan states that the accepted sustainable rate for infrastructure is 3 to 5 percent. Future infrastructure goals highlight the creation of a new wastewater treatment facility for the region, including Cary, Holly Springs, Morrisville, Fuquay-Varina, and Wake County, in the Cape Fear River Basin by 2011. The new facility would allow for water plant expansion shortly thereafter. Transportation goals referenced from the Transportation Plan in 2002 include establishing connectivity among freeways and interchanges, addressing specifically the Western Wake Freeway, expansion of NC 55 and construction of the Apex Peakway, creating pedestrian and bicycle lanes and addressing mass transit needs, including the proposed rail transit service.

The *2025 Land Use Plan Map* for Apex primarily shows medium-density residential development along most of the proposed Western Wake Freeway, with the exception of the interchanges at US 64, Old US 1, US 1 and NC 55 Bypass. The US 64 interchange is planned to be community and neighborhood mixed use, including commercial, office institutional and mixed medium to high-density residential development. At Old US 1, the land use plan is also mixed use high-density residential and office and institutional as well as a mix of office and institutional with industrial. This plan for development extends from Old US 1 to US 1. Finally, at the NC 55 Bypass interchange, the land use plan includes protected open space, a landfill and commercial, office and institutional, and medium-density residential development.

All of these planning documents for the Town of Apex incorporate the Western Wake Freeway corridor.

3.4.2.2.5 Town of Holly Springs

Ten-Year Comprehensive Growth Plan

In 2005, the Town of Holly Springs amended its *1998 Ten-Year Comprehensive Growth Plan and Map,* which was originally discussed in the FEIS. The amended document, *Amended Supplement #2* and associated map, focuses on continuing goals for land use, parks and recreation, public safety, housing, economic development, transportation, public utilities and the environment. Within the transportation section recent improvements, alleviation of traffic concerns and future needs are addressed. The transportation section includes the Western Wake Freeway corridor. The Western Wake Freeway would form a small section of the Holly Spring's northern boundary with Apex from NC 55 Bypass west.

3.4.3 Relocations

Based on detailed studies and the preliminary design for this project, the FEIS found that the project would require 46 relocations comprised of 36 owner-occupied residences, 10 renter-occupied residences, no businesses, and 1 farm.

For the toll facility, preliminary relocation studies were conducted in the expanded construction footprint for the toll plazas, utilizing the base mapping provided by the NCDOT (updated September 2004). Two additional residences, in addition to those identified in the ROD – one at the ramp plaza east of Kelly Road and south of US 64 and one at the mainline toll plaza – would require relocation due to the expanded construction footprint for the toll plazas. Therefore, Alternative A Reevaluated with Tolls would result in 48 relocations.

The project footprint is located in the corridor preserved under the Transportation Corridor Official Map Act (described in Section 1.3.2), which protects the corridor from development of new houses and businesses. During natural resources field surveys conducted in Fall 2006, no new construction was observed in the project corridor.

The project, which is planned as a fully access-controlled facility, has the potential to landlock property. A preliminary review of the non-toll facility determined that approximately 10 large (greater than 5 acres) parcels would lose access once the project has been implemented. This includes one parcel that contains a residence

(already included as part of the relocations discussed previously). The remaining nine parcels do not appear to contain residences. The preliminary review of the toll facility determined that two additional large parcels would be landlocked by the expanded construction footprint for the toll plazas. These parcels do not appear to contain residences. Therefore, there is no change in the estimated number of relocations.

The relocation program for the proposed action would be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), and the North Carolina Relocation Assistance Act (GS-133-5 through 133-18). The program is designed to provide assistance to displaced persons in relocating to a replacement site in which to live or do business. At least one relocation officer is assigned to each highway project for this purpose.

3.4.4 Environmental Justice

The FEIS noted the existence of one low income and minority population located in the FEIS study area. As stated in the FEIS, "At the southern terminus of the study area is the 50-year old community of Feltonsville. This historically African-American community is centered around Old Smithfield Road, although the community extends a short distance north of Holly Springs toward US 1. The community grew incrementally from the 1940s through the 1970s, and now comprises approximately 85 households. The community residences are largely low income, though middle-income families also reside there."

An Environmental Justice Technical Memorandum (NCTA, 2007d) was completed to:

- Evaluate the potential impacts to low-income and/or minority communities resulting from implementing this project as a toll facility as compared to a non-toll facility;

- Document low-income and/or minority community outreach efforts conducted for the Western Wake Freeway Reevaluation Report; and

- Identify any changes to previously-identified low-income and/or minority communities since the Western Wake Freeway FEIS and identify any additional low-income and/or minority communities.

The Memorandum was completed in compliance with regulations and guidelines in Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, FHWA's directive, "FHWA Actions to

Address Environmental Justice in Minority Populations and Low-Income Populations", and Title VI of the Civil Rights Act of 1964.

Previous studies conducted as part of the Western Wake Freeway FEIS identified the Feltonsville community as the only low-income and minority population within the study area. The 2007 study identified additional minority "pockets." These areas are generally described as the Tingen Road area south of Apex and an area west of Old Holly Springs-Apex Road. These areas are not adjacent to the proposed project and are not expected to be impacted by the project, either as a non-toll or a toll facility. Property owners in these areas are included on the project mailing list and were invited to the February 8, 2007 Citizens Informational Workshop. Based on sign-in sheets, approximately seven people from these areas attended.

Impacts to the Feltonsville community, comprised largely of African-American families, were evaluated in previous studies including the *Community Impact Assessment - Western Wake Freeway* (NCDOT, 2003b) and the FEIS. Feltonsville, which appears to continue to be a low-income as well as a minority community, is adjacent to the project corridor and impacts to this community were considered (Figure 8). Implementing the Western Wake Freeway as a toll facility as compared to a non-toll facility would result in similar impacts to the Feltonsville community (except for potential financial effects discussed below). There are no impacts to the Feltonsville community from the additional construction footprint necessary for the toll plazas. Project commitments for the Feltonsville community identified by the NCDOT in the FEIS and ROD for the Western Wake Freeway would offset impacts resulting from the toll facility or the non-toll facility. No additional commitments for the Feltonsville community are recommended as a result of implementing the project as a toll facility. The NCTA would be responsible for project commitments previously established by NCDOT. A small group meeting was held in the Feltonsville community on February 15, 2007. No concerns with regards to the incorporation of tolls onto this facility were expressed by mail, phone, or in person at this meeting.

The primary effect with the proposal to implement the Western Wake Freeway as a toll facility is the financial effect on low-income users. In addition to paying tolls, electronic toll collection does involve establishing an account and some low-income users may not be willing or able to establish an account. The specific payment options have not yet been determined. (See section 1.2 for a general discussion of the toll collection methods under consideration). Potential financial effects are a consideration for low-income populations. Low-income populations in the southwestern area of Wake County have the choice to use the toll road or an alternate non-toll route (e.g., NC 55).

The existing road network in western Wake County provides a comparable non-toll route to the Western Wake Freeway.

Western Wake Freeway would provide an alternate route to employment centers and other areas to the north of the study area. A result of construction of Western Wake Freeway would be reduced traffic and congestion on existing alternate non-toll routes, including NC 55, which would be highly congested if Western Wake Freeway is not built. Therefore, completing Western Wake Freeway would benefit all motorists, including low-income motorists who may choose not to use the toll facility or may tend to use it less frequently. These users would have the benefit of less traffic on the alternate non-toll routes as compared to the No-Build condition. However, due to diversion of some users off of the toll facility and onto an existing non-toll route (such as NC 55), there would be slightly more traffic than with the non-toll facility, resulting in a reduced benefit to users of the existing non-toll route. As discussed in Section 3.4.1, the projected increased traffic volumes (AADT) on NC 55 range from 1,400 to 2,100 additional vehicles with implementation of the toll facility. Therefore, while the benefits of the toll facility may be lower than the benefits of the non-toll facility, due to the diversion of some potential users onto existing non-toll routes, the toll facility provides benefits sooner and represents an improvement over the No-Build condition for users of all income levels.

The Western Wake Freeway as a non-toll project is not funded in the NCDOT 2007-2013 STIP, and it is not likely to be constructed in the foreseeable future without the use of innovative financing, such as tolling. Implementing Western Wake Freeway as a toll facility would ensure the construction of this much needed transportation improvement. This accelerated construction schedule is a benefit to the study area as well as the region.

The impacts to low-income and/or minority populations resulting from implementing the Western Wake Freeway project as a toll facility are not considered “disproportionately high and adverse.”

It is noted that impacts to Feltonsville, a low-income and minority community, were identified in previous studies for the Western Wake Freeway. Several measures were included in the FEIS and ROD, as special commitments, to help mitigate for cumulative impacts to this community. The project commitments are included in Section 5.0 with their current status and/or an update. No additional project commitments for this community have been added as a result of implementing the project as a toll facility.

3.4.5 Community Facilities and Services

The following discussion of schools, parks and greenways, and other community facilities is based on a review of current land use planning maps (as of February 2007). This review was conducted in coordination with the various municipalities surrounding the project corridor. This information was supplemented with observations made during natural resources field surveys conducted in Fall 2006. The facilities noted in the following discussions are new facilities or facilities identified in the FEIS for which their status since that time has changed. Additionally, these facilities are generally within a one-half mile radius of the project corridor. None of the new facilities noted in the following discussions are within the project footprint.

3.4.5.1 Schools

The FEIS identified six elementary schools, three middle schools and three high schools that serve the study area. None of these schools identified in the FEIS are located in the project footprint. Two additional schools serving the area have opened in recent years. These new schools, along with their opening dates and locations, are discussed below. The locations of these facilities are illustrated on Figure 9.

- Turner Creek Elementary School, located at 6801 Turner Creek Road (SR 1609) in Cary, opened in 2004. This school is located approximately 0.5 mile east of the project corridor and would not be directly impacted by construction of the facility; and

- Panther Creek High School, located at 6770 McCrimmon Parkway in Cary, opened in 2006 to 9th and 10th grade students. Panther Creek High School adjoins the project corridor to the east. No property acquisition due to construction of the facility is anticipated. This school was evaluated for potential noise impacts as noted in Section 3.5.3. Additional details on the noise analysis are included in the *Traffic Noise Report – Western Wake Freeway* (NCTA, 2007e).

3.4.5.2 Parks and Greenways

Numerous parks and greenways located in the study area were identified in the FEIS. None of the parks identified in the FEIS are located within the project footprint. Several greenways, noted in the FEIS, were proposed to cross Alternative A. Project commitments (Table 19, Nos. 3 and 13) were made in the FEIS to accommodate these greenway crossings. Through continuing coordination with the towns of Apex and

Cary, all known greenways crossing the Western Wake Freeway have been accommodated. The following is an update of facilities previously identified in the FEIS. These facilities are shown on Figure 9.

3.4.5.2.1 Town of Apex

As noted in the FEIS, the Town of Apex owns and operates two parks adjoining the project corridor: Kelly Road Park and Kelly Glen Park. Additionally, the town has plans to develop the 8-acre Walden Creek Property, identified as the proposed Jenks Road Park in the FEIS. A portion of the land on the Walden Creek Property is expected to be allocated for passive recreation and would predominantly be undeveloped. The other portion is expected to be developed for active recreation.

Of the four Town of Apex proposed greenways noted in the FEIS, three remain in the *Apex Parks, Recreation, Greenways and Open Space Master Plan*, created in October 2006, including the proposed greenway along Little Branch east of Old Holly Springs-Apex Road, the proposed greenway along an unnamed tributary to Beaver Creek east of Apex-Barbecue Road and the proposed greenway for Beaver Creek east of Olive Chapel Road. The fourth proposed greenway noted in the FEIS, previously planned along Reedy Creek, is not in the current plan and has not been constructed. The *Apex Comprehensive Plan* recognizes a need for the greenways to cross Western Wake Freeway via pedestrian crossings and is continuing to coordinate with NCDOT and NCTA regarding these crossings.

3.4.5.2.2 Town of Cary

The Town of Cary is currently expanding the facilities at Thomas Brooks Park, which is noted in the FEIS and located at Green Level Church Road and Green Hope School Road. The USA Baseball national training center complex, at the Thomas Brooks Park, opened in June 2007. Sears Farm Road Park, located at 5077 Sears Farm Road, was opened in 2005. The planned park on the Hawes tract is still under development.

As shown in Figure 9, the Town of Cary has three greenways that currently cross the project footprint and has two more that are proposed. These greenways were all noted in the FEIS. This includes the greenway along White Oak Creek. The Town of Cary was awarded a grant in January 2005 from the U.S. Department of Agriculture (USDA) for the White Oak Stream Restoration and Greenway. The Town of Cary decided to work with the Town of Apex to develop a plan identifying land for open space preservation in the area between Green Level and Wimberly (SR 2761) roads,

- No updated information relevant to the environmental concerns and bearing on the proposed action or it's impacts would result in significant environmental impacts not evaluated in the EIS;
- A Supplemental EIS is not necessary; and
- The findings of the previous environmental document remain valid.

providing for the restoration of 1.5 miles of White Oak Creek and for a major greenway connection (extension of existing White Oak Greenway) to the American Tobacco Trail (ATT).

The ATT is a 23-mile rails-to-trails project conceived in the late 1980s by the nonprofit Triangle Rails-to-Trails Conservancy. Following an abandoned rail line, it would run north from near New Hill in western Wake County, through a northeast sliver of Chatham County, then into Durham County, where it ends at the Durham Bulls Athletic Park. Currently, approximately 20 miles of the trail are open. The final mile of the 6.5-mile Wake County portion of the ATT opened in 2006. The Wake County portion of the trail runs from the ATT's southern terminus west of Apex off New Hill-Olive Chapel Road (SR 1141) north to the Chatham County line northwest of White Oak Church Road (SR 1606).

3.4.5.2.3 Wake County

As noted in the FEIS, Wake County has obtained a lease for property along Old Holly Springs-Apex Road for the purpose of developing a soccer facility and park, the Capital Area Metropolitan Soccer Association (CAMSA) Training Facility. The CAMSA facility is on land once designated as game lands and leased by the county from Progress Energy (formerly Carolina Power and Light Company). This planned facility is still under development.

Lastly, a small (0.5-acre) public park, Feltonsville Community Park, was also noted in the FEIS. Feltonsville Community Park is located on the north side of Old Smithfield Road in the Feltonsville community. The park is located on property owned by Wake County. The park was developed through the initiative of the Feltonsville Community Organization, which worked with various local governments to obtain a Community Development Block Grant in July 1981 for a number of improvements, including the park. As part of the project commitments (Table 19, No. 15), identified in the FEIS and ROD, NCDOT proposed improvements to Old Smithfield Road to help mitigate cumulative impacts to the Feltonsville community. The proposed Old Smithfield Road improvements would necessitate the conversion of approximately 0.084 acres of the Wake County property to a transportation use (for right-of-way and easement); this is the area between the existing edge of pavement of Old Smithfield Road and the portion of the Feltonsville Community Park fence parallel to the road (Appendix D). Additional details concerning the impacts to this park are included in Section 3.4.9.1.

No additional parks or greenways, beyond those that were identified in the FEIS and ROD, have been opened or planned in the project vicinity. None of the known parks is

located in areas adjoining the expanded construction footprints for the toll plazas; therefore, there are no direct impacts from the expanded construction footprint due to the addition of the toll plazas. No impacts, beyond the greenway crossings documented in the FEIS and the property conversion at Feltonsville Community Park noted above, are anticipated. As noted in the project commitments (Table 19, Nos. 3 and 13), through continuing coordination with the towns of Apex and Cary, all known greenways crossing the Western Wake Freeway have been accommodated.

3.4.5.3 Churches and Cemeteries

The FEIS identified 13 churches within the FEIS project study area. None of the churches identified in the FEIS were located within the project footprint.

In the Feltonsville Community, at the southern end of the project corridor, there are two churches that have not been previously identified: Temple of Faith, located at 2248 NC 55, and Calvary Deliverance, located at 2244 East Williams Street and NC 55 (Figure 9). None of the known or newly-identified churches are located within the construction footprint. As noted in the *Traffic Noise Report – Western Wake Freeway* (NCTA, 2007e), these two additional churches are not expected be exposed to interior noise levels that approach or exceed the noise abatement criteria. Additional detail on the noise analysis is included in Section 3.5.4. No impacts to churches are anticipated.

The FEIS identified 17 cemeteries within the FEIS project study area (Figure 9). One cemetery, located south of Old US 1, was noted in the FEIS as being impacted by the project. As noted in the FEIS, the removal of graves will comply with North Carolina General Statute 65-13.

The locations of two cemeteries, identified in the FEIS and appearing on project mapping to be potentially within the project footprint, were verified in field surveys conducted in April 2007, by qualified archeologists. It has been determined, by utilizing field-collected Global Positioning System (GPS) data, that neither of the two cemeteries is located within the project footprint. One cemetery is located within Thomas Brooks Park and the second is located southwest of the planned interchange with US 1. Details on the search methodology and survey results are documented in a memo included in Appendix E.

Incidental observations made during natural resources field surveys conducted in Fall 2006 identified one new cemetery located in the project study area near the northern end of the project corridor. Wake Memorial Park, located at 7002 Green Hope School

Road, approximately 0.5 mile east of the corridor, was established in late 2004 (Figure 9). This cemetery is not located in the project footprint.

None of these known cemeteries is located in areas included in the expanded construction footprints for the toll plazas. There would be no impacts to cemeteries, by construction of Alternative A Reevaluated with Tolls beyond the impact noted in the FEIS to the cemetery located south of Old US 1.

3.4.5.4 Other Community Facilities

One new library serving the project vicinity has opened in recent years. The West Regional Library, located at 4000 Louis Stephens Drive in Cary approximately 1 mile east of the project corridor, is the newest of the six regional libraries in the Wake County public library system and the second largest. Opened in September 2006, as part of Cary's Carpenter Village development, West Regional Library provides much-needed services to the rapidly expanding western half of Wake County, which includes the Cary, Morrisville and Apex communities.

The Town of Cary is currently constructing a new fire station (Fire Station No. 7) on Carpenter Fire Station Road (SR 1624) just west of NC 55. The Town of Cary has reached an agreement with the Town of Morrisville to provide space for a Morrisville crew at this new fire station. This will allow for the closure of Morrisville Fire Station No. 3, also located west of NC 55 on Carpenter Fire Station Road. The new fire station is approximately 1 mile east of the project corridor.

None of these community facilities, as identified in the FEIS or discussed here, is located in areas adjoining the expanded construction footprints for the toll plazas.

3.4.6 Utilities

As discussed in the FEIS, electrical service within the planning jurisdiction of the Town of Apex is provided by Apex Power, while the remainder of the FEIS defined study area is served by Progress Energy (formerly Carolina Power and Light Company). Natural gas service to most area residents and businesses is provided by PSNC (formerly Public Service Company of North Carolina). Other natural gas transmission lines traversing the area include those owned and operated by Colonial Pipeline Company and Dixie Pipeline Company, who operate a station just south of Apex on NC 55. Public water and wastewater facilities are provided to portions of the study area by the towns of Apex, Cary and Holly Springs. Wake County does not provide public water supply services. Residences beyond municipal service areas rely on private wells.

The FEIS notes the project would cross a 230 kV electrical transmission line, owned by Progress Energy, located on the south side of US 1. In addition to major transmission lines, numerous low voltage lines providing service to individual households and businesses would be crossed by the project. Also it was noted that Alternative A would cross three natural gas transmission lines, eight large (greater than 10 inches) sewer-lines and five water supply lines.

For this Reevaluation Report, updated mapping of utility lines for the project corridor was obtained from the towns of Apex and Cary for the locations of water and sewer facilities. Additionally, a review of the current design plans noted a 4-inch and an 8-inch natural gas transmission line that were not identified in the FEIS. Updated utility mapping for the project corridor is shown in Figure 10.

Based on updated mapping, the Alternative A Reevaluated with Tolls would cross five new, large (greater than 10 inches) water lines located along Kelly Road, Jenks Road (multiple lines), Roberts Road and Green Hope School Road. Three additional, large (greater than 10 inches) sewer lines would be crossed. They are located along Carpenter Fire Station Road, Morris Branch and Nancy Branch. Finally, as noted in the previous paragraph, a 4-inch and an 8-inch natural gas transmission line, which would be crossed by the project, were identified in the southwestern quadrant of the Kelly Road and US 64 interchange. These new crossings are due to changes in the affected environment and not due to the expanded construction footprint needed for the addition of the toll plazas.

NCTA and NCDOT will work with the electric and natural gas providers and the towns of Apex and Cary to coordinate any necessary relocation of utility lines. Any necessary relocation of utilities would be conducted in a timely and orderly fashion, planned so that any disruptions in service are minimized and safety is not compromised.

In November 2006, Wake County began construction on a sanitary landfill adjacent to and south of the site of the Feltonsville Landfill in Holly Springs, which was closed to municipal waste in 1998. The South Wake Landfill will be located just south of the Feltonsville Landfill. Wake County plans to open the South Wake Landfill in January 2008 when the North Wake Landfill has reached its maximum capacity. Access to the new landfill would be from the NC 55 Bypass west of Holly Springs. The South Wake Landfill would not be impacted by the proposed construction footprint.

3.4.7 Historic Architecture

As noted in the FEIS, three properties, the Green Level Historic District, the Green Level Baptist Church and the Pearson House, were evaluated for National Register-eligibility by a NCDOT architectural historian in a report dated May 13, 1997. The report concluded that both the Green Level Historic District and the Green Level Baptist Church were eligible for the National Register and boundaries were drawn showing the church within the boundaries of the historic district. The Pearson House was determined not eligible for the National Register because its farm fields and outbuildings have been destroyed and the main house is an insignificant example of a very common building type in Wake County. The State Historic Preservation Office (HPO) concurred with this report in their letter of July 9, 1997. A formal nomination to the National Register of Historic Places (NRHP) was prepared by the Wake County Historic Preservation Commission and on April 5, 2001, the Green Level Historic District was placed on the National Register with boundaries somewhat refined from the 1997 report (Figure 11). The Green Level Baptist Church was named as a contributing element within the district, while the Pearson House is not within the district's boundaries.

Prior to formal listing on the National Register, HPO and NCDOT architectural historians met on January 29, 1998, to discuss the effects of the project on the two eligible properties: the Green Level Historic District and the Green Level Baptist Church. During that meeting, it was agreed that the project would have an adverse effect on the Green Level Historic District and a form was signed to record this determination. FHWA later concurred with the adverse effect by signing the form on February 2, 1998.

As noted in the ROD, Alternative A would have an adverse effect on the district. This alternative is located approximately 2,500 feet east of the historic district boundaries, but has reasonable potential to alter the rural historic setting as a result of indirect or secondary effects. A Memorandum of Agreement (MOA) (Appendix F) between FHWA and the State Historic Preservation Officer was signed on March 5, 2002, and April 2, 2002, respectively, that outlines the measures to be implemented to minimize or mitigate the adverse effects on the historic district. NCDOT, the Town of Cary, and the Wake County Historic Preservation Commission signed the MOA as concurring parties. The MOA states that a Historic District Signage Project, consisting of a minimum of four signs with small-scale landscaping around each sign, would be developed and implemented by NCDOT, the Town of Cary, the Wake County Historic Preservation Commission, and the HPO. Under the MOA, NCDOT committed to

provide up to 80 percent of the total signage project cost and would provide on-going maintenance for the signs and landscaping.

On February 20, 2007, a meeting was held with representatives of the HPO (meeting minutes are included in Appendix G). The purpose of the meeting was to discuss Western Wake Freeway as a toll facility and potential effects under Section 106 of the National Historic Preservation Act. A general overview of the project was provided including a review of the potential methods of toll collection and a description of toll collection sites. It was noted that the Green Level Historic District is the only study area site on or eligible for the NRHP. The proposed Green Level Road interchange with Western Wake Freeway was the primary focus point of the meeting, especially the addition of the toll collection plazas on the interchange ramps. NCTA, FHWA and NCDOT in concert with the HPO confirmed that there are no additional adverse effects to the Green Level Historic District beyond those already identified and accounted for in the existing MOA. Based on the discussions at this February 20, 2007 meeting, NCTA, through a letter to FHWA dated March 20, 2007 with copies to all the MOA signatories, agreed to assume responsibility from NCDOT for implementing the MOA commitments. The letter also addressed archaeology (discussed below). FHWA has acknowledged the transfer of responsibility for implementing the MOA commitments to NCTA in correspondence dated March 30, 2007 (included in Appendix F).

The toll facility, with its additional construction footprint at the toll plazas, would not have additional impacts to historic architectural properties beyond those noted above to the Green Level Historic District.

3.4.8 Archaeological Sites

As discussed in the FEIS and ROD, an intensive archaeological survey was conducted for the Preferred Alternative study corridor in 2001.

Site 31WA1493, as discussed in the FEIS and ROD, would be directly impacted by the project. Archaeological fieldwork for this site was completed in March 2003 and demonstrated that the cultural material is confined to the disturbed plow zone. NCDOT, in consultation with the HPO, concluded that site 31WA1493 has poor archaeological context and is recommended not eligible for listing in the NRHP. HPO concurred with this finding in a letter dated February 18, 2004.

NCDOT archaeologists, in coordination with NCTA, reviewed the results of the field survey completed for the FEIS and the updated project footprint for the toll facility and state in a letter dated March 6, 2007 (included in Appendix F) that... “The existing

archaeological survey adequately covered the project corridor. It is unlikely that minor changes to the footprint of the project associated with the toll plazas would lead to the identification of significant cultural resources. The conclusions for archaeology, as currently presented in the environmental documentation for the project, are accurate." They additionally note, "...our staff recommends that no additional archaeological investigations are warranted." NCDOT archaeologists informed the Office of State Archeology of these conclusions and recommendations. It is the standard practice of the Office of State Archeology to provide no comments when dealing with conclusions of no effects.

As noted in the previous section, NCTA through a letter to FHWA with copies to all the MOA signatories, agreed to assume responsibility from NCDOT for implementing the Green Level Historic District MOA commitments. The letter also addressed archaeology, stating that the expanded footprint to accommodate the toll plazas would not impact archaeological sites on or eligible for the National Register. FHWA has acknowledged the transfer of responsibility for implementing the MOA commitments to NCTA in correspondence dated March 30, 2007, and included in Appendix F.

3.4.9 Section 4(f) and 6(f) Properties

3.4.9.1 Section 4(f)

Section 4(f) of the U.S. Department of Transportation Act, as amended, prohibits FHWA from approving any program or project that requires the use of a publicly owned park, recreation area, or wildlife or waterfowl refuge, or a significant historic site, unless (a) there is no feasible and prudent alternative to the use of such land and the project incorporates all possible planning to minimize harm resulting from such use, or (b) a finding of *"de minimis"* impact is made.

3.4.9.1.1 Historic and Archaeological Resources

As noted in the FEIS, the Preferred Alternative would not require the use of any land within the Green Level Historic District's boundary (Figure 11) or any of the district's contributing resources. The toll facility, with its additional construction footprint required for the toll plazas, would also not require the use of any land within the Green Level Historic District. The change in facility implementation to a toll facility would not result in any constructive use of this resource. Therefore, the determination of no direct or constructive use of this Section 4(f) resource remains valid.

There are no additional historic properties or districts identified in the FEIS. Therefore, the toll facility with its additional construction footprint at the toll plazas would not have a direct or constructive use of historic architectural resources under Section 4(f).

Based on information as presented in the FEIS and ROD and based on the re-evaluation of archaeological sites for the toll facility design (as noted in Section 3.4.8), a Section 4(f) evaluation is not required for archaeological sites, as there are no known sites within the construction footprint.

3.4.9.1.2 Publicly Owned Parks, Recreation Areas, and Refuges

As noted in the FEIS, the Town of Apex owns two public parks adjoining the project corridor: Kelly Road Park is located on Kelly Road south of the intersection with Olive Chapel Road and immediately to the south is Kelly Glen Park (Figure 9). These parks are not located in the immediate vicinity of the expanded footprints for the toll plazas. As noted in the FEIS, an agreement is in place with the Town of Apex that reserved a portion of land for highway right-of-way. Details on these highway development buffers are included in the FEIS. As noted in the FEIS, Section 4(f) does not apply to publicly-owned, public, park land reserved for highway right-of-way.

It was also noted in the FEIS that Wake County has obtained a lease for property along Old Holly Springs-Apex Road for the purpose of developing a soccer facility and park, the CAMSA Training Facility. The CAMSA facility is on land once designated as game lands and leased by the county from Progress Energy (formerly Carolina Power and Light Company). The lease, which was signed in June 1998, is for a 25-year period. After the initial 25-year term the lease shall automatically renew and continue in perpetuity for successive 5-year terms. The lease specifies that the property will be used for public recreational purposes only. Given the terms of the lease, this property could be considered “publicly-owned” and therefore would qualify for protection under Section 4(f). The planned CAMSA Training Facility (Figure 9) is bisected by the project corridor. However, it is not located in the immediate vicinity of the expanded footprints for the toll plazas. In addition, as noted in the FEIS, an agreement is in place with Wake County to reserve the highway right-of-way through this park. Details on the reserved highway corridor are included in the FEIS. As noted in the FEIS, Section 4(f) does not apply to publicly-owned, public, park land reserved for highway right-of-way.

Additionally noted in the FEIS, the Town of Cary owns one public park and an adjoining recreational facility and is developing one, additional, town-owned property that will contain a public park in the vicinity of the project corridor (Figure 9): They are the Thomas Brooks Park south of Green Hope School Road, USA Baseball to the north of

Thomas Brooks Park and the proposed park on the Hawes tract immediately north of Green Hope School Road and west of Twyla Road (SR 3068), respectively. These parks are not located in the immediate vicinity of the expanded footprints for the toll plazas. As noted in the FEIS, an agreement is in place with the Town of Cary to reserve the land for highway right-of-way. Details on these reserved corridors are included in the FEIS. As noted in the FEIS, Section 4(f) does not apply to publicly-owned, public, park land reserved for highway right-of-way.

Lastly, a small (0.5-acre) public park, Feltonsville Community Park was also noted in the FEIS. Feltonsville Community Park is located on the north side of Old Smithfield Road in the Feltonsville community (Figure 9). The property on which the park is located is owned by Wake County. The park was developed through the initiative of the Feltonsville Community Organization, which worked with various local governments to obtain a Community Development Block Grant in July 1981 for a number of community improvements, including the park. Wake County purchased the property that included the park in 1983. As part of the project commitments (Table 19, No. 15), identified in the FEIS and ROD, NCDOT proposed improvements to Old Smithfield Road to help mitigate cumulative impacts to the Feltonsville community. The proposed typical section for Old Smithfield Road includes widening from the existing two-lane section (21 feet of pavement) to a three-lane section with curb and gutter (33 feet of pavement) that would include a variable width berm on each side.

During a 2006 property survey of Feltonsville Community Park, it was determined that NCDOT right-of-way was never acquired along Old Smithfield Road in front of Feltonsville Community Park and that the only right-of-way that could be claimed is the existing maintained road corridor, usually determined to be between the tops of the roadside ditch banks. The proposed Old Smithfield Road improvements would necessitate the conversion of approximately 0.084 acre of Wake County property to a transportation use (for right-of-way and easement); this is the area between the existing edge of pavement of Old Smithfield Road and the portion of the Feltonsville Community Park fence parallel to the road (Appendix D). This area is outside of the active and useable recreation area of the park and is primarily used for uncontrolled off-street parking.

As a publicly-owned public park, Feltonsville Community Park is afforded protections under Section 4(f). As noted previously, FHWA is prohibited from approving any project that requires the use of a publicly-owned park, unless (a) there is no feasible and prudent alternative to the use of such land and the project incorporates all possible planning to minimize harm resulting from such use, or (b) a finding of "*de minimis*" impact is made. *De minimis* impacts on publicly-owned parks are defined as those that

do not "adversely affect the activities, features and attributes" of the Section 4(f) resource. Concurrence must be obtained from the official with jurisdiction over the park or recreation area that the impacts are not adverse. NCTA, in cooperation with FHWA, sent a letter dated April 19, 2007, to Wake County, to obtain their concurrence that the proposed right-of-way acquisition would not adversely affect the activities, features or attributes of the park. Wake County signed the concurrence request letter on May 7, 2007. The letter is included in Appendix D. Comments regarding the potential park impacts were solicited from the public. Flyers were mailed to property owners and hand-delivered to residents in the Feltonsville community. A copy is included in Appendix D. Additionally, a newspaper advertisement requesting public input was placed in the Holly Springs Sun, the Apex Herald and the News and Observer. The comment period extended from May 24, 2007, through June 15, 2007. One written comment was received that supported the project and it is included in Appendix D. Based on information obtained from public officials with jurisdiction over the property and the public comment obtained, FHWA has made a finding of *de minimis* impacts by the signing of this document.

The location of the mainline toll plaza and the ramp plazas are not in the vicinity of any of the identified parks or recreational areas.

As noted in the FEIS, there are no wildlife or waterfowl refuges in the vicinity of the project corridor.

The proposed Western Wake Freeway would not result in the direct or constructive use of publicly-owned land of a public park, or recreation area, historic site, or wildlife or waterfowl refuge, as subject to protection under Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended, beyond the *de minimis* impact to Feltonsville Community Park discussed previously.

3.4.9.2 Section 6(f)

Section 6(f) of the Land and Water Conservation Fund Act of 1965 (LWCF) protects grant-assisted areas from conversions to uses other than the original intended purpose. It requires replacement of any land improved with LWCF monies that is converted to non-recreational purposes. No public parks or recreation areas funded with LWCF monies were identified in the FEIS. No additional park or recreational areas have been identified. No public parks or recreation areas funded with LWCF monies are located within the construction footprint. Therefore, there is no use of Section 6(f) resources.

List of Acronyms

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
AMS	Ambient Monitoring System
ATT	American Tobacco Trail
CAA	Clean Air Act
CAMPO	Capital Area Metropolitan Planning Organization
CAMSA	Capital Area Metropolitan Soccer Association
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CEQ	Council on Environmental Quality
CIW	Citizens Informational Workshop
CLOMR	Conditional Letter of Map Revision
CO	Carbon Monoxide
CWA	Clean Water Act
DCHC-MPO	Durham-Chapel Hill-Carboro Metropolitan Planning Organization
DEIS	Draft Environmental Impact Statement
DFIRMs	Digital Flood Insurance Rate Maps
EA	Environmental Assessment
EEP	North Carolina Ecosystem Enhancement Program
EPA	United States Environmental Protection Agency
ETC	Electronic Toll Collection
ETJ	Extraterritorial Jurisdiction
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FSC	Federal Species of Concern
GIS	Geographic Information System
GISA	Growth Impact Study Area
GPS	Global Positioning System
HCM 2000	Highway Capacity Manual 2000
HPA	Historic Preservation Act
HPO	State Historic Preservation Office
LEDPA	Least Environmentally Damaging Practicable Alternative
LOMR	Letter of Map Revision
LOS	Level of Service
LRTP	Long Range Transportation Plan
LWCF	Land and Water Conservation Fund Act of 1965
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MSATs	Mobile Source Air Toxics
MTIP	Metropolitan Transportation Improvement Program
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria

3.4.10 Aesthetics and Visual Resources

As discussed in the FEIS, construction of the roadway is expected to have a visual impact on adjacent areas. Visual impacts would primarily be due to clearing within the project's construction limits, grade separations, and interchanges. As part of the project commitments (Table 19, No. 33), NCDOT agreed to consider the following measures to reduce visual impacts:

- Integrate landscaping into the project design to promote visual continuity of the highway and blend it into the natural landscape to the extent possible;
- Minimize the loss of vegetation, particularly during construction when equipment access, storage, and staging are required; and
- Design any necessary noise attenuation features to be compatible with surrounding natural features and development.

The conversion of the project from a non-toll to a toll facility would result in minimal change in the overall visual impact of the project. The addition of toll collection plazas would slightly alter the visual effects of the roadway in specific locations. The toll collection plazas would each include a small parking area, a small building to house an emergency electric generator, an overhead structure to hold signs and lighting, and toll-collection equipment. The facility may also include additional pole-mounted overhead lighting, particularly at toll collection plazas and interchanges, as needed. Specifications for the overhead structure and any additional overhead lighting have not been determined.

3.5 Impacts to the Physical Environment

3.5.1 Hazardous Material and Waste

Hazardous material and waste sites are regulated by the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). Hazardous waste is generally defined as any material that has or, when combined with other materials, will have a deleterious effect on humans or the natural environment. Potential hazardous waste sites include landfills, dumps, pits, lagoons, salvage yards, and industrial sites, as well as above and below ground storage tanks. Service stations are one of the most common generators of potential hazardous material sites, as older underground storage tanks may deteriorate and contaminate surrounding soil and groundwater with gasoline.

Based on information presented in the FEIS (2004), there are no known hazardous material or waste sites located within the proposed construction footprint. However, there are three hazardous material sites within approximately one-half mile of the project corridor. They include a hazardous waste site located off of Green Level Church Road that appears to be cross-gradient to the project corridor. The second is a Superfund site located approximately 1.0 mile west of NC 55 Bypass north of Holly Springs. This site appears to be upstream of the project corridor. The third site is an underground storage tank located just west of NC 55 to the south of its intersection with NC 55 Bypass. This site also appears to be upstream of the project corridor. Figure 12 shows the locations of known hazardous material and waste sites, as presented in the FEIS. No observations of potential hazardous material or waste sites were made during natural resources field surveys of the project corridor conducted in Fall 2006. No additional hazardous material or waste sites have been identified at this time. Roadway construction is unlikely to impact any known hazardous material or waste site.

3.5.2 Air Quality

An air quality impact evaluation was completed for the Western Wake Freeway and the methodology and findings are detailed in *Air Quality Analysis Technical Report* (NCTA, 2007c). The following information is summarized from that report.

3.5.2.1 Methodology

A carbon monoxide (CO) hotspot analysis is a standard requirement for an air quality impact evaluation and was included in the FEIS. For this Reevaluation, a new CO hotspot analysis was conducted, by analyzing traffic conditions on the freeway, executing emission factor models, and implementing dispersion modeling techniques consistent with NCDOT, North Carolina Department of Environment and Natural Resources – Division of Air Quality (NCDAQ), FHWA, and the United States Environmental Protection Agency (EPA) guidance. Dispersion modeling was conducted using the EPA's CAL3QHC computer program for predicting the CO concentrations near roadway intersections. CAL3QHC was used to predict total CO concentrations at the receptor points described in the previous section for each wind direction analyzed. A local background concentration of 2.9 ppm was used based on NCDENR guidance.

Maximum air quality impacts from motor vehicles are most likely to occur near areas where traffic is congested and vehicles are stopped with their engines idling. The CO hotspot analysis focuses on evaluating potential air quality impacts around the mainline

toll collection facility and around the most congested intersection where drivers are expected to experience the most delay. The air quality impacts for future traffic conditions are evaluated: one representing the conditions in 2011 when the project is completed; a second for conditions in 2016, 5 years after the project is completed; and a third representing the design year conditions in 2030. It is noted that the cash toll collection lanes are expected to be eliminated from service prior to 2030, leaving only free-flow ETC lanes.

In addition to the updated CO hotspot analysis, this Reevaluation also includes a qualitative analysis of the potential emissions of compounds identified as Mobile Source Air Toxics (MSATs), in accordance with FHWA guidance issued in 2006 (after publication of the FEIS and ROD for this project). In addition to the criteria air pollutants, EPA also regulates air toxics. Most air toxics originate from human-made sources, including diverse sources such as vehicles, airplanes, dry cleaners and factories or refineries. The MSATs are a subset of the 188 air toxics, also referred to as hazardous air pollutants (HAP), identified by the Clean Air Act (CAA). The MSATs are compounds emitted from highway vehicles and non-road equipment. MSATs were not considered in the FEIS, but are currently being considered based on FHWA guidance that was issued after the publication of the FEIS. MSATs are addressed per the FHWA's *Interim Guidance on Air Toxic Analysis in NEPA Documents* dated February 3, 2006.

3.5.2.2 Air Quality Status

The EPA and NCDAQ are responsible for the protection of air quality in North Carolina. As a measure for doing this, the EPA established National Ambient Air Quality Standards (NAAQSs) for the following air pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), particulate matter with an aerodynamic diameter 10 microns or less (PM_{10}), and "fine" particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$). The NAAQS are shown in Table 1.

Under the CAA, federal agencies must ensure that their actions conform to the SIP for achieving these air quality standards in areas that are designated as "non-attainment" or "maintenance" for those standards. This project is located in a non-attainment area for ozone and a maintenance area for CO. The required conformity determination for those pollutants is discussed in Section 3.5.2.5.

Table 1. National Ambient Air Quality Standards

Pollutant	Type of Standard	Averaging Time	Concentration ($\mu g/m^3$)	Concentration (ppm)
Carbon Monoxide (CO)	Primary	8-hour[1]	10,000	9
	Primary	1-hour[1]	40,000	35
Nitrogen Dioxide (NO_2)	Primary and Secondary	Annual Arithmetic Mean	100	0.053
Ozone (O_3)	Primary and Secondary	1-hour[2]	235	0.12
		8-hour	156	0.08
Particulate Matter (PM_{10})	Primary and Secondary	24-hour[3]	150	-
Particulate Matter ($PM_{2.5}$)	Primary and Secondary	Annual (Arithmetic Mean)	15.0 $\mu g/m^3$	-
	Primary and Secondary	24 hour	35 $\mu g/m^3$	-
Sulfur Dioxide (SO_2)	Primary	Annual Arithmetic Mean	80	0.03
	Primary	24-hour	365	0.14
	Secondary	3-hour	1,300	0.5
Lead (Pb)	Primary and Secondary	3 month	1.5	-

$\mu g/m^3$ micrograms per cubic meter.
ppm parts per million.
(1) Not to be exceeded more than once per year.
(2) Applies only in Early Action Compact Areas.
(3) Not to be exceeded more than once per year on average over 3 years.

NCDAQ maintains air quality monitors throughout the state for measuring actual concentrations of regulated air pollutants. Each county throughout the state is designated by EPA as having attained the NAAQS based on collected monitoring data. Wake County is currently in attainment of the NAAQS for nitrogen dioxide, sulfur dioxide, PM_{10}, $PM_{2.5}$ and lead. Conformity findings are required only for the following pollutants:

- § Carbon Monoxide (CO). Wake County is currently a maintenance area for CO[12]. Conformity determination therefore is required for CO. NCDAQ guidance indicates that the average 1-hour background concentration of CO used for impact modeling analyses in Wake County is 2.9 parts per million (ppm). As discussed below, the CO hotspot analysis performed for this project shows that the project conforms to the air quality standard for CO.

- § Ozone. After the publication of the FEIS and signing of the ROD, Wake County was, and is currently, designated a non-attainment area for the 8-hour ozone standard, effective June 15, 2004. Recent monitoring data (2004-2006) indicate that ozone concentrations have dropped. Consequently, on June 7, 2007, NCDAQ submitted a request to EPA to re-designate the area to attainment for ozone. However, at the present time, a conformity finding is required for the 8-hour ozone standard. The conformity finding for this pollutant is discussed in Section 3.5.2.5.

3.5.2.3 Carbon Monoxide (CO) "Hotspot" Analysis

While air quality impacts of tail-pipe pollutants can occur along the entire length of a given roadway segment, the location of maximum air quality impacts usually occurs at "hot spots" that typically are located in the immediate vicinity of an intersection or other area where vehicles will congregate. The "hot spots" for this project, as identified in the *Air Quality Analysis Technical Report* (NCTA, 2007b), are the intersection of Green Level Road with the ramps to and from Western Wake Freeway and the mainline toll collection facility.

Tables 2 and 3 below show the maximum CO concentrations predicted by the CAL3QHC dispersion model over the 1- and 8-hour averaging periods, respectively. For each location, the model indicates that the maximum concentrations are expected to be well below the NAAQS for both the 1-hour period and the 8-hour period.

[12] A maintenance area refers to a former non-attainment area that has since been re-designated as having attained the NAAQS. The re-designation process requires the regulatory authority to adopt a plan that implements measures for maintaining the attainment status.

Table 2. Predicted Maximum 1-Hour CO Concentrations (ppm)

Location	Opening Year 2011	Operating Year 2016	Design Year 2030
Green Level Road	4.5	4.2	4.3
Mainline Toll Plaza	4.0	4.7	4.9
NAAQS	35	35	35

Table 3. Predicted Maximum 8-Hour CO Concentrations[1] (ppm)

Location	Opening Year 2011	Operating Year 2016	Design Year 2030
Green Level Road	3.6	3.3	3.4
Mainline Toll Plaza	3.2	3.7	3.9
NAAQS	9	9	9

[1] A persistence factor of 0.79 is used to convert one-hour results to eight-hour results.

Since the maximum 1-hour and 8-hour CO concentrations for each scenario are shown to be below the NAAQS, the proposed Western Wake Freeway with toll facilities is not anticipated to contribute to a violation of the NAAQS. This finding is consistent with the finding reported in the FEIS that the Western Wake Freeway is not expected to exceed air quality standards.

3.5.2.4 Mobile Source Air Toxics Evaluation

3.5.2.4.1 Unavailable Information for Project Specific MSAT Impact Analysis

This report includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the non-toll or toll facility. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete. Evaluating the environmental and health impacts from MSATs on a proposed highway project 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 estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of

these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project. These shortcomings and uncertainties are described in more detail in the in *Air Quality Analysis Technical Report* (NCTA, 2007b), written for this project.

3.5.2.4.2 Relevance of Unavailable or Incomplete Information

Because of the uncertainties, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

Based on an FHWA qualitative analysis of MSAT emissions relative to the various alternatives, some of the alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

3.5.2.4.3 Qualitative MSAT Evaluation

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project. However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the project level, it is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions-if any-from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at: www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm.

For each scenario, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. Because the VMT estimated for the No-Build Alternative is approximately the same as for the Build Alternatives, higher levels of regional MSATs are not expected from any of the Build Alternatives compared to the No-Build (Table 4). In addition, because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than 0.5 percent (Table 5), it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions would likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Table 4. Vehicle Miles Traveled by Alternative – Comparison to No-Build

	No-Build Alternative	**Alternative A Reevaluated**	**Alternative A Reevaluated with Tolls**	Difference between **No-Build Alternative** and	
				Alternative A Reevaluated	**Alternative A Reevaluated with Tolls**
VMT	75,601,000	75,264,000	75,595,000	-337,000 (0.45%)	-6,000 (0.01%)

Source: *Triangle Regional Model VMT and VHT Calculations*, Martin/Alexiou/Bryson: May 1, 2007.

Table 5. Vehicle Miles Traveled - Alternative A Reevaluated verses Alternative A Reevaluated with Tolls

	Alternative A Reevaluated	Alternative A Reevaluated with Tolls	Difference
VMT	75,264,000	75,595,000	331,000 (0.44 %)

Source: *Triangle Regional Model VMT and VHT Calculations*, Martin/Alexiou/Bryson: May 1, 2007.

Because of the specific characteristics of the project, there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized decreases in MSAT emissions would likely be most pronounced along existing NC 55. The localized increases in MSAT emissions would likely be most pronounced along the new Western Wake Freeway. However, even if these increases do occur, they too would be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In summary, for the Build Alternative in the design year, it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No-Build Alternative, due to the reduced VMT associated with more direct routing, and due to EPA's MSAT reduction programs. In comparing various project alternatives, MSAT levels could be higher in some locations than others, but current tools and science are not adequate to quantify them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, would over time cause substantial reductions that, in almost all cases, would cause region-wide MSAT levels to be significantly lower than today.

3.5.2.5 Transportation Conformity Determination

The project is located in Wake County, which is within the Raleigh-Durham-Chapel Hill non-attainment area for ozone (O_3) and maintenance area for carbon monoxide (CO). The area was designated non-attainment for O_3 under the eight-hour ozone standard effective June 15, 2004. Section 176(c) of the CAA requires that transportation plans, programs, and projects conform to the SIP. The current SIP does not contain any transportation control measures for Wake County. The CAMPO 2030 LRTP and the 2007-2013 Metropolitan Transportation Improvement Program (MTIP) must conform to the intent of the SIP. CAMPO completed their conformity determination for the

amended 2030 LRTP and MTIP in May 2007 and the USDOT signed a letter of concurrence on June 29, 2007. The USDOT concurrence letter is included in Appendix B.

3.5.2.6 Qualitative Analysis of Air Quality for NC 55

A result of construction of Western Wake Freeway would be reduced traffic and congestion on existing alternate non-toll routes, including NC 55, which would be highly congested if Western Wake Freeway is not built. Thus, there would be the benefit of less traffic on the alternate non-toll routes as compared to the No-Build condition. If built as a toll facility, some potential users will divert off of the toll facility in order to avoid paying the toll, and will instead use alternate non-toll routes; as a result, there would be slightly more traffic on the alternate non-toll routes with the toll facility than with the non-toll facility; thus, there is a reduced benefit. According to the 2030 traffic forecasts in *Traffic Forecasts for the Toll Scenarios for TIP No. R-2635, Western Wake Parkway, Wake County, North Carolina* (NCTA, 2007a), the AADT ranges from 1,400 to 2,100 additional vehicles on NC 55 for the toll facility over the non-toll facility. It is likely that this slight increase in traffic volumes on NC 55 with the toll facility would result in a corresponding slight decrease in the air quality associated with NC 55 (as compared to the non-toll facility). However, while the benefits of the toll facility may be lower than the benefits of non-toll facility, due to the diversion of some potential users onto existing non-toll routes, the toll facility provides benefits sooner and represents an improvement over the No-Build condition.

3.5.3 Noise

The *Traffic Noise Report – Western Wake Freeway* (NCTA, 2007e) was prepared to evaluate the traffic noise for the toll facility. The analysis follows FHWA's Highway Traffic Noise Analysis and Abatement Policy and Guidance (1995) and NCDOT's Traffic Noise Abatement Policy (September 2004). Specifically, the FHWA Traffic Noise Model® Version 2.5 (TNM) was used to compare predicted noise levels for the design year (2030) and year 2006 ambient noise levels to determine if traffic noise impacts can be expected from the proposed project.

Traffic noise impacts were determined from NCDOT's approved policies and procedures based on its interpretation of FHWA's noise abatement criteria and procedures as presented in Part 772 of Title 23 of the Code of Federal Regulations (CFR). When traffic noise impacts were predicted, the analysis included an evaluation of alternate noise-abatement measures. Per these policies, the date of public knowledge for this analysis is April 30, 2004, the date FHWA approved the ROD. In

NCDAQ	North Carolina Division of Air Quality
NCDEM	North Carolina Division of Environmental Management
NCDENR	North Carolina Department of Environment and Natural Resources
NCDOT	North Carolina Department of Transportation
NCDWQ	North Carolina Division of Water Quality
NCHRP	National Cooperative Highway Research Program
NCWRC	North Carolina Wildlife Resources Commission
NCTA	North Carolina Turnpike Authority
NEPA	National Environmental Policy Act
NO_2	Nitrogen Dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	Ozone
ORW	Outstanding Resource Waters
Pb	Lead
PM_{10}	Particulate Matter with an Aerodynamic Diameter 10 Microns or Less
$PM_{2.5}$	"Fine" Particulate Matter with an Aerodynamic Diameter of 2.5 Microns or Less
ppm	parts per million
PSNC	Public Service Company of North Carolina
RCRA	Resource Conservation and Recovery Act
RDU	Raleigh-Durham International Airport
ROD	Record of Decision
RTP	Research Triangle Park
SEIS	Supplemental Environmental Impact Statement
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
STIP	State Transportation Improvement Program
T&R	Traffic and Revenue
TDE	Temporary Drainage Easement
TEAC	Turnpike Environmental Agency Coordination
TRM	Triangle Regional Model
TSM	Transportation System Management
$\mu g/m^3$	micrograms per cubic meter
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
VMT	Vehicle Miles Traveled

accordance with these federal and state traffic noise policies, governments are not responsible for providing noise abatement measures for new developments where building permits are issued within the noise impacted area of a proposed highway project after the date of public knowledge. Development that received building permits after April 30, 2004, were not considered for noise abatement.

The NCTA commits to, at a minimum, constructing the three noise walls identified in the FEIS project commitments (Table 19, No. 34); one each along the Kelly Glen, Scotts Mill, and Ashley Downs subdivisions in Apex.

3.5.3.1 Standard Noise Criteria

The FHWA has developed noise abatement criteria and procedures to be used in the planning and design of highways to determine if highway noise levels are compatible with various land uses and the NCDOT has established approved policies and procedures based on its interpretation of those developed by FHWA. A summary of NCDOT's Noise Abatement Criteria (NAC) for various land uses is presented in Tables 6 and 7. The receptors within the vicinity of the project limits were classified as B, C or E.

Table 6. Noise Abatement Criteria

Criteria for Each NCDOT Activity Category Hourly A-Weighted Sound Level – Decibels (dBA)		
Activity Category	**L_{eq}(h)**	**Description of Activity Category**
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Category A or B above.
D	---	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: North Carolina Department of Transportation Traffic Noise Abatement Policy –September 2004

Noise mitigation measures must be considered when future noise levels either approach or exceed the criteria levels in Table 6, or if there are substantial increases over the ambient noise levels. The NCDOT defines "approach" as within 1 dBA of the

A-weighted sound level criteria shown in Table 6. The NCDOT considers a substantial noise increase to occur when predicted design year noise levels substantially exceed existing noise levels, as defined in Table 7. Title 23 of the CFR, Section 772.11(a) states, "In determining and abating traffic noise impacts, primary consideration is to be given to exterior areas. Abatement is usually necessary only where frequent human use occurs and a lowered noise level would be of benefit."

Table 7. Criteria for Substantial Noise Increase

Hourly A-Weighted Sound Level – Decibels (dBA)	
Existing Leq(h)	Increase
50 or less dBA	15 or more dBA
51 dBA	14 or more dBA
52 dBA	13 or more dBA
53 dBA	12 or more dBA
54 dBA	11 or more dBA
55 or more dBA	10 or more dBA

Source: North Carolina Department of Transportation Traffic Noise Abatement Policy – September 2004

3.5.3.2 Traffic Noise Impacts and Noise Abatement Measures

According to the NCDOT Traffic Noise Abatement Policy, traffic noise impacts are created when the design year traffic noise levels either (1) approach or exceed the NCDOT noise abatement criteria (NAC) for each appropriate activity category shown in Table 6, or (2) substantially exceed the existing noise levels by the established criteria shown in Table 7. For this report, 523 receptors within the study area were analyzed. All are classified as FHWA Activity Category B, C, or E (see Table 6).

When traffic noise impacts were predicted, the analysis included an evaluation of alternate noise abatement measures for reducing or eliminating noise impacts. Consideration for noise abatement measures has been given to all impacted receptors in the project study area. Changes to the proposed highway alignment, the addition of traffic system management measures, the purchase of property for buffer zones and the use of vegetation were reviewed and considered as not reasonable and/or feasible abatement measures.

TNM 2.5 was used to model noise barriers at noise-sensitive locations. The cost of each barrier was estimated (assuming an approximate cost of $\$15/ft^2$) and compared with the allowable cost per benefited receptor while meeting the minimum noise reduction goals. NCDOT defines benefited receptors as all receptors that, by the placement of the noise-mitigation measure, receive a minimum noise-level reduction of 5 dBA.

Based on the locations of receivers for which future traffic noise impacts are expected, 11 areas were evaluated to determine whether a noise barrier would be reasonable and feasible. Of the 11 noise wall analysis areas, 4 proved to be feasible and reasonable based on the NCDOT Traffic Noise Abatement Policy. This is an addition of one noise barrier to the recommendations made in the *Design Noise Report - Western Wake Freeway* (NCDOT, 2002b) for this project. Barrier numbers 5, 6, and 8 (one each along the Kelly Glen, Scotts Mill, and Ashley Downs subdivisions in Apex) were recommended in the previous report and are still recommended. The additional noise wall, barrier number 7, is located adjacent to Olive Chapel Elementary School on the west side of the proposed facility. The primary reasons for noise wall ineffectiveness in other locations are the distance of receivers from the proposed alignment and the low density of receivers in wall analysis areas. Table 8 summarizes the feasibility and reasonableness of potential noise wall locations, and the locations are shown in Figures 13 A-D.

Table 8. Feasibility and Reasonableness of Potential Noise Wall Locations

Wall Location / Barrier #	Barrier #1	Barrier #2	Barrier #3	Barrier #4	Barrier #5*	Barrier #6*	Barrier #7**	Barrier #8*
Is wall Feasible?	NO	NO	YES	NO	YES	YES	YES	YES
Number of Receptors Impacted Without Wall	1	2	3	1	62	139	26	42
Average Decibel Increase	6	4	18	9	21	22	20	21
Number of Benefited Receptors	0	0	3	0	38	116	26	9
Allowable Cost Per Benefited Receptor	$38,000	$36,850	$43,750	$39,500	$45,500	$46,000	$45,000	$45,500
Wall Length (ft)	866	1558	1670	738	2945	2880	1050	1580
Average Wall Height (ft)	24	24	23	24	22.2	18.2	17.5	17
Wall Cost ($15 per ft^2)	$311,760	$560,880	$576,150	$265,680	$980,685	$803,439[a]	$275,625	$437,325 [a]
Cost Per Benefited Receptor	---	---	$192,050	---	$25,808	$6,778	$10,600	$44,767
Is Wall Reasonable?	---	---	NO	---	YES	YES	YES	YES
Recommend Wall?	NO	NO	NO	NO	**YES**	**YES**	**YES**	**YES**

Table 8 (continued). Feasibility and Reasonableness of Potential Noise Wall Locations

Wall Location / Barrier #	Barrier #9	Barrier #10	Barrier #11
Is wall Feasible?	YES	YES	YES
Number of Receptors Impacted Without Wall	5	4	8
Average Decibel Increase	16	12	27
Number of Benefited Receptors	1	1	2
Allowable Cost Per Benefited Receptor	$43,000	$41,000	$48,500
Wall Length (ft)	1725	705	1080
Average Wall Height (ft)	20	21.5	21
Wall Cost ($15 per ft^2)	$516,900	$227,363	$340,200
Cost Per Benefited Receptor	$516,900	$227,363	$170,100
Is Wall Reasonable?	NO	NO	NO
Recommend Wall?	NO	NO	NO

*Previously recommended in *Design Noise Report - Western Wake Freeway* (NCDOT, 2002b).

**Not previously recommended in *Design Noise Report - Western Wake Freeway* (NCDOT, 2002b); however, it is now reasonable and feasible.

a – These costs have been adjusted to reflect costs associated with the longer of the two recommended wall lengths from either the *Design Noise Report - Western Wake Freeway* (NCDOT, 2002b) or from this analysis as reported in *Traffic Noise Report – Western Wake Freeway* (NCTA, 2007e).

Noise walls are recommended for barrier locations 5, 6, 7, and 8.

Barrier No. 5 is along the Kelly Glen Subdivision, located between the east side of Kelly Road and the west side of the Western Wake Freeway. The optimized design of a noise wall that would provide a minimum 5 dBA reduction is approximately 2,945 feet long with an average height of 22.2 feet. There were 80 receptors included in this barrier analysis. Of these, 62 were expected to have future noise impacts. A maximum of 38 receivers are able to receive at least a 5 dBA reduction in noise levels with a reasonable noise barrier wall. Based on the NCDOT Traffic Noise Abatement Policy, the noise wall is reasonable and feasible and, therefore, **recommended for**

construction. This barrier corresponds to FEIS recommended Barrier No. 5. This updated wall is 82 feet longer and slightly taller than the wall recommended in the FEIS (2,863 feet). This barrier would be constructed to the new length (the longer of the two recommended lengths – 2,945 feet) and the new height recommended in the current analysis.

Barrier No. 6 is located along the Scotts Mill Subdivision, located between the east side of the Western Wake Freeway and Scott's Ridge Trail/Magnolia Breeze Court. The optimized design of a noise wall that would provide a minimum 5 dBA reduction is approximately 2,880 feet long with an average height of 18.2 feet. There were 150 receptors included in this barrier analysis. Of these, 139 were expected to have future noise impacts. A maximum of 116 receivers are able to receive at least a 5 dBA reduction in noise levels with a reasonable noise barrier wall. Based on the NCDOT Traffic Noise Abatement Policy, the noise wall is reasonable and feasible and, therefore, **recommended for construction**. This barrier corresponds to FEIS recommended Barrier No. 6. This updated wall is recommended to be 63 feet shorter and slightly taller than the wall recommended in the FEIS. This barrier would be constructed to the length previously identified in the FEIS (the longer of the two recommended lengths – 2,943 feet); however, the height would be adjusted to the new recommendations.

Barrier No. 7 is located along Olive Chapel Elementary School. The school consists of a main building, 14 modular classrooms, and an outdoor playground. According to the NCDOT Traffic Noise Abatement Policy, the playground is defined as a special use area and would be exposed to noise levels that exceed the NAC. The Olive Chapel Elementary School website lists the student population as 925 for the 2006-2007 school year. The formula provided in the NCDOT Traffic Noise Abatement Policy for determining the equivalent number of residents for special use areas was used to determine cost effectiveness of a noise wall. For this analysis, it was assumed that the students would be impacted while outdoors for 2 hours each day. This equates to 26 equivalent receivers for the barrier analysis. The calculation is:

Equivalent # of Residents = 925 students/3 * (2 hrs per day/ 24 hrs per day) = 26

With a barrier at an average height of 17.5 feet and a length of approximately 1,050 feet, the 26 equivalent receivers were able to receive the minimum 5 dBA noise level reduction. Based on the NCDOT Traffic Noise Abatement Policy, the noise wall is reasonable and feasible and, therefore, **recommended for construction**. This wall was not previously identified in the FEIS.

Barrier No. 8 is located along the Ashley Downs Subdivision, located along the east side of the Western Wake Freeway. Forty-two receivers within the Ashley Downs subdivision would be exposed to noise impacts without a barrier. The optimized design of a noise wall that would provide a minimum of 5 dBA reduction is approximately 1,580 feet long with an average height of 17 feet. Based on the NCDOT Traffic Noise Abatement Policy, the noise wall is reasonable and feasible, therefore, **recommended for construction**. There were 49 receptors included in this barrier analysis. Of these, 42 were expected to have future noise impacts. A maximum of 9 receivers are able to experience at least a 5 dBA reduction in noise levels with a reasonable noise barrier wall. This barrier corresponds to FEIS recommended noise Barrier No.7. This updated wall is recommended to be 135 feet shorter in length and slightly shorter in height than the wall recommended in the FEIS. This barrier will be constructed to the length previously identified in the FEIS (the longer of the two recommended lengths – 1,715 feet); however, the height would be adjusted to the new recommendations.

The two schools evaluated were Olive Chapel Elementary School and Panther Creek High School. A noise barrier is recommended adjacent to Olive Chapel Elementary School. However, building permits for Panther Creek High School were issued subsequent to the date of public knowledge for the project, and therefore it was not considered for barrier analysis.

Per NCDOT's Traffic Noise Abatement Policy (September 2004), the opinions of first row property owners will be requested prior to making a final determination on the noise abatement measures. A positive consensus from these first row property owners will finalize the recommendation to construct noise walls at locations Nos. 5, 6, 7 and 8. NCTA will coordinate with the first row property owners at a specific location(s), regarding alternate noise abatement measures, if a negative consensus is reached.

3.5.3.3 Interior Noise Levels at Sensitive Receivers

Two churches were classified as Category E receivers and were evaluated for interior noise impacts. Both Calvary Deliverance Church and Guard in Christ Jesus Church were initially evaluated as Category B receivers to determine if exterior noise impacts would be expected. Upon field observations, no exterior areas of frequent human use were identified at either location. Additionally, church activities are not typically associated with peak travel periods. For example, at Calvary Deliverance Church, Sunday services begin at 10:00 a.m., Tuesday services begin at 7:30 p.m. and Thursday services begin at 8:00 p.m. Due to these observations, both churches were then evaluated as Category E uses for interior traffic noise impacts. According to the FHWA Highway Traffic Noise Analysis and Abatement Policy and Guidance dated

June 1995, the noise reduction factor for the Calvary Deliverance Church building is 25 dB. The church is a masonry structure and was considered to have single glazed windows. The projected interior noise level for the church is determined by subtracting the noise reduction factor from the predicted exterior noise level. The expected interior noise level for Calvary Deliverance Church is 46 dBA (71 minus 25). This noise level falls short of approaching or exceeding the interior noise level threshold in the NAC. The noise reduction factor for Guard in Christ Jesus Church is 20 dB. The church is a light frame structure with ordinary sash windows. The projected interior noise level for this church is 41 dBA (61 minus 20). Therefore, in the analysis year 2030, neither church is expected to be exposed to interior noise levels that exceed the NAC.

3.5.3.4 Noise Contours – Information to Assist Local Governments

In accordance with federal and state traffic noise policies, governments are not responsible for providing noise abatement measures for new developments where building permits are issued within the noise impacted area of a proposed highway project after the date of public knowledge (for this project it is April 30, 2004). To aid local governments in planning for future development, impact zones are calculated and represented as noise "contours." Traffic noise "contours" are shown in this analysis as estimated distances from the center of the median of the proposed facility where a receptor could expect to be exposed to traffic noise approaching 67 dBA. They apply to Category B (Table 6) land uses. Traffic noise contours approaching 67 dBA range from 480 feet to 531 feet from the center line of the roadway for the proposed toll facility.

3.5.3.5 Traffic Noise Comparison: Alternative A versus Alternative A Reevaluated with Tolls

This section presents traffic noise information for Alternative A as well as for Alternative A Reevaluated with Tolls. The results of the Alternative A noise analysis are documented in the FEIS. The detailed technical analysis for Alternative A can be found in *Design Noise Report - Western Wake Freeway* (2002b).

Noise analysis for all alternatives was based on FHWA's 1995 Highway Traffic Noise Analysis and Abatement Policy and Guidance. However, the Alternative A analysis was based on NCDOT's Traffic Noise and Abatement Policy that existed prior to September 2004, while the analysis of the toll facility is based on the updated September 2004 Policy. Further, the Alternative A analysis utilized TNM 2.0 while the toll facility analysis utilizes the updated TNM 2.5. The design year for Alternative A was 2025 while the design year for the toll facility is 2030.

The traffic noise analysis for Alternative A contained 13 barrier analysis areas versus 11 for the toll facility. Due to sparse development in proximity to Ramps B and D of the US 64/Western Wake Freeway interchange, barrier analysis for these two areas are not included for the toll facility. All other areas analyzed for barriers are the same between Alternative A and the toll facility. The 2002 traffic noise analysis for Alternative A recommended three noise barriers for construction versus four barriers recommended in the analysis for the toll facility. The additional barrier is adjoining Olive Chapel Elementary School and is recommended for the toll facility due to changes in NCDOT policy rather than to design features of the toll facility. The NCDOT Policy in effect until September 2004 had no specific methodology for assessing noise impacts to schools. The updated policy considers schools a "special use area" and makes it more likely that noise walls would be cost-effective. The other three recommended noise barriers for the toll facility are the same as the three identified for Alternative A. While the dimensions (length and height) of these three barriers may vary slightly between Alternative A and the toll facility, the benefited receivers identified for Alternative A would also benefit with the toll facility.

Predicted ADT for Alternative A ranged from 82,000 to 113,500 and from 62,800 to 91,200 for the toll facility, which represents an approximate 20 percent reduction in traffic due to tolling. Ranges for noise levels at measurement locations that were common to both Alternative A and the current analysis were 48 dBA to 68 dBA for Alternative A and 59 dBA to 67 dBA for the toll facility. Measured noise levels in the overall project area ranged from 43 dBA to 70 dBA for Alternative A and from 34 dBA to 71 dBA for the toll facility. Noise contour ranges where exterior sound levels approach 67 dBA for Land Use Category B receivers were 300 feet to 855 feet for Alternative A and 480 feet to 531 feet for the toll facility.

Alternative A evaluated 414 receivers and found 389 of them to have noise impacts. The toll facility evaluated 523 receivers and found 451 to be impacted. The larger number of receivers evaluated and impacted for the toll facility is mostly a function of increased development within the project corridor from the time the noise analysis was completed for Alternative A in 2002.

Due to differences in methodologies, the noise impact analyses between Alternative A and toll facility are not directly comparable. However, when comparing non-toll versus toll versions of the current design, it is reasonable to expect that reduced traffic volumes associated with the toll facility would equate to less traffic noise. Non-toll and toll traffic volumes (for the same roadway) are inherently different due to traffic diversion that occurs when users intentionally avoid toll roads in favor of existing non-toll alternate routes. Therefore, the conclusion in a noise impact comparison between

toll and non-toll versions of any roadway, where the only difference is tolling, is that the toll road will have less traffic and an accompanying reduction in traffic noise.

3.5.3.6 Qualitative Assessment of Traffic Noise for NC 55

A result of construction of Western Wake Freeway would be reduced traffic and congestion on existing alternate non-toll routes, including NC 55, which would be highly congested if Western Wake Freeway is not built. Thus, there would be the benefit of less traffic on the alternate non-toll routes as compared to the No-Build condition. If built as a toll facility, some potential users will divert off of the toll facility in order to avoid paying the toll and instead will use an existing alternate non-toll route, such as NC 55. As a result, there would be slightly more traffic on NC 55 with implementation of the toll facility than with the non-toll facility. This diversion results in a reduced benefit. According to the 2030 traffic forecasts in *Traffic Forecasts for the Toll Scenarios for TIP No. R-2635, Western Wake Parkway, Wake County, North Carolina* (NCTA, 2007a), the AADT on NC 55 with the toll facility would range from 27,000 to 43,700 vehicles and with the non-toll facility the AADT on NC 55 would range from 28,400 to 45,800 vehicles. It is likely that this slight increase in traffic volumes on NC 55 with the toll facility would result in a corresponding slight increase in traffic noise associated with NC 55 (as compared to the non-toll facility). However, while the benefits of the toll facility on NC 55 may be lower than the benefits of the non-toll facility, due to the diversion of some potential users onto existing non-toll routes, the toll facility provides benefits sooner and represents an improvement over the No-Build condition.

3.5.4 Prime and Unique Farmlands

As noted in the FEIS, the Western Wake Freeway study area is planned for urban development by Wake County and the towns of Apex, Cary, and Holly Springs. Prime and unique farmland soils in areas planned for urban land uses are not protected under the Farmland Protection Policy Act. There are no impacts to prime and unique farmland soils.

3.6 Impacts to Natural Environment

3.6.1 Biotic Communities

As defined in the FEIS (2004), terrestrial plant communities within the study area are represented by seven major community types: mixed hardwood forest; bottomland hardwood forest; pine forest; successional; cutover; urban/disturbed; and agricultural.

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As noted in the FEIS, loss of habitat would be the primary adverse impact to biotic or plant communities as a result of the proposed freeway. Acreage estimates of biotic communities occurring within the approximate construction limits from the FEIS were estimated based on the line-intercept method[13]. Additional areas were computed at proposed interchange locations. Utilizing a Geographic Information System (GIS) and aerial photography from Wake County (2005), the area of each biotic community within the project footprint was updated. Table 9 compares the impacts from Alternative A, and non-toll and toll facilities.

Table 9. Impacts to Biotic Communities

Community Type	Alternative A (FEIS)* (acres)	Alternative A Reevaluated (acres)	Alternative A Reevaluated with Tolls (acres)
Mixed Hardwood Forest	224.7	195.4	207.1
Bottomland Hardwood Forest	28.8	85.2	87.2
Pine Forest	13.7	233.9	243.8
Successional	36.8	15.2	15.2
Cutover	23.7	89.0	92.4
Urban/Disturbed	210.1	209.2	212.2
Agricultural	76.7	59.3	67.1
TOTAL	**614.5**	**887.2**	**925.0**

* - As noted in the FEIS this impact summary is based on the functional design completed during the DEIS studies.

Based on the current designs, the non-toll facility would impact a total of 887.2 acres of biotic communities, which is 272.7 acres greater than Alternative A in the FEIS. This 272.7-acre difference is primarily due to progression in the project design such as the inclusion of increased median width, the recommended 3:1 cut-slopes, and development of the hydraulic design; it also reflects the inclusion, as part of this project, of an area previously associated with STIP Project No. R-2000, due to changes in construction limits (see footnote 4 in section 1.2).

[13] The line-intercept method is a data gathering method that identifies and quantifies the communities that intercept a line, in this case the proposed project centerline.

The toll facility would impact 925 acres, which is 37.8 acres (4.26 percent) greater than the non-toll facility. This difference reflects the expanded footprint needed for the addition of toll plazas.

3.6.2 Protected Species

3.6.2.1 Federally Protected Species

Some populations of fauna and flora have been or are in the process of decline due to either natural forces or their inability to coexist with humans. Federal law, under the provisions of Section 7 of the Endangered Species Act of 1973, as amended, requires that any action likely to adversely affect a species classified as federally protected be subject to review by the U.S. Fish and Wildlife Service (USFWS). The USFWS list (May 10, 2007) of known populations of federally protected species for Wake County is discussed below and included in Table 10.

Table 10. Federally Protected Species Listed for Wake County

Protected Species	Federal/State Status in Wake County	Habitat Preference	On-Site Availability	Biological Conclusion
Haliaeetus leucocephalus (Bald Eagle)	Delisted – Federal* E - State	Mature forests near large bodies of water.	Preferred habitat does not exist in the project corridor.	No Effect
Picoides borealis (Red-cockaded woodpecker)	E – Federal E - State	Mature open forests, mainly longleaf pine.	Preferred habitat is very sparse throughout the area. No known clusters lie within a 1-mile radius of the project corridor.	No Effect
Rhus michauxii (Michaux's sumac)	E – Federal E/SC - State	In Piedmont – clayey soils in woodland, and woodland edges.	Preferred habitat is available in the project corridor.	No Effect
Alasmidonta heterodon (Dwarf wedgemussel)	E – Federal E - State	Stable silt-free streambed	This species is not known from the Cape Fear River Basin; therefore, there is no habitat in the project footprint.	No Effect

Source: USFWS, 2007
E – Endangered
T – Threatened
SC – Species of Concern
* - The USFWS has published the Final Rule to delist the bald eagle; effective date August 8, 2007.

Surveys associated with the environmental planning of this project for these four protected species were conducted in 1996, 1997, 1998, 1999, 2004 and 2006. The

surveys were conducted according to the applicable protocols in effect during those years. The specific methodologies and other details of these surveys are documented in the following reports completed for NCDOT: *Natural Systems Report - Western Wake Freeway* (1997), *Protected Species Report - Western Wake Freeway Environmental Impact Statement* (1998), DEIS (1999), FEIS (2004), *Addendum to the Natural Systems Report of 1997* (2004c), and *Jurisdictional Waters Reverification Report - Western Wake Freeway* (2006). The latest surveys (performed in 2006) were conducted to provide NCDOT, in coordination with NCTA, with updated protected species information in order to complete the Section 404 permit application (discussed in section 6.2.1).

No populations of the four protected species have been observed in the project corridor during these surveys. A determination of "No Effect[14]" has been made for the Western Wake Freeway and these four species. Verbal concurrence regarding the "No Effect" conclusions was received from the USFWS during the Turnpike Environmental Agency Coordination (TEAC) meeting on January 17, 2007. The meeting minutes from this TEAC meeting are included in Appendix G.

The USFWS has delisted the bald eagle in the lower 48 states of the United States from the federal list of endangered and threatened wildlife, effective August 8, 2007. Prior to delisting, the bald eagle had been listed as a threatened species. The Final Rule pertaining to the determination of recovery and delisting of the bald eagle was published in the July 9, 2007 Federal Register (Part III 50 CFR Part 17). The bald eagle will continue to be protected by the Bald Eagle and Golden Eagle Protection Act and the Migratory Bird Treaty Act, and populations will continue to be monitored for at least another five years under provisions of the Endangered Species Act.

3.6.2.2 Federal Species of Concern

Sixteen Federal Species of Concern (FSC) are also listed for Wake County (Table 11). Three of these species are new listings since the FEIS. These new species for the county are indicated in **bold text** in Table 11. Habitat for 12 of the FSC, including two

[14] It should be noted that USFWS general policy indicates that a "May effect-not likely to adversely effect" conclusion is the standard conclusion when habitat is available for protected wildlife, as is the case for the red-cockaded woodpecker (RCW). However, the surveys and subsequent conclusions were completed in accordance with the *USFWS Red-cockaded woodpecker (Picoides borealis) Recovery Plan, Second Revision*, January 2003. Appendix 4 of this plan stipulates that if surveys are conducted as specified and "...if no active clusters are found, then a 'no effect' determination is appropriate." It should also be noted that "No Effect" is the standard conclusion for protected plants when surveys have been conducted in the available preferred habitat during the appropriate survey window and no individuals of the plant were found.

of the newly added species, occurs within the study area. The FSCs are not afforded federal protection under the Endangered Species Act of 1973, as amended, and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered.

Table 11. Federal Species of Concern Listed for Wake County

Species	Federal/State Status in Wake County	Habitat Preference	On-Site Availability
Vertebrates			
Aimophila aestivalis (Bachman's sparrow)	FSC – Federal SC - State	Abandoned fields with scattered shrubs, pines, or oaks.	Habitat is available in the project footprint.
***Ambloplites caviforns* (Roanoke bass)**	**FSC – Federal SR – State**	**Freshwater streams with deep, swift water. Prefers slightly turbid and/or dark swamp water.**	**Species is not found in Cape Fear River Basin.**
***Anguilla rostrata* (American eel)**	**FSC – Federal Not Listed - State**	**Freshwater streams with primarily muddy substrates.**	**Habitat is available in the project footprint.**
Etheostoma collies lepidinion (Carolina darter)	FSC - Federal Not Listed in County - State	Sluggish to calm, clear to slightly turbid creeks and small rivers with a bed of mud, sand, and rock.	Habitat is available in the project footprint.
Heterodon simus (Southern hognose snake)	FSC – Federal SC - State	Flatwoods on coarse sands or porous loamy soils.	Habitat is not available in the project footprint.
Lythrurus matutinus (Pinewoods shiner)	FSC – Federal Not Listed in County - State	Tar and Neuse drainages.	Species is not found in Cape Fear River Basin.
Myotis austroriparius (Southeastern myotis)	FSC – Federal SC - State	Caves, buildings, hollow trees, and sewers.	Habitat is available in the project footprint.
Noturus furiosus (Carolina madtom)	FSC - Federal SC (PT) - State	Tar and Neuse drainages.	Species is not found in Cape Fear River Basin.
Invertebrates			
Elliptio lanceolata (Yellow lance)	FSC – Federal E - State	Clean, coarse to medium sized sandy substrates.	Habitat is available in the project footprint.
Fusconaia masoni (Atlantic pigtoe)	FSC – Federal E - State	Coarse sand and gravel at the downstream edges of riffle areas.	Habitat is available in the project footprint.
Lasmigona subviridus (Green floater)	FSC – Federal E - State	Gravel or sandy substrates in medium or small streams.	Habitat is available in the project footprint.

Table 11 (continued). Federal Species of Concern Listed for Wake County

Species	Federal/State Status in Wake County	Habitat Preference	On-Site Availability
Speyeria diana (Diana fritillary butterfly)	FSC - Federal SR - State	Forested valleys with moist rich soil.	Habitat is available in the project footprint.
Plants			
Lindera subcoriacea (Bog spicebush)	FSC - Federal T - State	Bogs and riparian habitats.	Habitat is available in the project footprint.
Monotropsis odorata (Sweet pinesap)	FSC – Federal SR-T - State	Dry forests and bluffs.	Habitat is available in the project footprint.
***Sagittaria weatherbiana* (Grassleaf arrowhead)**	**FSC – Federal** **SR-T - State**	**Shallow water wetlands such as beaver ponds.**	**Habitat is available in the project footprint.**
Trillium pusillum var. *virginianum* (Virginia least trillium)	FSC - Federal E - State	Ecotones between savannahs and non-riverine wet hardwood forests.	Habitat is available in the project footprint.

Source: USFWS, 2007 and North Carolina Department of Environment and Natural Resources – Natural Heritage Program, 2007.
SC - Special Concern
SR - Significantly Rare
PT - Proposed Threatened
-T - Throughout

3.6.3 Water Resources

Jurisdictional wetlands and other waters of the U.S. were originally delineated for the Preferred Alternative corridor in 2001, with minor areas requiring additional surveys in 2002 and 2004 (due to design modifications). The compilation of these data was presented in the FEIS. Due to the age of the original delineations and development altering the natural landscape in western Wake County, the wetlands in the project corridor were redelineated during Fall 2006. Jurisdictional wetlands were identified using the three-parameter approach (hydrophytic vegetation, hydric soils, and hydrology) as outlined in the *1987 US Army Corps of Engineers Wetland Delineation Manual*. Supplementary technical literature describing the parameters of hydrophytic vegetation, hydric soils, and hydrological indicators was also utilized. Evaluations of each wetland were conducted using the *Fourth Version of the Guidance for Rating the Values of Wetlands in North Carolina* (North Carolina Department of Environment and Natural Resources - Division of Environmental Management [NCDEM], 1995).

Potential streams were evaluated for the presence or absence of an established bed and bank, substrate, vegetation within channel and perennial or intermittent hydrology. The North Carolina Department of Environment and Natural Resources - Division of

Water Quality's (NCDWQ) *Identification Methods for the Origins of Intermittent and Perennial Streams, Version 3.1* (NCDWQ, 2005) was used to make stream determination on all new channels and any previously delineated channel that was deemed to have changed since the original delineation.

The recent fieldwork found that, within the 2006 survey area, approximately 25 percent of the wetlands, ponds and streams previously delineated have been altered, primarily due to changes in hydrology (e.g., increase in impervious surface and beaver activity). The USACE, joined by NCDWQ, field verified the updated jurisdictional waters survey for the project on November 30, 2006. Verbal concurrence for the updated survey was received from the USACE at that time. The following discussion of impacts to streams and surface waters and to jurisdictional wetlands is based on information gathered during November 2006. Additional details and copies of the various data sheets from the Fall 2006 redelineation of jurisdictional waters are included in *Jurisdictional Waters Reverification Report - Western Wake Freeway* (NCDOT, 2006). Tables from that report provide additional details of the characteristics of the streams, ponds, and wetlands in the project corridor and are included in Appendix H.

3.6.3.1 Water Quality

All streams, creeks, and tributaries within the study area are part of the Cape Fear River Basin.

In accordance with 15A NCAC 2B.0311, the NCDWQ has classified the water quality of the state's surface waters. The classifications are based on the "best usage" of each waterbody, determined through water quality and land use studies, and input received in public hearings. The best use classification for the waters in the study area has not changed since the FEIS. All receiving waters south of Old US 1 are listed for Class C uses, which denotes waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. The waters north of Old US 1 are classified as WS-IV, meaning waters protected for water supply within a moderately to highly developed watershed. Point source discharges of treated wastewater are permitted and local programs to control nonpoint source and stormwater discharge of pollution are required. These waters are also classified as nutrient sensitive waters (NSW), which require limitations on nutrient inputs. There are no High Quality Waters (HQW), Outstanding Resource Waters (ORW), or Water Supplies (WS-I or WS-II) in the project area.

The Ambient Monitoring System (AMS) is a network of water quality monitoring stations, strategically located for the collection of physical and chemical water quality

data, which help determine a waterbody's classification and corresponding water quality standards. The AMS determines how well a waterbody supports its designated uses. There are no data available for the majority of the streams in the project corridor; therefore, there is no rating. There is only one AMS information monitoring site in the project vicinity. The station is located on White Oak Creek, approximately 3.0 miles downstream of the project corridor. Due to lack of water during the summer months, this stream is currently listed as "not rated" (NCDWQ, 2004).

Section 303(d) of the Clean Water Act (CWA) requires states to develop a comprehensive public accounting of all impaired waters. The list includes waters impaired by pollutants, such as nitrogen, phosphorus and fecal coliform bacteria, and by pollution, such as hydromodification and habitat degradation. The source of impairment might be from point sources, nonpoint sources, or atmospheric deposition. There are no 303(d) listed waters in the project footprint or within 1 mile downstream of the project corridor (NCDWQ, 2006a).

3.6.3.2 Streams and Surface Waters

Major streams, defined as a stream draining a watershed of at least 1 square mile, that occur within the project footprint include Little Branch, Big Branch, Reedy Branch and Bachelor Branch as free flowing streams. Beaver Creek, White Oak Creek, and Panther Creek are also major streams, but they are currently impounded as beaver ponds. Bridges are currently planned to span Beaver Creek, Jack Branch, White Oak Creek, and Panther Creek.

Figure 14 identifies the jurisdictional streams impacted by the non-toll and toll facilities. Table 12 notes the length of impact for each stream, including the impacts for Alternative A as reported in the FEIS.

Table 12. Length of Stream Impacted

Stream ID No.	Alternative A (FEIS) (linear feet)	Alternative A Reevaluated (linear feet)*	Alternative A Reevaluated with Tolls (linear feet)*
1	412	431	431
2	208	--	--
3	357	411	411
4	243	262	262
5	185	334	334
6	1,688	1,591	1,596
7	633	508	508
7	--	163	162
8	241	262	262
9	126	441	441
13	746	650	650
21	498	500	500
22	20	36	36
24	746	1,020	1,020
27	--	1,187	1,187
28	896	153	153
29	--	105	105
30	--	31	31
31	398	475	475
32	303	380	491
33	415	429	448
35	--	30	30
37	421	492	492
38	334	550	550
39	177	620	620
41	260	548	548
42	394	607	607
45	--	157	157
46	60	283	283
47	185	211	211
49	--	27	27
51	--	175	175
54	--	237	237
55	--	752	752
56	--	3	46
57[a]	285	284	284
59[b]	67	63	63
60	--	119	119
92	--	65	65

Table 12 (continued). Length of Stream Impacted

Stream ID No.	Alternative A (FEIS) (linear feet)	Alternative A Reevaluated (linear feet)*	Alternative A Reevaluated with Tolls (linear feet)*
93	--	312	312
94	--	29	29
5a	340	--	--
TOTAL	**10,637**	**14,934****	**15,113****

a – Identified as stream #17 in the FEIS

b – Identified as stream #4a in the FEIS

* - As noted in Section 1.6, the designs for each roadway section have not progressed to the same point, thus to be conservative in the estimation of impacts different offsets and assumptions were applied to each roadway section or alternative to better reflect the level of completion in each section's design. These quantities are based on the following offsets and assumptions: Sections A and B (both Alternative A Reevaluated and Alternative A Reevaluated with Tolls) - 15 feet beyond the slope-stake line; Sections A, B and C at locations of toll plazas (Alternative A Reevaluated with Tolls) - 20 feet beyond the slope-stake line; Section C (Alternative A Reevaluated) - 10 feet beyond the slope-stake line or the edge of the Temporary Drainage Easement (TDE); Section C (Alternative A Reevaluated with Tolls) - 10 feet beyond the slope-stake line or the edge of the TDE for areas where the design is the same as for the Alternative A Reevaluated. In areas where the Alternative A Reevaluated with Tolls design does not match the Alternative A Reevaluated design - 20 feet beyond the slope-stake line. Sections of streams that are located within an interchange are counted as an impact if less than a 100-foot, continuous section remains after the offset is applied. This information is based on the design as of January 17, 2007.

** - Upon review of TDEs along the project footprint, it was noted that the redelineation surveys for wetlands and stream completed in Fall 2006 needed to be expanded to include additional project area. Additional area was reviewed in February 2007, and the additional stream reaches from this 2007 survey have been added to the table.

Based on the current designs for each facility, the non-toll facility would impact approximately 14,934 linear feet of stream channel, which is 4,297 feet more than Alternative A in the FEIS. The toll facility would impact approximately 15,113 linear feet of stream channel, which is approximately 179 linear feet greater than the non-toll facility, due to the additional footprint needed for the toll plazas.

In the FEIS, it was noted that based on preliminary designs, the Alternative A would impact an estimated 10,637 linear feet of streams (impacts calculated to 10 feet beyond the slope-stake line). Several factors have been identified as the primary causes for increases in the total quantity of impacts, compared to those identified in the FEIS, for the non-toll facility. These factors for the non-toll facility include changes in stream length (which is primarily due to changes in hydrology such as increased impervious surface from development), increased offset assumptions beyond the slope-stake line for estimation of impacts, and the progression of design development. In addition, for Alternative A Reevaluated, some stream impacts originally included with STIP Project No. R-2000 are now included in this project due to changes in construction limits (see footnote 4 in section 1.2).

Figure 14 identifies the ponds (open waters generally encountered as man-made impoundments) impacted by the project. Table 13 notes the area of impact for each pond for Alternative A, and the non-toll and toll facilities.

Table 13. Area of Ponds Impacted

Pond ID Number	Alternative A (FEIS) (acres)	Alternative A Reevaluated (acres)*	Alternative A Reevaluated with Tolls (acres)*
3	0.87	0.87	0.87
4	1.13	1.13	1.13
5	0.74	0.74	0.74
6	0.57	0.67	0.67
8	0.58	0.15	0.17
10	0.00	0.01	0.04
11	1.85	1.85	1.85
14	1.20	1.20	1.20
25	0.13	0.00	0.00
26	0.78	0.78	0.78
31	1.14	1.14	1.14
34	1.07	3.48	3.48
TOTAL	**11.09**	**12.02**	**12.07**

* - As noted in Section 1.6, the designs for each roadway section have not progressed to the same point, thus to be conservative in the estimation of impacts different offsets and assumptions were applied to each roadway section or alternative to better reflect the level of completion in each section's design. These quantities are based on the following offsets and assumptions: Sections A and B (both Alternative A Reevaluated and Alternative A Reevaluated with Tolls) - 15 feet beyond the slope-stake line; Sections A, B and C at locations of toll plazas (Alternative A Reevaluated with Tolls) - 20 feet beyond the slope-stake line; Section C (Alternative A Reevaluated) - 10 feet beyond the slope-stake line or the edge of the TDE; Section C (Alternative A Reevaluated with Tolls) - 10 feet beyond the slope-stake line or the edge of the TDE for areas where the design is the same as for Alternative A Reevaluated. In areas where the Alternative A Reevaluated with Tolls design does not match the Alternative A Reevaluated design - 20 feet beyond the slope-stake line. This information is based on the design as of January 17, 2007.

Based on the current designs, the non-toll facility would impact approximately 12.02 acres of ponds, which is 0.93 acre greater than Alternative A in the FEIS. Several factors have been identified as the primary causes for increases in the total quantity of impacts, compared to those identified in the FEIS for the non-toll facility. These factors for the non-toll facility include the progression of design development and increased offset assumptions beyond the slope-stake line for estimation of impacts.

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The toll facility would impact approximately 12.07 acres, which is 0.05 acre greater than the non-toll facility, due to the additional footprint needed for the toll plazas.

3.6.3.3 Jurisdictional Wetlands

As noted previously in this report, the jurisdictional wetlands for the project were reverified during Fall 2006. The following information is based on this updated delineation. Figure 14 illustrates the jurisdictional wetlands impacted by the project. Table 14 notes the area of impact for each wetland for Alternative A, and the non-toll and toll facilities.

Table 14. Area of Jurisdictional Wetlands Impacted

Wetland ID No.	Alternative A (FEIS) (acres)	Alternative A Reevaluated (acres)*	Alternative A Reevaluated with Tolls (acres)*
2	0.08	0.19	0.19
3	1.88	1.03	1.03
7	0.22	0.37	0.37
8	0.03	0.03	0.03
11	0.02	0.05	0.05
12	0.02	0.03	0.03
14	0.56	0.53	0.53
19	0.03	0.03	0.03
20	0.08	0.10	0.10
21	1.02	1.02	1.02
22	2.71	2.70	2.70
27	0.22	0.26	0.26
30	0.02	0.04	0.04
31	0.01	0.06	0.06
33	1.07	1.23	1.23
35	0.01	0.01	0.01
36	0.06	0.06	0.06
38	0.09	0.18	0.18
39	--	0.06	0.06

Table 14 (continued). Area of Jurisdictional Wetlands Impacted

Wetland ID No.	Alternative A (FEIS) (acres)	Alternative A Reevaluated (acres)*	Alternative A Reevaluated with Tolls (acres)*
40	--	0.29	0.35
42	--	0.10	0.10
43	0.13	0.13	0.13
44	0.29	0.35	0.35
45	0.01	--	--
48	0.10	0.23	0.23
49	0.27	0.82	0.82
51	0.09	0.36	0.36
53	0.29	0.32	0.36
60	1.91	0.99	0.99
63	0.19	0.50	0.50
64/65	0.37	1.60	1.60
68/69	2.50	2.06	2.06
71	--	0.12	0.12
72	--	0.01	0.01
73	--	0.45	0.45
74	--	0.58	0.58
82	--	0.14	0.14
84	--	0.18	0.22
86	--	0.53	0.77
87	--	0.55	0.55
88	--	0.11	0.11
89		0.06	0.06
90		0.12	0.12
91	--	1.06	1.06
92	--	0.12	0.12
TOTAL	**14.50**	**19.76**	**20.14**

* - To be conservative in disclosure and to better allow for a full review of the potential impacts of the project, these quantities have been updated to reflect the information included in the 404/401 Permit Application submitted to the USACE and to NCDWQ on August 27, 2007.

Based on the current designs, the non-toll facility would impact approximately 19.76 acres of jurisdictional wetlands, which is 5.26 acres greater than the 14.50 acres under Alternative A. The toll facility would impact an additional 0.38 acre of jurisdictional wetlands, compared to the non-toll facility, due to the additional footprint needed for the toll plazas.

In the FEIS, it was noted that based on preliminary designs, Alternative A would impact an estimated 14.50 acres of jurisdictional wetlands (impacts calculated to 10 feet beyond the slope-stake line). Several factors have been identified as the primary causes for increases in the total quantity of impacts, compared to those identified in the FEIS for the non-toll facility. These factors for the non-toll facility include newly formed wetlands (which are primarily due to changes in hydrology such as increased impervious surface from development), continued beaver activity, increased offset assumptions beyond the slope-stake line for estimation of impacts, and the progression of design development. In addition, for Alternative A Reevaluated, some wetland impacts originally included with STIP Project No. R-2000 are now included in this project due to changes in construction limits (see footnote 4 in section 1.2).

3.6.3.4 Wetlands and Surface Water Mitigation

The USACE, through the Council on Environmental Quality (CEQ), has adopted a wetland mitigation policy which embraces the concepts of “no net loss of wetlands” and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of Waters of the United States. Mitigation of jurisdictional wetland impacts has been defined by the CEQ to include: avoidance of wetland impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). Each of these three techniques (avoidance, minimization, and compensatory mitigation) must be considered in sequential order, with compensation considered only after all other avenues for reducing impacts have been exhausted.

It was noted in the ROD (2004) that the preliminary design for Alternative A was adjusted to avoid wetland impacts to the maximum extent practicable and to minimize impacts to unavoidable wetland systems. Wetland minimization was incorporated into the preliminary design by bridging the White Oak Creek and Beaver Creek crossings. Based on the outcome of the Fall 2006 redelineation of jurisdictional waters and an assessment of hydraulic constraints, bridges have been added at two additional locations. The first additional bridge, located at wetland #60 (beaver impoundment of Jack Branch), would be approximately 270 feet long, and the second additional bridge, located at wetland #68/69 (beaver impoundment of Panther Creek), would also be

approximately 270 feet long. These two additional bridges would further minimize the total wetlands impacted by 2.55 acres.

Compensatory mitigation is not normally considered until anticipated impacts to Waters of the United States are avoided and minimized to the maximum extent possible. Compensatory actions often include restoration, creation and enhancement of Waters of the United States, specifically wetlands. In general, such actions should be in areas adjacent to or contiguous to the project site, if possible. However, there is little opportunity in the immediate vicinity of the Western Wake Freeway project footprint for on-site wetland mitigation. As noted in the FEIS, "Most of the mitigation potential in the study corridor is preservation. There are limited opportunities for wetland enhancement and the creation of stormwater wetlands." Based on this assessment and a review of the project footprint by the NCDOT On-site Mitigation Group, there are no plans for on-site wetland mitigation. There is also little opportunity in the immediate vicinity of the project footprint for on-site stream mitigation. As noted in the FEIS, "One perennial stream (No. 29), a northern tributary of Reedy Branch located immediately south of US 64, was determined to have moderate to high potential mitigation value." As shown in the current design plans for Section C, on-site mitigation as stream channel relocation is being utilized at this location. The NCDOT On-site Mitigation Group has reviewed the project footprint and no additional sites have been identified for on-site stream mitigation for Sections A or B.

Under consultation with the USACE, mitigation requirements for impacted delineated wetlands would be determined and included as conditions of the Section 404 permit approval. It is anticipated that compensation for unavoidable impacts to streams and wetlands would be mitigated through a payment-in-lieu to the North Carolina Department of Environment and Natural Resources - Ecosystem Enhancement Program (EEP). NCTA is coordinating with the USACE, NCDOT and EEP to address the mitigation needs for the project. The current plan would track mitigation needs through NCDOT's MOA with EEP, but NCTA would pay for the mitigation via the in-lieu-fee program under the EEP MOU with the USACE.

3.6.4 Floodplains and Floodways

As noted in the FEIS, a floodway and floodplain evaluation was conducted in accordance with Executive Order 11988 - Floodplain Management and 23 CFR 650, Subpart A. Wake County, Raleigh, Cary, and Apex are participants in the National Flood Insurance Program (NFIP). The NFIP defines a floodplain as any land area susceptible to being inundated by water. In NFIP regular program communities, the Federal Emergency Management Agency (FEMA), in cooperation with other federal

agencies and state and local governments, conducts detailed flood studies to determine designated floodways to safely remove floodwater during flood events. These studies result in floodway boundaries which are illustrated on Flood Insurance Rate Maps (FIRM). The information obtained through these studies is utilized by local jurisdictions in their land development ordinances and regulations to discourage development in flood prone areas.

Table 15 provides a description of the floodplains within the study area as included in the FEIS. As noted in the FEIS, Alternative A would unavoidably encroach upon the 100-year floodplains (as defined by FEMA), of several area streams. In addition the FEIS notes that the designated flood hazard zones of Big Branch, Beaver Creek, White Oak Creek, Clark Branch, Jack Branch, Bachelor Branch, and Panther Creek would be impacted.

Executive Order 11988 prohibits floodplain encroachments which are uneconomic, hazardous, or result in incompatible uses of the floodplain, as well as any action which would cause a critical interruption of an emergency transportation facility, a substantial flood risk, or adverse impact on the floodplain's natural resource values. For the FEIS, the impacts of the encroachment of the drainage structures on the 100-year floodplain were assessed through the use of hydraulic design techniques described in 23 CFR 650, Subpart A. Structures at that time were sized to ensure that no increases to the extent and level of flood hazard risk would result from such encroachments. Therefore, Alternative A was not anticipated to result in uneconomic, hazardous, or incompatible uses of any of the study area floodplains.

The FIRMs that include the project corridor were updated in May 2006. These maps were obtained as DFIRMs (Digital FIRMs) through the North Carolina Floodplain Mapping Program. Figure 15 illustrates these updated DFIRMs and the project footprint[15]. Updated descriptions of the floodplains within the study area, based on the DFIRMs, are included in Table 15. The additional footprint needed for the toll plazas does not encroach on floodplains.

[15] Definitions of DFIRM defined areas as identified on Figure 15: Zone AE – Special flood hazard area subject to inundation by the 1% annual chance flood where base flood elevations have been determined. Floodway – The channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood height. Zone X (future) – Areas of future conditions 1% annual chance flood.

Table 15. Estimated 100-Year Floodplain Encroachment

Floodplain	Alternative A[a] (FEIS)			Alternative A Reevaluated with Tolls[b]		
	Width feet	100 Yr. Flood Elevation* feet (MSL)[c]	Stream Elevation feet (MSL)[c]	Width feet	100 Yr. Flood Elevation feet (NAVD88)[c]	Stream Elevation feet (MSL)[c]
Harris Reservoir Tributary[d]	--	--	--	270 ft	300 ft	290 ft
Little Branch[e]	164 ft	299 ft *	280 ft	--	--	--
Big Branch	427 ft	302 ft *	280 ft	350 ft	298 ft	280 ft
Reedy Branch Tributary	164 ft	306 ft *	290 ft	163 ft (future)	310 ft (future)	290 ft
Beaver Creek	656 ft	281 ft	270 ft	960 ft	281 ft	270 ft
Jack Branch	427 ft	300 ft *	290 ft	367 ft	293 ft	290 ft
White Oak Creek	558 ft	298 ft *	290 ft	552 ft	285 ft	290 ft
Bachelor Branch	328 ft	302 ft *	290 ft	894 ft	300 ft	290 ft
Panther Creek	492 ft	278 ft	270 ft	493 ft	275 ft	270 ft
Morris Branch[f]	--	--	--	175 ft	287 ft	280 ft

a – As reported in the FEIS. Source: FEMA Flood Insurance Rate Maps: Wake County and Incorporated Area.

b – Source: Digital Flood Insurance Rate Maps, North Carolina Floodplain Mapping Program, 2006. The additional footprint needed for the toll plazas does not encroach on floodplains.

c – The FIRMs used in the FEIS reported data in feet (MSL [above mean sea level]). The DFIRMs report data in feet (NAVD88 [North America Vertical Data 1988]). These are not equivalent units of vertical measurement.

d - A Harris Reservoir Tributary floodplain was not identified in the FEIS; however, one is now included on the current DFIRMs.

e - A Little Branch floodplain was identified in the FEIS; however, one is not included on the current DFIRMs.

f – A Morris Branch floodplain was not identified in the FEIS; however, one is now included on the current DFIRMs.

* - The 100-year floodplains along some streams were determined by indirect methods and the flood elevations are not enumerated on the FEMA maps. For these elevations, FEMA maps were compared to USGS topography maps and the elevation at the edge of the floodplain was estimated.

Based on a review of information illustrated on the DFIRMs, the base flood elevations and/or the estimated 100-year floodplain encroachment widths have changed since the FEIS. Because of these changes a series of Conditional Letters of Map Revision (CLOMR) are being prepared. The additional footprint needed for the toll plazas does

not encroach on floodplains. Based on the current level of design for Section C of the toll facility, CLOMRs have been prepared for the encroachments at Jack Branch, Bachelor Branch, Panther Creek, and Morris Branch. The Design-Build team will be responsible for any Letters of Map Revision (LOMRs) needed for Section C. Based on the current level of design for Sections A and B of the toll facility, CLOMRs are likely to be needed for the encroachments at Big Branch and Beaver Creek. The Design-Build team will be responsible for any CLOMRs or LOMRs needed for Sections A or B.

3.7 Indirect and Cumulative Impacts

3.7.1 FEIS Indirect and Cumulative Impact Assessment

A qualitative assessment, as noted in *Indirect and Cumulative Impact Assessment - TIP No. R-2635* (NCDOT, 2003a), was conducted in July 2003 for Western Wake Freeway as a non-toll facility, and summarized in the FEIS. The qualitative assessment determined that induced development from the project is not likely, and that development would occur within the study area with or without the project. A shift in development patterns is anticipated to occur, with less intense land uses transitioning to more intense commercial, office, retail and higher density residential uses in the vicinity of the proposed interchanges. Land use plans indicate that new development is desirable in the interchange areas. The FEIS also noted indirect and/or cumulative impacts to several specific areas. Impacts to the Green Level Historic District, Feltonsville and the Twyla Road neighborhood are expected due primarily to proximity of these areas to proposed interchanges. In addition, intense development would result in increased impervious surface coverage, increased stormwater runoff, and a greater chance for non-point source pollution. However, the qualitative assessment noted that local governments have regulations in place to mitigate potential water quality impacts.

3.7.2 Updated Western Wake Freeway Land Use Analysis

As part of this Reevaluation, a quantitative land use analysis evaluated the effects of constructing Western Wake Freeway as a toll facility rather than a non-toll facility (*Land Use Analysis – TIP Project No.R-2635*, NCTA, 2007f). This land use analysis considers land use changes that have occurred since the FEIS was completed. In accordance with the eight-step process identified in *Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina* (NCDOT and NCDENR, November 2001), a Growth Impact Study Area (GISA) was defined for Western Wake Freeway. This GISA is an area in which indirect and cumulative effects are likely to occur. Urbanized areas, arterial alignments, natural features, and

commutesheds were taken into account when developing the GISA. The boundaries of the GISA that were established for this project include I-40 in the north; Jordan Lake in the west; and Davis Drive, US 64, and Lake Wheeler in the east. The southern boundary extends approximately 7 miles, or a 15-minute drive time, from the southern terminus of the project. This is where commuters would experience the greatest travel time savings. It is not anticipated that any measurable growth resulting from the Western Wake Freeway would occur outside of the GISA.

Research has shown that the land development effects of a new highway largely occur within 7 to 10 years after construction is complete (Cervero, 2003). A 2030 planning horizon was assumed for this analysis, consistent with the socio-economic data from the CAMPO 2030 TRM used for forecasting residential and non-residential growth. Since the Western Wake Freeway would be constructed by 2011, the 2030 planning horizon offers ample time to study land use changes following construction.

Other transportation projects included in this assessment are part of the 2030 CAMPO TRM model. They include NCDOT STIP projects, which include NCTA Toll Candidate Projects (STIP Project Nos. R-2000AA and AB, and STIP Project No. U-4763B), and projects included in CAMPO's and DCHC-MPO's fiscally constrained LRTPs. All projects included in this assessment are located in the GISA.

The key conclusions of the land use analysis are:

- Indications are that the Triangle region, which encompasses the GISA, would continue to grow at a relatively fast pace. The North Carolina State Demographics Unit indicates that between 2000 and 2030, the populations in Durham, Chatham and Wake Counties are expected to grow 48.3 percent, 74.1 percent, and 123.7 percent, respectively. The population growth rates for Chatham and Wake Counties are relatively high when compared to North Carolina as a whole (50.2 percent) during the same time period.

- Non-residential development within the GISA has historically been centered along NC 55 and US 64. Residential development has occurred throughout the GISA, but those areas with greater access to these roads (and US 1) have grown at a faster pace. Development is likely occurring in these areas because land is available, water and sewer are available, and land has traditionally been more affordable than land in the City of Raleigh.

- In general, the municipalities and counties (Apex, Cary, Fuquay-Varina, Holly Springs, Morrisville and the counties of Chatham, Durham and Wake) within

the GISA encourage new development, as long as the development is compatible with adopted plans for growth and is consistent with development regulations. Many of the towns and counties have residential density limits based on the suitability of the land for development. In addition, environmental regulations are in place to protect natural resources, particularly water resources.

- There is a high potential for a shift in development patterns throughout the GISA. While some of this potential for change is related to construction of the Western Wake Freeway, rapid growth and development is already occurring even without the project because the region is an attractive place to live and work. In addition, there is plenty of developable land and water and sewer services are readily available.

- The construction of the Western Wake Freeway, whether as a toll facility or a non-toll facility, would likely enhance the attractiveness of western Wake County as a place to live and work. It may accelerate growth to a certain extent, and planners suggest that some of the residential and non-residential development that is currently planned may be reliant on construction of the facility.

- Municipal and county planning staff generally agreed that development patterns are not likely to be substantially different if the road is constructed as a toll facility or a non-toll facility. Non-residential development would still be concentrated at the proposed interchanges and along major feeder roadways, and residential development would be spread throughout the GISA, as described in the FEIS.

3.7.3 Overland Pollutant Loading Analysis

The *Land Use Analysis – TIP Project No.R-2635* (NCTA, 2007f) was used to support a quantitative pollutant loading modeling analysis for NCDOT in order to obtain the Section 404/401 (of the Clean Water Act) permit (*Indirect and Cumulative Impact Report Overland Pollutant Loading Analysis*, NCDOT, 2007b). The hydrologic analysis area, developed in collaboration with the NCDOT and the NCDWQ, included the Middle Creek and the Kenneth Creek watersheds due to the presence of sensitive state- and federally-listed aquatic species. A portion of the GISA overlapped most of the Middle Creek watershed and a small portion of the Kenneth Creek watershed.

This watershed analysis evaluated two future scenarios: (1) year 2030 projected growth without the Western Wake Freeway, and (2) year 2030 projected growth with the Western Wake Freeway and proposed induced development specifically attributable to Western Wake Freeway. Both future scenarios included reductions resulting from current and possible Best Management Practices, including Phase I and Phase II stormwater controls and riparian buffers mandated by municipal ordinances.

The analysis concluded that, by year 2030, modeling of land use derived from predicted growth indicates that the Western Wake Freeway and associated development would result in a change of less than 1 percent over ambient growth, absent the Western Wake Freeway, for all modeled pollutants.

3.7.4 Conclusion

3.7.4.1 Indirect Impacts

The *Indirect and Cumulative Impact Assessment – TIP No. R-2635* (NCDOT, 2003a) and the *Land Use Analysis – TIP Project No.R-2635* (NCTA, 2007f) both determined that the Western Wake Freeway would shift development in western Wake County, with more intense development occurring at proposed interchange locations. While the timing of development may be affected, the project would not substantially induce development in the area. Overall, this shift in land use patterns would result in similar impacts whether Western Wake Freeway was built as a non-toll or toll facility. Based on the land use and watershed analyses, implementing the Western Wake Freeway as a toll facility as compared to a non-toll facility would result in similar indirect impacts. Specifically, indirect impacts to neighborhoods (Feltonsville, Twyla Road neighborhood, and the Green Level Historic District) and water quality resulting from Alternative A Reevaluated with Tolls would be similar to those stated in the FEIS for Alternative A.

3.7.4.2 Cumulative Impacts

Besides the Western Wake Freeway, there are several other STIP projects proposed in the GISA that will help to improve mobility through the project area, including the Triangle Parkway and the Southern Wake Freeway. Direct impacts associated with Triangle Parkway will be disclosed in an Environmental Assessment underway by NCTA. As stated in Section 3.2.1, NCDOT is in the initial planning and environmental stages for the Southern Wake Freeway.