

Projects STP00-0186-01(025) and BRST0-0186-01(041)

Paulding County

P.I. Numbers 621720 and 632921

The proposed widening and reconstruction of State Route 92 from Nebo Road to State Route 120/Marietta Highway, including the replacement of the bridges at the Southern Railroad and the Silver Comet Trail

ENVIRONMENTAL ASSESSMENT

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

GEORGIA DEPARTMENT OF TRANSPORTATION

SUBMITTED PURSUANT TO 42 USC 4321 et. seq.

And 49 USC 303 (for 4(f), if applicable)

_____	_____	_____	_____
NEPA	DATE	Glenn Bowman, P.E.	DATE
		State Environmental Administrator	

APPROVAL FOR ADVANCEMENT TO AVAILABILITY/PUBLIC HEARING PHASE

_____	_____
DATE	FOR: RODNEY N. BARRY, P.E.
	DIVISION ADMINISTRATOR
	FEDERAL HIGHWAY ADMINISTRATION

_____	_____	_____	_____
NEPA	DATE	Glenn Bowman, P.E.	DATE
		State Environmental Administrator	

APPROVAL OF ENVIRONMENTAL ASSESSMENT

_____	_____
DATE	FOR: RODNEY N. BARRY, P.E.
	DIVISION ADMINISTRATOR
	FEDERAL HIGHWAY ADMINISTRATION

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I. NEED AND PURPOSE

A. Introduction

The proposed project consists of the widening and reconstruction of State Route (SR) 92 from a two-lane rural section to a four-lane urban section from just south of Nebo Road to just north of SR 120/Marietta Highway and the replacement of the bridges over the Southern Railroad and Silver Comet Trail. On the southern end of the project, an approximately 0.5 mile segment of SR 92 (between Nebo Road and just north of the Grays Mill Creek bridge) has already been widened from two-lanes to four 12-foot lanes, two in each direction, with a 14-foot center turn lane.

In the proposed project area, SR 92 functions as an urban minor arterial and is the only major north-south corridor in Hiram, a suburb of Atlanta located in the northwest metro area. The corridor in this local area is experiencing increased traffic volumes due to increased development in Hiram, particularly along SR 92. Increased development is also occurring along US 278 which is currently a major destination for people traveling along SR 92.

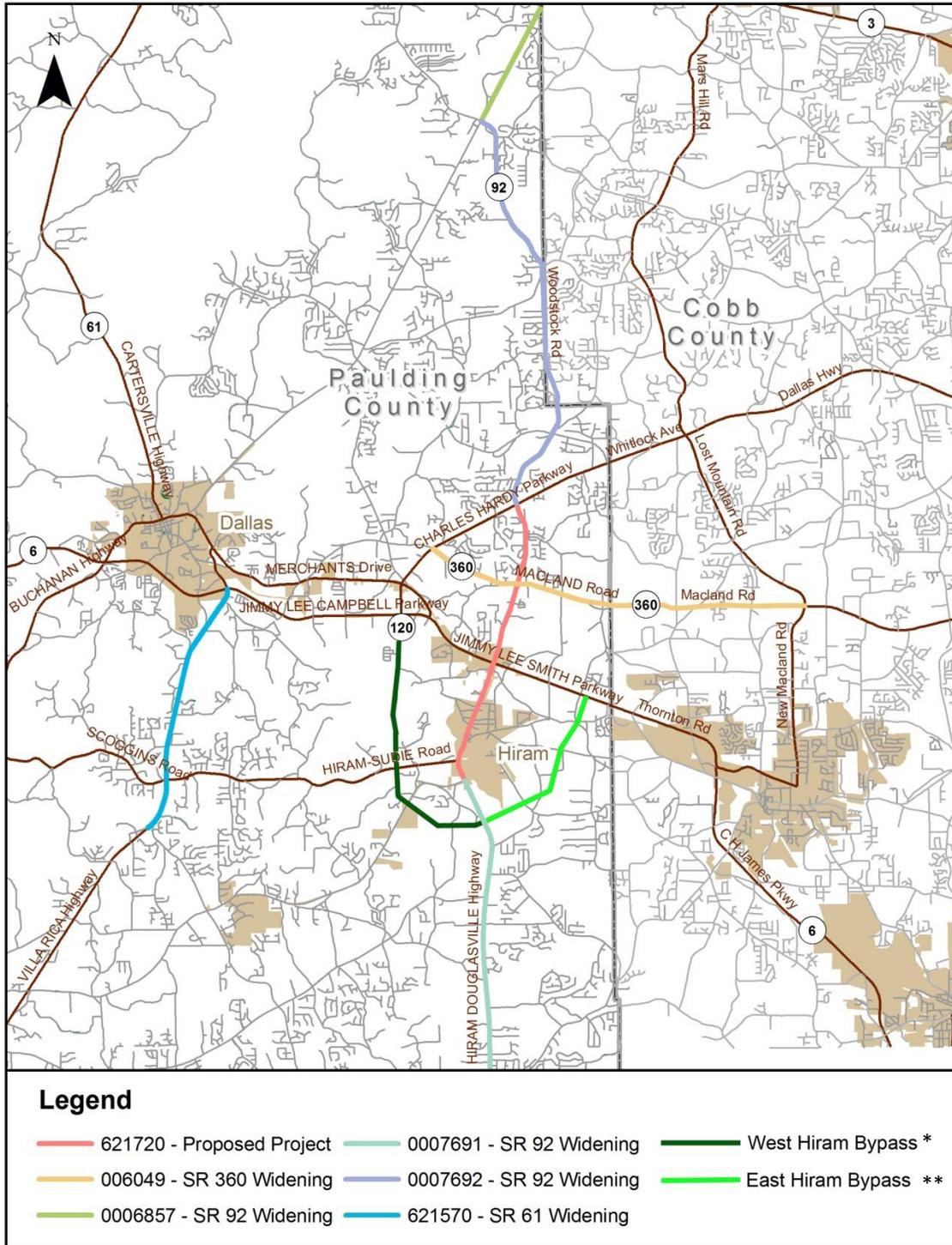
There is a need to accommodate traffic, address the high crash and injury rates along the corridor, and to bring the bridges along the corridor up to current structural standards. The purpose of the project is to increase the capacity of the roadway, enhance the mobility within Hiram, and improve safety, access, and operations of the roadway, and to replace the bridges over the Southern Railroad and Silver Comet Trail.

B. Planning Basis for the Action

The Atlanta Regional Commission (ARC) adopted the PLAN 2040 Regional Transportation Plan (RTP) and Fiscal Year (FY) 2012-2017 Transportation Improvement Program (TIP) for the Atlanta Metropolitan area on August 18, 2011. The RTP addresses travel needs through the year 2040 and is the direct result of a comprehensive, cooperative, and continuous planning process conducted by the ARC, local governments, and the Georgia Department of Transportation (GDOT), in cooperation with the Federal Highway and Federal Transit Administrations. The project is included in the current FY 2012-2017 TIP, noted as ARC Project ID numbers PA-027 and PA-092B1. Funding for right-of-way acquisition is programmed for 2016, and funding for construction is proposed for 2017.

This section of SR 92 is also listed in the 2008 Paulding County Comprehensive Transportation Plan as currently experiencing deficiencies in the morning and the afternoon peak travel times. This project is listed in their Tier I Action Plan, which recommends projects that should be completed by 2013. Figure 1 and Table 1 below show other programmed projects in the area.

Figure 1 – Area Programmed Projects



*West Hiram Bypass has already been constructed and and was recently modified.

**East Hiram Bypass is currently under construction.

Table 1: Programmed Projects in the Area

GDOT P.I. No. / ARC ID	Description	Project Type	Schedule*
0006049 / CO-367	SR 360 from SR 120 in Paulding County to SR 176/New Macland Road in Cobb County	Widening	ROW – FY 2012 CST – FY 2016
0006857 / PA-092E	SR 92 from Cedarcrest Road to Cobb County Line	Widening	ROW – FY 2014 CST – LR 2018-2030
0007691 / PA-092A	SR 92 from CS 502/Brown St in Douglas County to CS 519/Nebo Rd in Paulding County	Widening	ROW – FY 2013 CST – FY 2016
0007692 / PA-092C	SR 92 from SR 120 to CR 473/Cedarcrest Road in Cobb and Paulding Counties	Widening	ROW – FY 2016 CST – LR 2018-2030
621570 / PA- 061C1	SR 61 from South of CR 467/Dallas Nebo Rd to SR 278/Jimmy Campbell Pkwy in Paulding County	Widening	ROW –FY 2016 CST – LR 2018-2030

*ROW – Right-of-Way; CST – Construction; FY – Fiscal Year; LR – Long Range
Source: ARC’s FY 2012 to 2017 TIP Project List

C. Deficiencies in the System

The current deficiencies in the system consist of traffic congestion and delays, above average crash rates, inadequate pedestrian facilities along the corridor, and poor sufficiency ratings on the bridges over the Southern Railroad and Silver Comet Trail. There is a need to increase the capacity of the roadway, to address the high crash and injury rates along the corridor, and to bring the bridges along the corridor up to current structural standards.

1. Traffic Congestion

Due to high existing traffic volumes, SR 92 is currently operating at its capacity. Level of service and average daily traffic volumes are used to quantify and analyze traffic capacity, congestion, and delays.

Average daily traffic volumes (ADT) and other factors were evaluated to determine the **Level of Service (LOS)** of the roadway. The traffic diagrams for existing (2010), opening (2020) and design (2040) years are located in Appendix C.

Table 2 shows the no-build ADT and LOS for the road segments of the project corridor. The projected traffic for the no-build condition is 29,400 ADT, which would exceed the design operating capacity of the road of 29,000 in 2040. Additional traffic would still be able to travel along this segment of the road, but because the road has exceeded its design capacity, it would not operate efficiently leading to congested conditions. This amount of traffic on the two-lane roadway would lead to a LOS F throughout most of the corridor, characterized by traffic flow that would break down and lead to periods of stop-and-go traffic. Speed would vary greatly and considerable delays would be expected. Up to a 59 percent increase in traffic (in the Nebo Road to SR 120 Connector segment) is anticipated over the next 28 years if the project is not built. The data demonstrate a need for the proposed widening.

Table 2 also shows the ADT and LOS for the roadway segments of the corridor if the project is built (the build condition). If the project is built, the design year traffic volumes within the project corridor would range from 29,300 to 39,500 ADT. Under the build condition, the traffic volumes in the SR 120 Connector to Oak Street section of SR 92 are estimated to increase by 21 percent by the year 2020 to 27,700 ADT and by another 43 percent by the year 2040 to 39,500 ADT. On average over a 24-hour period, three percent of the vehicles on the roadway are trucks.

Level of Service

Level of Service (LOS) is a qualitative measure of traffic density. There are six levels of LOS of a road:

A - Free flow with low volumes and high speed

B - Stable flow, but with operating speeds beginning to be restricted somewhat by traffic conditions

C - A range of stable flow, but with speeds and maneuverability more closely controlled by the higher volume

D - High density traffic is approaching unstable flow; tolerable operating speeds can be maintained, though considerably affected by changes in operating conditions

E - Traffic operations are at or near the capacity level, with unstable flow and short stoppages

F - Operating conditions exceed capacity; the amount of traffic approaching a point exceeds the amount which can traverse the point, leading to breakdown in flow, unstable queues, and stop-and-go waves

Table 2: Traffic Conditions on SR 92

Roadway Segment	Existing Traffic 2010		Opening Year Traffic 2020				Design Year Traffic 2040			
			No Build		Build		No Build		Build	
	ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS	ADT	LOS
South of Nebo Rd*	13,550	C	16,200	F	16,400	B	21,600	F	23,400	B
Nebo Rd to SR 120 Conn*	18,450	C	23,000	D	22,300	C	29,400	D	32,000	F
SR 120 Conn to Oak St	22,850	F	27,400	F	27,700	C	36,400	F	39,500	F
Oak St to US 278	20,975	F	25,150	F	28,400	C	33,350	F	36,350	F
US 278 to SR 360	16,950	F	22,200	F	20,500	B	27,000	F	29,300	C
SR 360 to SR 120	19,200	F	23,000	F	23,300	B	30,500	F	33,200	D
North of SR 120	14,500	F	18,300	F	18,500	B	25,500	F	27,800	C

Source: GDOT Planning & Roadway Design Offices;

**The two segments of SR 92 located south of Nebo Road to SR 120 Connector have already been widened to 4-lanes, resulting in a LOS C compared to the remaining five segments of SR 92 which have a LOS F.*

Traffic volumes which are as high as those predicted in the design year for SR 92 result in intense congestion on a two-lane roadway. The additional capacity that would be added to SR 92 by widening the roadway would provide a more efficient transportation environment and relieve congestion for motorists traveling locally through Hiram on this corridor.

2. Safety

A comparison of crash, injury and fatality rates between the project area and similar facilities statewide supports the need to improve safety on the corridor.

For the years 2007 to 2009, the most recent years for which complete crash data is available, the crash rate on this section of SR 92 exceeded the statewide average of all urban minor arterials by up to 75 percent. Between 2007 and 2009, the injury rate on this section of SR 92 exceeded the statewide average by up to 108 percent. Preliminary data for 2010 and 2011 show crash rates of 1,091 and 1,059, and injury rates of 500 and 306, respectively. The statewide averages for these years are not yet available, but the data indicate an increase in crashes and injuries. Although the crash rate and injury rate for 2009 are lower than

other years, the number of fatalities is higher. See Table 3 for the SR 92 crash data available for 2007 to 2009 in relation to the statewide rates for a similar facility.

Table 3: Number of Crashes and Crash Rates along SR 92

	2007		2008		2009	
	SR 92	Statewide	SR 92	Statewide	SR 92	Statewide
Crashes	260		261		163	
Crash Rate*	882	514	825	471	450	463
Injuries	125		103		104	
Injury Rate*	395	190	326	176	287	173
Fatalities	1		0		2	
Fatality Rate*	3.16	1.47	0	1.46	5.52	1.07

*Rates are expressed per 100 Million Miles Traveled
Source: GDOT Accident Information System

The majority of crashes along SR 92 have been angle-intersecting and rear-end collisions. These types of crashes made up 93 percent of all crashes that occurred along the project corridor from 2007 to 2009. On this section of SR 92, 60 percent of all crashes were rear-end collisions. These types of crashes can often be attributed to the lack of left and right turn lanes; turning vehicles must slow down and wait in the travel lane for an opportunity to turn. The addition of turning lanes could reduce the opportunity for rear-end collisions by removing turning vehicles from the through travel lanes. Additional capacity on SR 92 could also help reduce rear-end collisions by decreasing the lengths of queues in terms of time and size.

Thirty-three percent of all crashes were angle-intersecting collisions. This type of crash occurs when a vehicle is struck while turning in front of an on-coming vehicle. The addition of a raised median could reduce the opportunity for motorists to turn in front of on-coming vehicles, thus reducing the opportunity for angle-intersecting collisions.

Fifteen percent of the crashes occurring along SR 92 during this three-year time period have happened at the intersection of SR 120. This intersection has the second-highest number of crashes and is the intersection with the highest number of injuries in the county (per the Paulding County Comprehensive

Transportation Plan). A majority of these crashes are angle-intersecting and rear-end collisions. Substandard vertical curves on SR 92 contribute to a sight distance issue approaching and at the intersection, which combined with the current congestion is a cause of the crashes at this location. Under the proposed project, the curves on SR 92 will be brought up to current standard GDOT specifications, which would increase the sight distance at the intersection. Combined with the congestion relief the project would provide, the opportunity for crashes would be reduced.

A raised median provides many benefits for the users of the roadway. A raised median reduces crashes and injuries by physically separating opposing traffic flows and by eliminating crashes resulting from mid-block left-turning maneuvers across multiple lanes of traffic. Roadways divided by a raised median have less vehicular and pedestrian crashes, injuries, and fatalities than similar roadways with a two-way left turn lane, or flush median. A raised median provides a refuge for pedestrians crossing the street. A raised median also increases traffic flow while decreasing congestion.

The roadway widening, addition of turn lanes, and raised median will eliminate turns from occurring within the travel lanes, which would improve operational efficiency and overall safety along the roadway. The additional capacity, raised median, turn lanes, and improved geometrics of SR 92 as a part of the proposed project will provide a safer and more efficient environment by reducing the opportunity for crashes for both regional and local motorists.

3. Structural Condition of Bridges

Sufficiency rating is a scale used by the Georgia DOT to determine the structural and geometric condition of the bridge. This rating is determined by a federal definition adopted from the Association of American State Highway and Transportation Officials (AASHTO) standards and is based on structural adequacy and safety, serviceability, functional obsolescence, and necessity for public use. The sufficiency rating of a bridge is based on a scale of point values from one to 100. Any bridge with a sufficiency rating of 50 points or lower are candidates for replacement in order to provide a safe, structurally sufficient bridge for motorists and pedestrians. A rating of one is given to structures in serious need of replacement, and a rating of 100 is given to bridges without any deficiencies. The structural evaluation rating is based on a scale of zero to nine with two being the lowest rating for an operable bridge. A zero requires closing the bridge and a two requires replacement.

The bridge over the Southern Railroad was last inspected on July 20, 2012; the picture to the right



was taken during the 2006 inspection, looking north along SR 92. The bridge received a sufficiency rating of 47.98 and a structural evaluation rating of five. Because the sufficiency rating of the bridge is below 50, the bridge will need to be replaced as a part of the project.

The bridge over the Silver Comet Trail was last inspected on June 24, 2008; the picture to the right was taken during a 2006 inspection, looking north along SR 92. The bridge received a sufficiency rating of 47.86 and a structural evaluation rating of 4. Because the sufficiency rating of the bridge is below 50, the bridge will need to be replaced as a part of the project.



Other structures along the project corridor include the bridge over Grays Mill Creek and the culverts over Rakestraw Creek and Powder Springs Creek. The sufficiency ratings of all three structures are above 50 and the structural evaluation ratings are above two; therefore, these structures are not required to be replaced.

4. Pedestrian Facilities

Currently, no sidewalks exist along the SR 92 corridor, nor are there pedestrian signals or crosswalks so pedestrians can cross the road safely. A variety of community facilities are located along the corridor and include the Ben Hill Strickland Memorial Park, the Silver Comet Trail, a library, and several churches. There are also residences, subdivision entrances, and businesses along the corridor. Sidewalks would provide a safe pedestrian connection between these residences and facilities and beyond to downtown Hiram. As a part of the project, sidewalks on both sides of the roadway and pedestrian signals with crosswalks at each signalized intersection would be constructed. These improvements would expand and enhance the pedestrian mobility of the area.

Currently, there is no direct pedestrian access to the Silver Comet Trail from SR 92, as the road is bridged over the trail. The proposed sidewalks would not provide a direct connection to the Silver Comet Trail because SR 92 would remain grade-separated over the trail as a result of project implementation. The City has tentative plans to provide a direct connection from the Strickland Memorial Park to the Silver Comet Trail behind the Hiram Colored School.

D. Logical Termini

Logical termini are defined as the rational end points for a transportation improvement and review of the environmental impacts.

The southern terminus, Nebo Road, is a major traffic generator for the SR 92 project corridor. North of Nebo Road, the traffic in the design year (2040) is anticipated to be 29,400 ADT; south of Nebo Road, the traffic in the design year is anticipated to be only 21,600 ADT, which amounts to a 27 percent drop in traffic on SR 92 south of the proposed project. In the design year, approximately 29 percent of the traffic traveling southbound on SR 92 would turn onto Nebo Road. Approximately 91 percent of the traffic traveling west on Nebo Road approaching the T-intersection with SR 92 turn north (left) onto the project corridor. Because of the decrease in traffic south of Nebo Road, no improvements would be forced onto SR 92 south of Nebo Road because of the proposed project.

The northern terminus, SR 120, is also a major traffic generator for the SR 92 project corridor. South of SR 120, the traffic in the design year is anticipated to be 30,500 ADT. North of SR 120, the traffic in the design year is expected to drop to 25,500 ADT, which amounts to an 18 percent drop in traffic on SR 92 north of the project. Approximately 30 percent of the traffic on SR 120 traveling westbound would turn south onto the SR 92 project corridor. 67 percent would stay on SR 120 through the intersection with SR 92, and only three percent would turn north onto SR 92 north of the project corridor. Because of the decrease in traffic north of SR 120, no improvements would be forced onto SR 92 north of SR 120 because of the proposed project.

Another concern for logical termini is whether the proposed project would restrict the consideration of alternatives for reasonably foreseeable projects, thereby posing a risk of adverse effects to environmental resources. For this reason, it is important that coordination take place to ensure that the alignment of a project would leave future adjoining or intersecting projects with sufficient flexibility to avoid or minimize impacts to environmental resources. A list of planned projects in the area can be found in Table 1. Specifically, two projects adjoin the preferred alternative of the proposed project: PI No. 0007691, SR 92 Widening from Brown St to Nebo Road in Douglas and Paulding Counties; and PI No. 0007692, SR 92 Widening from SR 120 to Cedarcrest Road in Cobb and Paulding Counties. In addition,

Logical Termini

In order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated, a project shall

(1) connect logical termini and be of sufficient length to address environmental matters on a broad scope;

(2) have independent utility or independent significance (be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made); and

(3) not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

there is one intersecting project, PI No. 0006049, SR 360 Widening from New Macland Road to SR 120 in Cobb and Paulding Counties. The project teams for all projects have coordinated and details of the transitions between the projects have been discussed and designed. As a result of this coordination, the proposed project would not restrict the consideration of alternatives for these projects.

Due to the substantial traffic drops on SR 92 beyond both the northern and southern project limits, the termini are considered logical. While there are projects programmed north and south of the proposed project, these projects would not need to be built for this section of SR 92 to function acceptably. Also, the proposed project would not hinder the function of SR 92 north and south of the project. The information above, coupled with the additional ADT and LOS data provided in the above sections, show the project has logical termini, independent utility, and would not restrict consideration of alternatives for other projects in the area. The project would increase the capacity of the roadway, enhance the mobility within Hiram, and improve safety, access, and operations of the roadway.

II. DESCRIPTION OF ALTERNATIVES

A. The Preferred Alternative

Under the preferred alternative, the proposed project would widen and reconstruct SR 92 beginning just south of Nebo Road to just north of SR 120 (see Figure 2). The project length is approximately 5.7 miles.

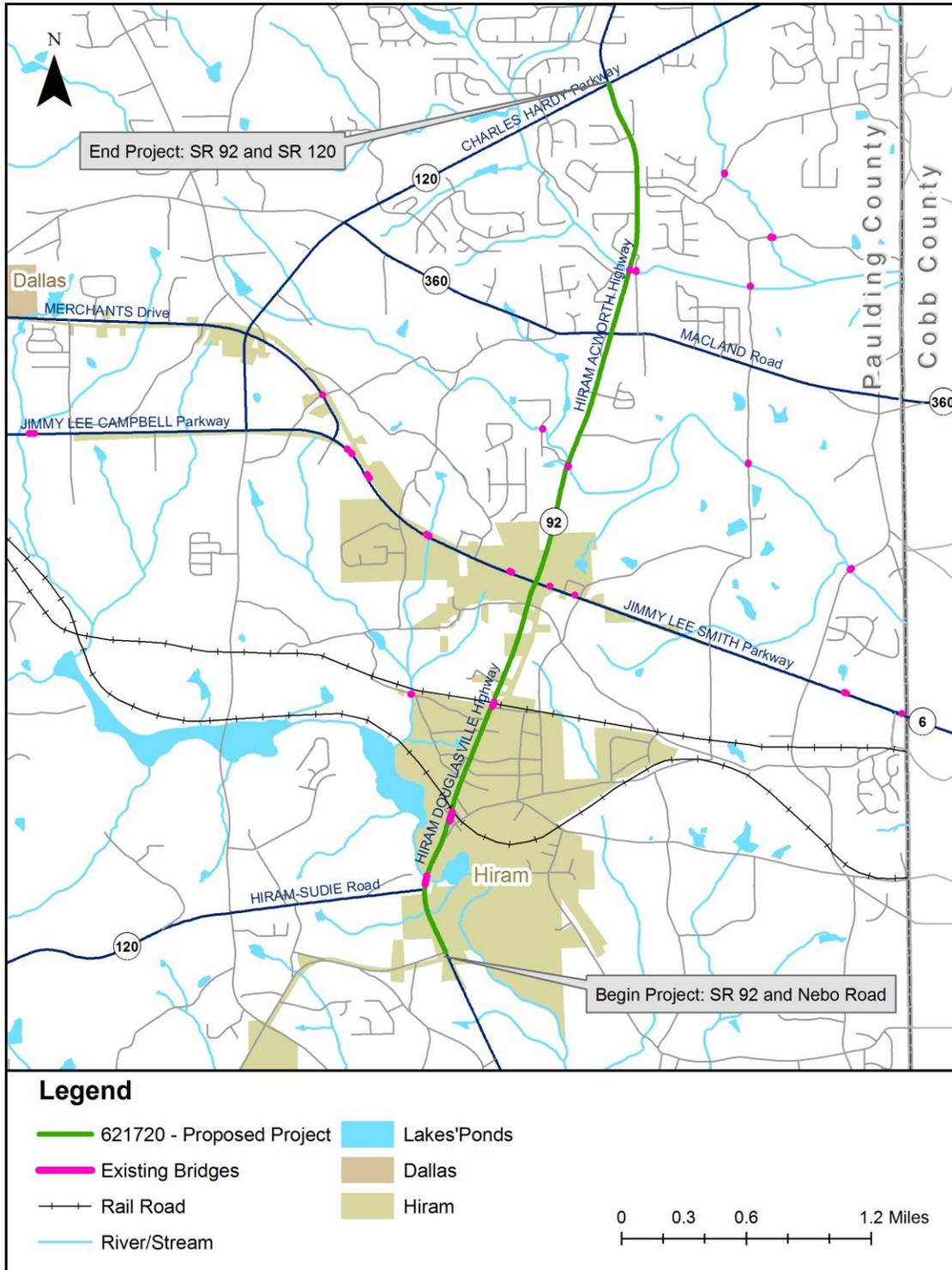
Currently, the typical section of SR 92 varies. From Nebo Road to just north of the Grays Mill Creek bridge, the typical section is four 12-foot lanes, two in each direction, with a 14-foot center turn lane. The existing right-of-way in this area is approximately 100 feet.

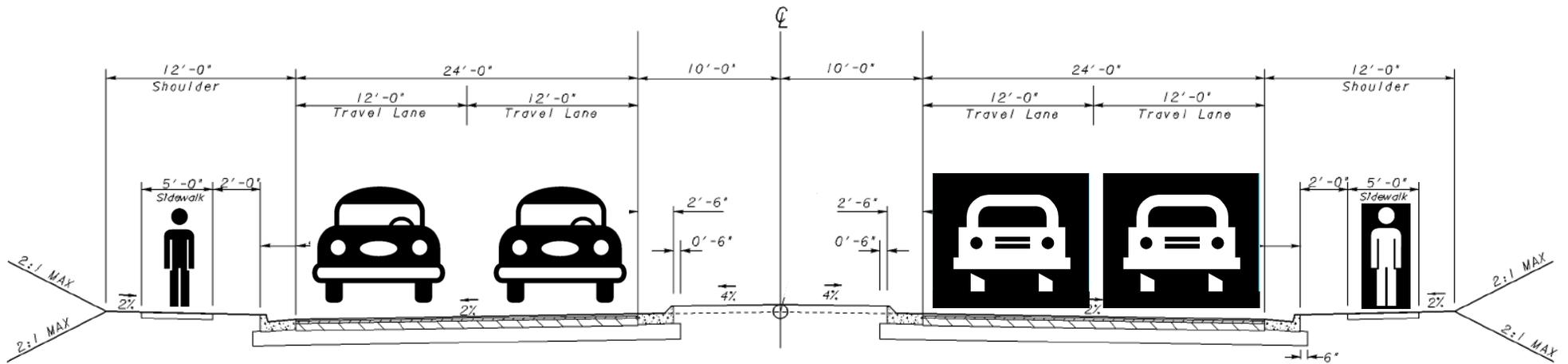
North of the Grays Mill Creek bridge to the end of the project north of SR 120, the typical section is two 12-foot lanes, one in each direction, with rural shoulders. The existing right-of-way is approximately 80 feet.

The preferred alignment would widen SR 92 to four 12-foot lanes, two in each direction, with a 20-foot raised median. The urban shoulder would include curb and gutter and five-foot sidewalks. The widening would mainly stay on the existing alignment except between Main and Church Streets, where the alignment is shifted west onto new location for approximately 0.4 mile to avoid impacts to the Historic Hiram Commercial District.

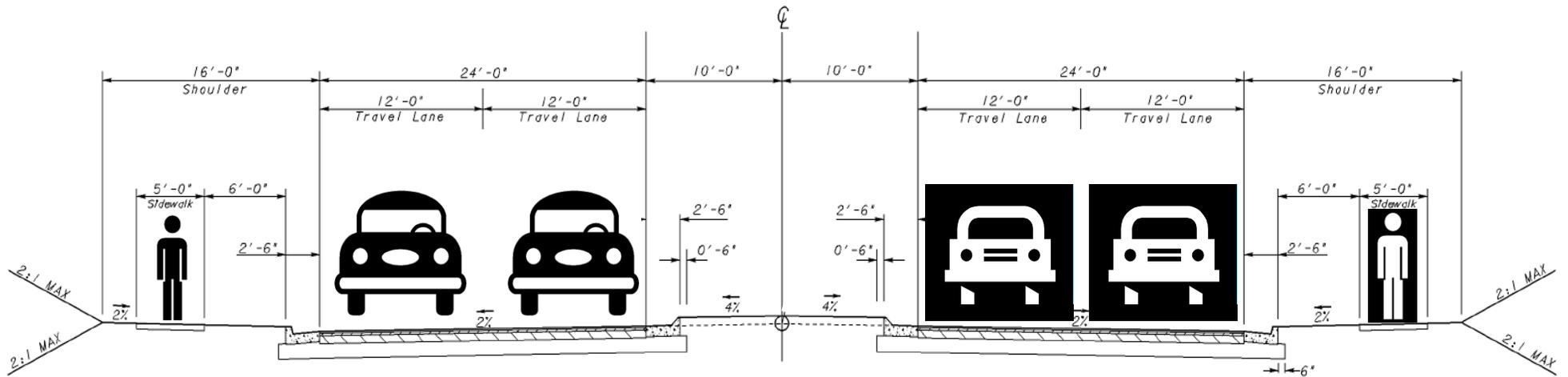
The required right-of-way would be approximately 100-125 feet. See Figure 3 for the proposed typical sections. The existing posted speed limit for this portion of SR 92 is 45 miles per hour.

Figure 2: Project Location





Proposed Typical Section of SR 92 from Nebo Road to Church Street



Proposed Typical Section of SR 92 from Church Street to SR 120

Figure 3: Proposed Typical Sections of SR 92

The existing 236-foot by 64-foot bridge over Gray's Mill Creek would be maintained under the preferred alternative. The existing 239-foot by 32-foot bridge over the Southern Railroad would be replaced with a 240-foot by 98-foot bridge as a part of the preferred alternative. The existing 120-foot by 28-foot bridge over the Silver Comet Trail would be replaced with a 120-foot by 12-foot by 12-foot pedestrian culvert as a part of the preferred alternative. The bridges over the Southern Railroad and the Silver Comet Trail are both currently classified as functionally obsolete.

Access to the Silver Comet Trail would be maintained throughout construction by utilizing an on-site detour. During construction, the trail would be detoured approximately 10 feet to the north of the existing trail alignment until the culvert is constructed; after the culvert is constructed, the trail detour would be removed and the recreational traffic would be able to use the original alignment.

The existing signalized intersections include Nebo Road, SR 120 Connector/Hiram-Sudie Road, Oak Street, US 278, SR 360, and SR 120. For a detailed map of these intersection locations, please see Figure 13 on Page 60. Pedestrian signals with crosswalks would be constructed at each of these signalized intersections. No additional signals are proposed along the project corridor.

The intersection of SR 92 and Main Street would be realigned slightly to the south. An approximate 400-foot section of existing SR 92 (to be called Old SR 92) would be left in place to the south of the Main Street tie-in. Old SR 92 would intersect to the north with Main Street and would be cul-de-saced on the southern end and would provide access to the properties on the east side of SR 92, south of Main Street.

The intersection of SR 92 and Church Street would be realigned approximately 75 feet to the north to improve the skew and the sight distance from the intersection.

Hunt Street is proposed to be cul-de-saced at Oak Street due to the proximity of that existing intersection to the intersection of Oak Street and SR 92. Access to Hunt Street is and would remain off of Dallas Street.

The intersection of SR 92 and Alexander Street would be realigned approximately 80 feet to the south to improve the skew of the intersection.

Improvements would be made to US 278/SR 6 as a part of the preferred alignment. Currently, the typical section for US 278/SR 6 is four 12-foot lanes, two in each direction, with one right and one left turn lane in each direction onto SR 92. The preferred alignment would add one additional through lane in each direction and one additional left turn lane in each direction onto SR 92. The proposed improvements to US 278/SR 6 would extend approximately 1200 feet west of SR 92 and approximately 2000 feet east of SR 92.

Maxwell Road is proposed to be closed at SR 92. Access to Maxwell Road is and would continue to remain off of SR 360/Macloud Road.

Improvements would be made to SR 120 as a part of the preferred alignment. Currently, the typical section for SR 120 is four 12-foot lanes, two in each direction, with one right and one left turn lane in each direction onto SR 92. The preferred alignment would add one additional through lane in each direction. The proposed improvements to SR 120 would extend approximately 1800 feet west of SR 92 and approximately 2,100 feet east of SR 92.

B. The No-Build Alternative

Under the no-build alternative, no improvements would be made to SR 92 between Nebo Road and SR 120. This alternative would fail to improve congestion, safety, or the structural integrity of the bridges over the Southern Railroad and Silver Comet Trail. Although this alternative would not meet the need and purpose of the project, it would also avoid any cultural, ecological, and social impacts associated with the preferred alternative.

C. Alternatives No Longer Under Consideration

Three additional alignment alternatives were considered during the project development; two of which were shown at the 2004 Public Information Open House (PIOH): Alternative 1, the Existing Alignment Alternative (also known as the Existing Alignment Minimization Alternative for Section 4(f) purposes); and Alternative 2, the Western Alignment Alternative (also known as the Western Alignment Avoidance Alternative for Section 4(f) purposes). These alternatives only differed from the preferred alternative for the 0.65 mile between SR 120 Connector/Hiram-Sudie Road and Oak Street.

Alternative 1, the Existing Alignment Alternative, utilized existing location between SR 120 Connector/Hiram-Sudie Road and Oak Street. Although Alternative 1 was initially preferred by the design team, city officials, and the public, further engineering showed that to construct this alternative, an offsite detour around Hiram would need to be utilized, as the construction of the new bridge over the Southern Railroad would require the old bridge to be closed for up to one year. Also, it was determined that access to Main Street off of SR 92 would need to be removed under this alternative. During coordination with city officials, it was determined that the impacts to the Historic Hiram Commercial District as a result of the detour and the Main Street closure would be devastating to the city's economy, the community, and cause an adverse effect to the district. Therefore, it was decided that Alternative 1 would no longer be carried forward as the preferred alternative.

Alternative 2, the Western Alignment Alternative, follows the existing alignment of SR 92 until just south of Grays Mill Creek bridge, where it goes west of the existing alignment onto new location; it would tie into the existing alignment just north of the bridge over the Southern Railroad. This alternative was the least popular with the city officials and the public, as it would move the access to the south side of the Historic Hiram Commercial District farther south, where the downtown area could no longer be seen

from that access point. This alternative would also require a one-year detour around Hiram to close and replace the bridge over Grays Mill Creek, which posed the same issues as Alternative 1 and the detour of the Southern Railroad bridge.

Alternative 3 is identical to the Preferred Alternative with only two differences. The Preferred Alternative includes two roadway sections that were redesigned during the preliminary design phase to avoid/minimize impacts to waters. The first section is approximately 0.5 mile long, from the intersection with SR 360/Maclang Road to approximately 350 feet south of the intersection with Powder Creek Drive. This section was shifted 50 feet to the west to avoid three streams: S41, S43, and S45. The second section is located at the very end of the project, starting approximately 800 feet north of Hardy Circle and ending with the project for a total length of approximately 0.3 mile. The project was shifted 40 feet to the southeast to avoid impacts to S50 located north west of SR 92.

Without these shifts in alignment, Alternative 3 would have over four additional acres of impacts to water features that the Preferred Alternative would avoid. Therefore Alternative 3 is no longer under consideration.

III. ENVIRONMENTAL CONSEQUENCES

A. Types of Effects: Direct, Indirect, and Cumulative Effects

The Council of Environmental Quality's (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR §1500-1508) requires that not only direct effects, but also indirect effects and cumulative impacts be evaluated.

The proposed project's direct effects per each resource category are discussed in the following subsections of Chapter III. The indirect effects analysis is discussed in Chapter V, and the cumulative impacts analysis is discussed in Chapter VI.

B. Effects on the Social Environment

1. Land Use Changes

Currently, within the city limits of Hiram the land use along the SR 92 corridor consists of a mix of commercial, residential, recreational, and institutional uses. Outside the city limits of Hiram, on the north

Types of Effects

Direct effects are caused by, and coincide in time and place, with the action.

Indirect effects are caused by the action and are later in time, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Cumulative effects are the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

side of the project, the land use along the corridor consists mostly of residential and undeveloped uses, with some commercial uses. The Paulding County and City of Hiram Existing Land Use Maps, taken directly from the Paulding County Comprehensive Plan, are shown in Figures 4 and 5.

The Paulding County (Dallas, Hiram, and Braswell) Comprehensive Plan 2007-2027 Community Agenda lays out the community's vision for the future. The Future Development Maps for Paulding County and the City of Hiram are located in Figures 6 and 7. The maps show character areas, which according to the plan, are intended to address the overall pattern of development within an area rather than focusing on the specific use of each individual parcel.

The construction of the project would result in a change in land use within the area of direct project effects, as approximately 89 acres of commercial, residential, recreational, institutional, and undeveloped property would be converted to transportation right-of-way or permanent easement. The proposed project is listed within the Paulding County Comprehensive Plan and within the Paulding County Transportation Plan (see Section IB, Planning Basis for Action section in the Need and Purpose). The project is consistent with current and future land use plans.

Development of eastern Paulding County has occurred quickly over the last 20 years and the road infrastructure has not been upgraded to keep up with the demand this development has created. The purpose of the project is to relieve this existing congestion. Similar conditions can be found in the surrounding areas: Douglas County and the City of Douglasville, and in Cobb County with the Cities of Acworth and Powder Springs. A review of the comprehensive plans for Douglas County, Acworth, and Powder Springs show that road infrastructure is struggling to keep up with the traffic demands that development has created.

Figure 4: Paulding County Existing Land Use Map

EXISTING LAND USE
PAULDING COUNTY, GEORGIA
2006

Legend

-  AGRICULTURE
-  COMMERCIAL
-  INDUSTRIAL
-  PUBLIC INSTITUTIONAL
-  RESIDENTIAL
-  UTILITIES
-  UNUSED/UNDEVELOPED
-  PROJECT

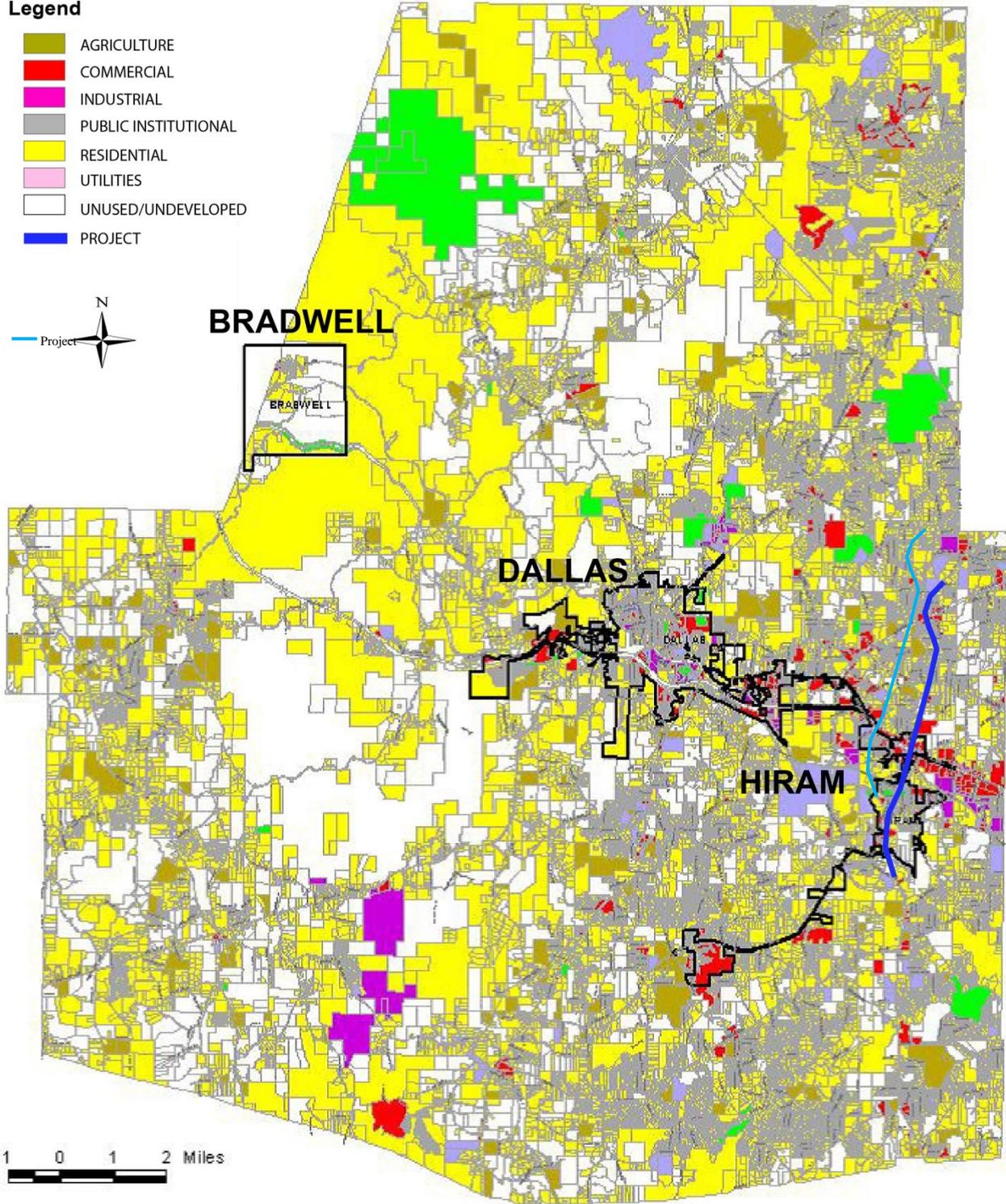


Figure 5: City of Hiram, Existing Land Use Map

EXISTING LAND USE
HIRAM, GEORGIA
2007

Legend

-  AGRICULTURE
-  COMMERCIAL
-  INDUSTRIAL
-  PUBLIC INSTITUTIONAL
-  PARKS/RECREATION/CONSERVATION
-  RESIDENTIAL
-  UTILITIES
-  UNUSED/UNDEVELOPED
-  PROJECT

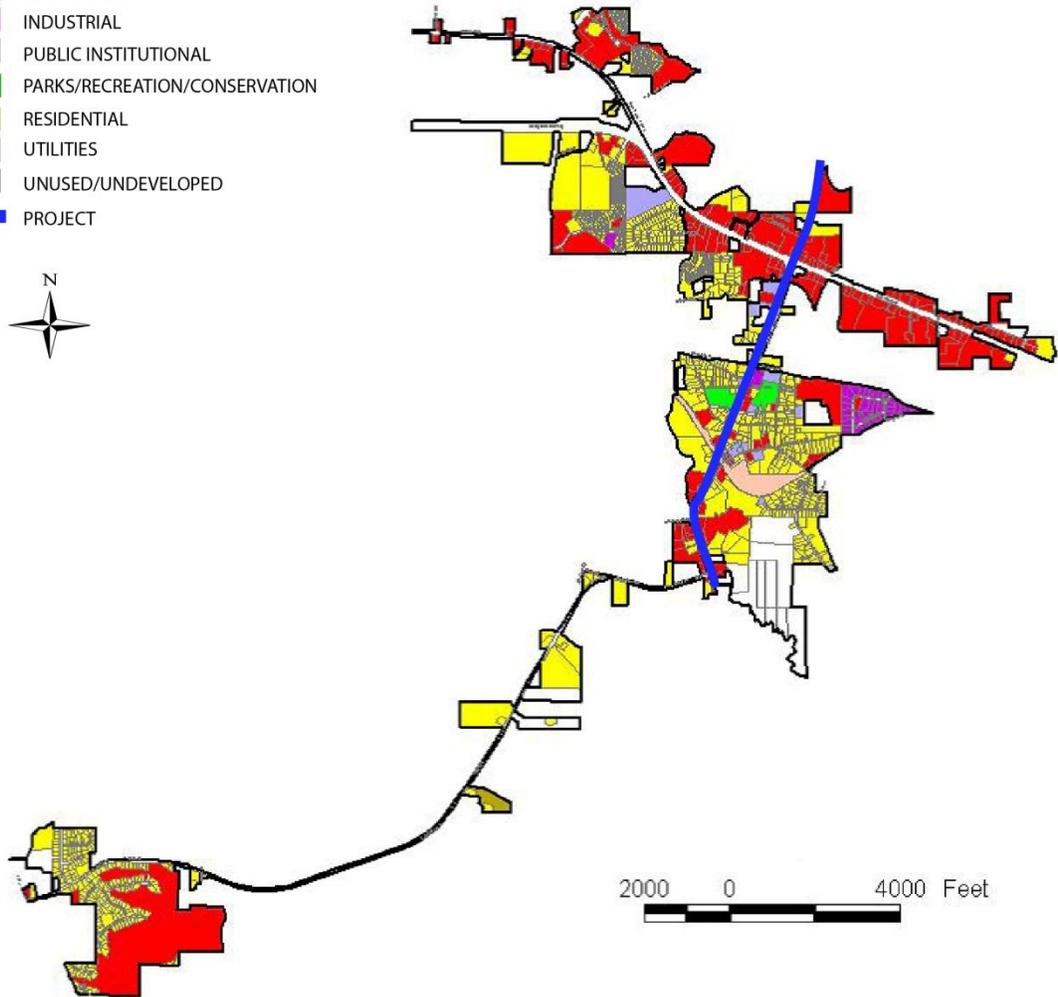


Figure 6: Paulding County Future Development Map

FUTURE DEVELOPMENT MAP
PAULDING COUNTY, GEORGIA
AUGUST 28, 2007

Legend

-  NEIGHBORHOOD CENTER
-  CROSSROAD COMMUNITY
-  BUSINESS CORRIDOR
-  GREEN CORRIDOR
-  GREEN SPACE
-  INDUSTRIAL
-  PLANNED RESIDENTIAL
-  RURAL RESIDENTIAL
-  SUBURBAN
-  TRADITIONAL NEIGHBORHOOD
-  CITY LIMIT
-  PROJECT

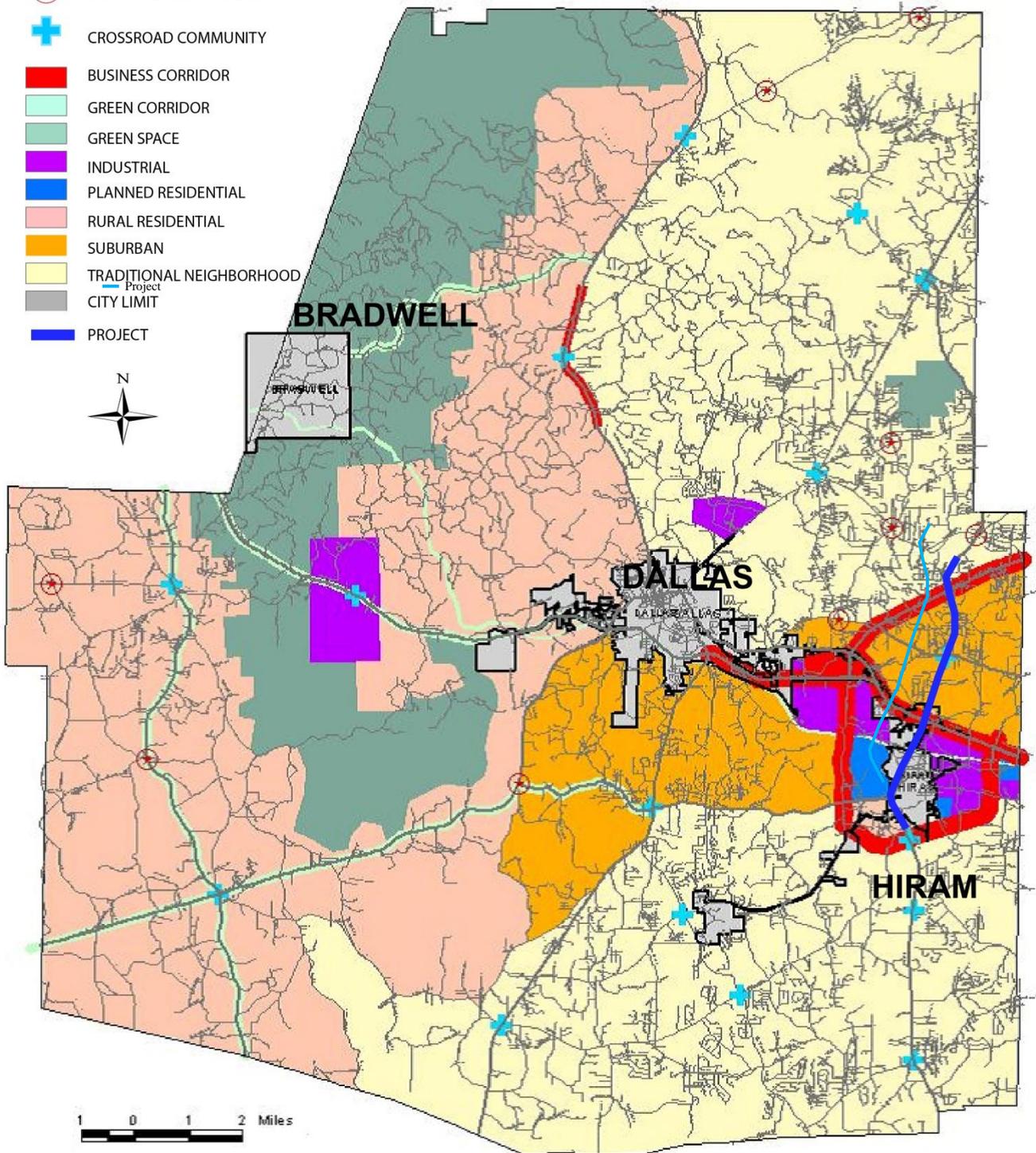


Figure 7: City of Hiram Future Development Map

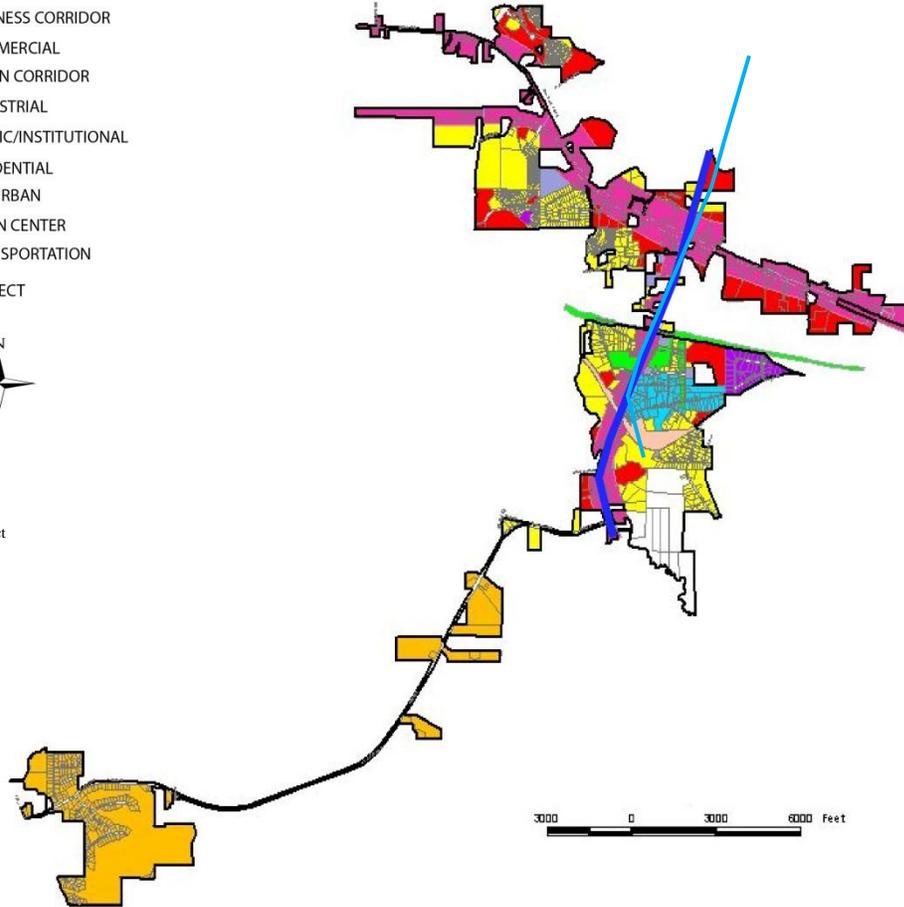
FUTURE DEVELOPMENT MAP
HIRAM, GEORGIA
AUGUST 28, 2007

Legend

- BUSINESS CORRIDOR
- COMMERCIAL
- GREEN CORRIDOR
- INDUSTRIAL
- PUBLIC/INSTITUTIONAL
- RESIDENTIAL
- SUBURBAN
- TOWN CENTER
- TRANSPORTATION
- PROJECT



— Project



Future Development Plans

Paulding County expects to continue experiencing a rapid growth rate over the next 20 years, with the population doubling again by 2030. Douglas County expects their population to increase by almost 60 percent by 2030.

The Paulding County Transportation Plan includes nine new roadway projects, 29 roadway widening/realignment projects (equivalent to almost 74 miles of roadway), 48 traffic operations or intersection improvement projects, 10 bridge improvement projects, and 22 access management projects in its comprehensive project list for county needs through 2030. The Douglas County Comprehensive Transportation Plan includes 27 roadway capacity projects (equivalent to almost 69 miles of roadway), 22 traffic operations or intersection improvement projects, four bridge improvement projects, and four interstate improvement projects (including approximately 11 miles of widening). As noted in the Need and Purpose Section B, Planning Basis for Action, there are 10 widening projects and one new location roadway project in the more immediate area of the project that is in the current TIP. Powder Springs has one major widening project under construction, and Acworth has four general improvement projects and two intersection improvement projects.

In Douglas County, SR 92 serves as a major access road to I-20 and runs through the heart of downtown Douglasville. It is proposed to be widened through the southern portion of Paulding County and relocated to the east side of Douglasville under four GDOT projects, CSSTP-0006-00(900)(901), CSSTP-0007-00(691), and STP00-0186-01(011). At this time, GDOT has programmed projects along SR 92 all the way from I-20 to I-75, which will make this corridor an important link between these two interstates in the future. Currently, the land use in the area of the preferred alternative of the relocated road is low density residential. The Douglas County Comprehensive Plan indicates that this area will be developed commercially in the future.

2. Economic Consequences

The amount of additional right-of-way needed to implement the proposed project would be minimal and would not result in considerable effects on the tax bases for Paulding County or the City of Hiram. Sales volumes for some area businesses may temporarily drop during the actual construction of the project; however, following construction, area businesses should benefit from the expected improvement in access and increases in traffic volumes.

Since the roadway currently does not have a raised median, side streets and driveways to residences or businesses on SR 92 may be entered or exited from either direction, northbound or southbound. Although the raised median included in the proposed widening would have breaks at major intersections and where otherwise deemed necessary, turning movements at most businesses, private driveways, and some side streets would be limited to right-hand one way entering and exiting. To access

these driveways and side streets, motorists would proceed to the end of the median, make a U-turn from a dedicated turn lane, and proceed to the driveway or side street intersection. The median would enhance safety for the highway user and ensure that the capacity improvements are not offset in the future by heavy left turning movements.

The Historic Hiram Commercial District is an important economic and community resource. The City has a redevelopment plan for the District and its historic nature, along with northern and southern access to SR 92, are essential to the plan and, according to the City, vital to the continued economic success of Hiram. This fundamental requirement of the project weighed heavily into the choice of preferred alternative for the City of Hiram and for GDOT. Currently, the District can be directly accessed off SR 92 via Main Street or Church Street, and the preferred alignment would maintain both access points during and after construction. The District would also remain visible from the widened SR 92.

Several private enterprises would permanently lose some parking spaces under the preferred alignment. The table below lists the each private enterprise and the approximate number of parking spaces permanently lost under the preferred alignment.

Table 4: Private Parking Lost

Private Enterprise	Location	Approximate Number of Parking Spaces Permanently Lost	Percent of Total Parking Spaces Lost
Benson's Grill Restaurant	South-west of SR 92 and Nebo Road	2	8%
Nebo Package	South-west corner of SR 92 and Nebo Road	10	22
Kwik Check Emissions	Approximately 1000 feet south east of SR 92 and Silver Comet Trail	10	--
Previously Regions Bank; currently the city is leasing for office space	North-east corner of SR 92 and Oak Street	30	62%
Sweet Home Baptist Church	South-west corner of SR 92 and Fitzgerald Street	10	71%
Hiram United Methodist Church	Approximately 400 feet north west of SR 92 and Hiram Park Drive	35	35%
Hiram Crossing Shopping Center/Sears and Orthodontist office	South-west of SR 92 and US 278	25	28%
K-Mart Shopping Center	North-west corner of SR 92 and US 278	70	18%
Warren Family Dentist	South-east corner of SR 92 and Quail Ridge Rd	4	21%
Citgo Gas Station	North-east corner of SR 92 and SR 360	5	33%
Ballet North	Approximately 400 feet north-west of SR 92 and SR 360	12	92%

Strip Mall	Approximately 500 feet north-east of SR 92 and SR 360	10	55%
Brown's Pool & Spas	Approximately 450 feet north-east of SR 92 and Creekwood Pass	15	35%

In addition to the business parking impacts, one institutional facility, the Maude P. Ragsdale Public Library, would lose four parking spaces. During right-of-way negotiations, a parking study will be completed by GDOT's Right-of-Way Office to determine the cost to cure for these businesses. As stated in GDOT's Acquisition Guide for Local Public Agencies and Sponsors, a cost to cure assesment is defined as: *a cost to cure the damage may partially or fully mitigate damages. Compensation may be a combination of cost to cure and consequential damage to the remainder.*

In addition to these parking impacts, the City of Hiram Municipality Complex would lose the drive-through window used by city utility customers dropping off payments. During right-of-way negotiations, a study will be completed by GDOT's Right-of-Way Office to determine the cost to cure for this loss.

According to the Conceptual Stage Study, seven owner-operated businesses and six tenant operated businesses would be displaced under the preferred alternative, affecting approximately 55 employees. In addition, three businesses have already been displaced via Early Acquisition; the Paulding Florist, Poplar Springs Baptist Church, and a gas station located in the north west corner of SR 92 and US 278. Every effort would be made to assist the businesses in relocating within the same area, rather than relocating to other areas or closing entirely. The Poplar Springs Baptist Church has been relocated southwest of the intersection of SR 92 and Nebo Road.

3. Community Impacts/Community Cohesion

Community cohesion is a measure of the level and quality of interaction among the people of a community. This can be indicated by the degree that people know and care about their neighbors and their participation in community activites. The more interaction that exists, the more cohesive the social relationships and patterns usually are. First, the communities in the areas and important community resources were defined, then elements that are known to impact community cohesion were analyzed.

In order to define the communities in the area, informal interviews were conducted with citizens who attended the Public Information Open House in 2004, church officials, city personnel, and businesses along the corridor. Those who live south of US 278 cited the entire city of Hiram as their community, and many cited the following reasons: several community or gathering areas exist within the area, including Strickland Memorial Park, the historic downtown area, and the city-sponsored community center. Hiram sponsors many community events throughout the year, often more than one per month. Many people living in the city attend these events. Many people interviewed said that these social events really brought

the city together and created the sense of a close-knit community, perhaps despite the rapidly-changing nature of the small city.

In general, those who live north of US 278 stated that their sub-division was their community. This is probably due to the ease of interacting with their neighbors along their quiet residential streets in this more rural area of the county and the community gathering places like pools or playgrounds that are limited to use by only those who live in the sub-division.

Public gathering places and resources like parks, playgrounds, schools, or libraries are typically considered important community resources. Community resources, including the Strickland Memorial Park, are shown on Figure 8. The Hiram Historic Commercial District is considered by the City as an important community resource, because it is the site of holiday gatherings planned by the City and contains important community resources like The Track House and the Community Outreach Ministries. The Track House is a house within the District that is used as a meeting place for local Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) groups. Another important resource to the community is an old school house, Hiram Colored School, which is used by the community for cookouts, reunions and community gatherings.

If the preferred alignment separated certain people, blocked access or mobility patterns, or set certain areas of a neighborhood apart from others, impacts to the community cohesion could occur. The busy highway currently poses as a community cohesion barrier north of US 278. However, because most of the preferred alternative follows the existing alignment, the project would not separate or split certain areas of neighborhoods from others. Adjacent to the Hiram Historic Commercial District, the preferred alternative shifts west onto new location for approximately 0.4 mile. This shift preserves the access to the southern portion of the historic downtown area, which as noted above is an important community gathering place. The preferred alternative also includes sidewalks and improved pedestrian crossings at signalized intersections, which would facilitate community cohesion across SR 92.

Many of the people in the project area who were interviewed stated that the proposed project would be good for the community. Some of those who lived south of US 278 stated that they drove to Douglasville to dine out, shop, and play because the frustration of navigating the intense traffic in downtown Hiram and along SR 92 up to US 278 outweighed the longer trip south to Douglasville in terms of time and distance. These citizens stated that after the roadway was widened, with less congestion in the area they would be more likely to dine out, shop, and play in Hiram.

Figure 8 - Community Resources

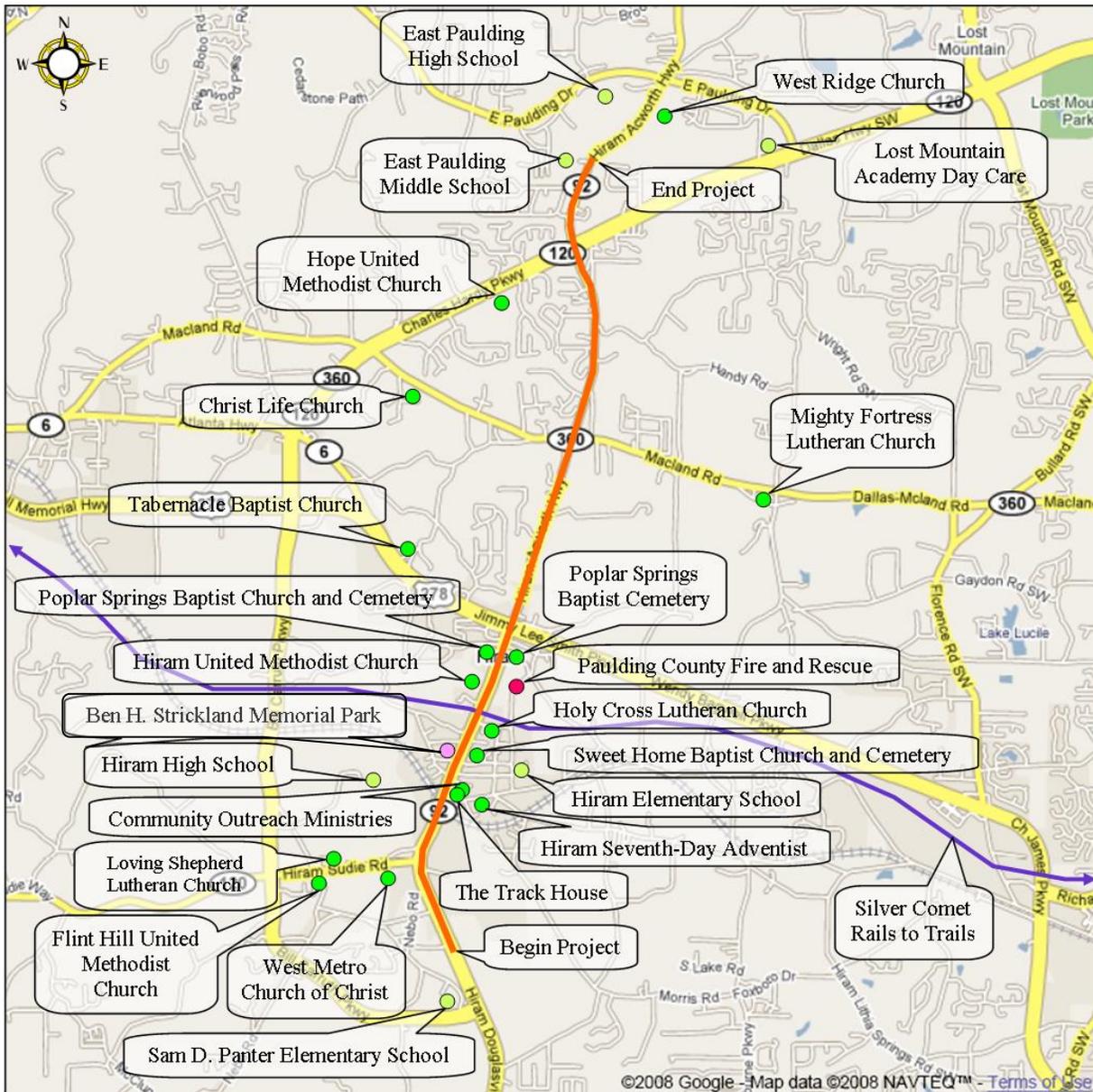


Figure 9
 Community Resources Map

SR 92 Widening from Nebo Road to SR 120
 Projects STP00-0186-01(025) and BRST0-0186-01(041)
 Paulding County
 P.I. Numbers 621720 and 632921



a) Environmental Justice

In accordance with Executive Order 12898 on Federal Actions to Address Environmental Justice in Minority and Low-income Populations, the proposed project has been analyzed for disproportional adverse effects to minority and low income populations and communities. Minority persons include citizens or lawful, permanent residents of the U.S. who are African-American, Hispanic, Asian-American, American Indian or Alaskan Native. Low income is defined as a household income at or below the Department of Health and Human Services (DHHS) poverty guidelines. Minority or low income communities are groups of minority or low income persons who live in reasonably close proximity to one another.

Census data from 2010 was used in the analysis of the minority population in the project area. The project is located within three census tracts: 1202.01, 1202.02, and 1205. Figure 9 shows the census tracts in the project area. Table 5 shows the data of minority populations by census tract and for the county as a whole.

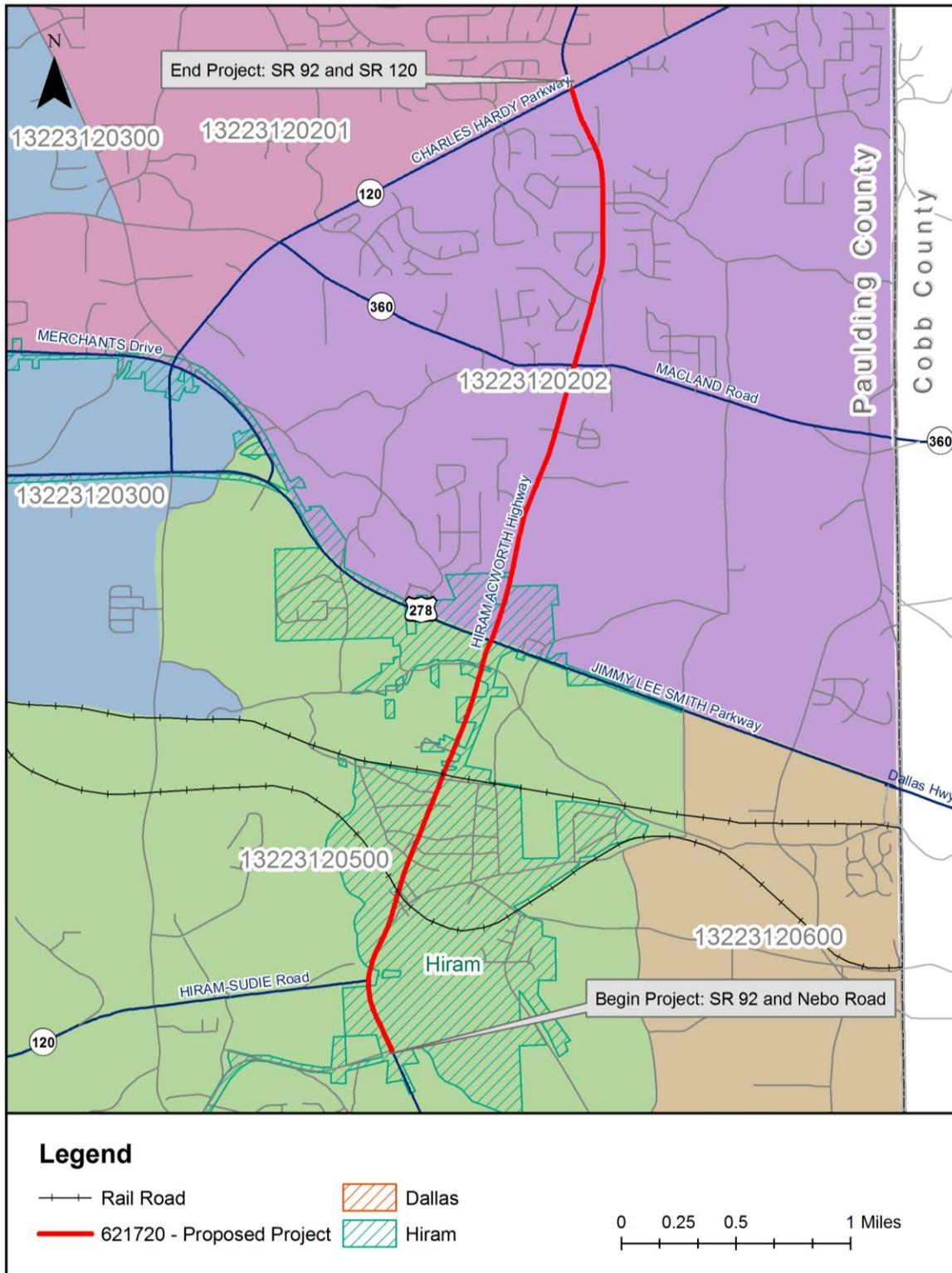
Table 5: Minority Populations (for the year 2010)

	Paulding County	Census Tract 1202.01	Census Tract 1202.02	Census Tract 1205
Total Population	125,780	12,454	6,719	21,019
White	10,4209 82.9%	11,283 90.6%	5,366 79.9%	16,542 78.7%
Black or African American	19,030 15.1%	938 7.5%	1,169 17.4%	4,244 20.2%
American Indian or Alaskan Native	1,076 0.9%	132 1.1%	0 0	245 1.2%
Asian	1,505 1.2%	162 1.3%	29 0.4%	299 1.4%
Native Hawaiian and Other Pacific Islander	29 0%	0 0%	29 .4%	0 0%
Some other race	2,019 1.6%	184 1.5%	258 3.8%	137 0.7%
Hispanic or Latino (of any race)*	5,393 4.3%	437 3.5%	615 9.2%	687 3.3%

Source: US Census Bureau, Census 2010 American FactFinder

*Hispanic or Latino populations are an ethnic group and are not considered a single racial group. Hispanics may be of any race.

Figure 9 – Study Area Census Tract



The data shows that the project area (consisting of Census Tracts 1202.01, 1202.02 and 1205) is very similar in minority make up when compared to the county as a whole. Approximately 17.1 percent of the county is minority by race, which closely compares to the 17.4 percent of the project area. The percentage of Hispanics or Latinos that live in both the project area and the county is 4.3 percent. This data therefore indicates that the minority population in the project area is similar in nature to that of Paulding County. Note that of the two churches that would be or have been displaced (Salt of the Earth Ministries and Poplar Springs Baptist Church), have substantial minority membership.

The average household size in Paulding County and within the three census tracts in the project area is three persons according to 2009 Census data. The DHHS poverty guideline in 2012 for a three-person household is \$19,090. Therefore, the household incomes listed by the Census Bureau in the “Less than \$10,000”, “\$10,000 to \$14,999”, and “\$15,000 to \$19,999” categories for 2009 (most recent available) are shown in Table 6.

Table 6: Households Below the Poverty Level (for the year 2009)

	Paulding County	Census Tract 1202.01	Census Tract 1202.02	Census Tract 1205
Total Households	45180	4855	2505	7325
Households with Income Less than \$10,000	2030 4.5%	251 5.2%	56 2.2%	230 3.1%
Households with Income \$10,000 to \$14,999	1269 2.8%	163 3.3%	119 4.8%	235 3.2%
Households with Income \$15,000 to \$19,999	1592 3.5%	152 3.1%	52 2.1%	211 2.7%
Total Households with Income below \$20,000	4891 10.8%	566 11.6%	227 10.1%	676 9%

Source: US Census Bureau, Census 2000 American FactFinder

The data shows that the project area is very similar in low-income composition compared to the county as a whole, between 5.2 and 2.2 percent, with the county at 4.5 percent. This data indicates that there is not a substantial low-income population in the project area.

Field surveys and informal interviews with community members, church officials, and city personnel were also completed as discussed in the Community Impacts section above, in addition to analysis of the census data, to help identify low-income and minority communities.

The data is from 2009, which is the most recent data set available for the census tracts in the study area. Therefore, the data projections can be assumed to be an accurate representation of the current

demographics for Paulding County, as well as for the more specific census tracts. Except for directly along SR 92, the project area has a suburban and rural feel and the area is almost entirely residential. Observations in the field did not reveal any indication of low income areas (mobile homes, many homes in major disrepair, many vacancies, etc.). As stated in the Community Impacts section, people interviewed that live south of US 278 identified the entire city of Hiram as their community, and north of US 278 consider their subdivision their community.

The data shows that the project area (consisting of Census Tracts 1202.01, 1202.02 and 1205) is very similar in minority and income composition when compared to the Paulding County as a whole. While the neighborhoods immediately adjacent to the project corridor contain minority and low-income populations, the project is not expected to disproportionately impact any social group, including elderly, handicapped, non-drivers, minority, low-income or ethnic groups due to its impacts. Therefore, the proposed action will not cause disproportionately high and adverse impacts on any low-income and minority populations as per Executive Order 12898 regarding environmental justice.

4. Relocations

Georgia DOT will assist families or individuals in finding and relocating to decent, safe, and sanitary housing which is adequate to meet their needs and within their financial means. Assistance will also be given to businesses and non-profit organizations in relocating to other quarters. This assistance is provided in the form of moving expenses in order for them to relocate. In addition, owner or tenant occupants of residential housing being displaced will be provided financial assistance for increased costs they may encounter in buying or renting. Owner occupants may also be provided financial assistance for certain other incidental expenses such as closing costs and increased interest payments required in their purchase of a replacement home.

The preferred alignment of the project would displace 28 single-family owner-occupied residences. The housing inventory was surveyed using market information from real estate agents, newspapers, and the local housing Multiple Listing Service (MLS). During this preliminary study, no contact was made with any of the displaced. There seems to be an adequate supply of replacement housing available.

The preferred alignment would also displace 16 businesses. The businesses to be relocated employ between one to 10 people each, about 55 people total. Every effort would be made to assist these businesses in relocating in the same area so that they would not have to move to another part of town.

In the event there are no replacement sites available at the time of acquisition, or if relocation is not within their financial means, the business owners may qualify for “in lieu of” payments. An “in lieu of” payment is a payment to be made to a business that cannot be relocated without a substantial loss of its existing patronage and is not a part of a commercial enterprise having more than three similar establishments not being acquired by GDOT. “Existing Patronage” is the average net annual earnings or

clientele of the business during the two taxable years immediately preceding the taxable year in which the business is displaced. Any such payment determined will not be less than \$1,000.00 or more than \$20,000.00.

In addition, one church, the Salt of the Earth Ministries, is proposed to be displaced. They currently rent the building that would be displaced.

At the time of the preliminary study, 10 properties were vacant or demolished and therefore not counted as displacements. In addition, three properties (a florist, Poplar Springs Baptist Church, and a gas station) have already been purchased under early acquisitions and have not been counted above.

The displacees listed may possibly require the use of Last Resort Housing Procedures. In the utilization of Last Resort Housing, five possibilities exist. These are:

1. Moving the existing structure onto remaining land or other lots within the area;
2. Utilization of available housing for rent or sale, and making supplementary payments in excess of \$5,250.00 for tenant occupants, and making supplementary payments in excess of \$22,500.00 for owner occupants;
3. Purchasing existing housing, available for sale, and renting to the displacees at a rental amount comparable to their existing rent;
4. Purchasing existing housing, available for sale, and deeding it to the displacee; and
5. Constructing new housing on vacant lots in the area and relocating the displacees into them.

Each displacee's situation will be examined on an individual basis during the acquisition stage, and more specific solutions will be made at that time, based on known facts.

All relocatees will be offered decent, safe, and sanitary housing, within their financial means, and a list of available and comparable housing furnished to all displacements attached with a notice to vacate as well as the notice of availability. Within a reasonable period of time prior to displacement, a comparable replacement dwelling will be available or provided for displaced individuals and families who are initial occupants or adequate replacement dwelling will be available or provided for subsequent occupants. The State Relocation Program is realistic and is adequate to provide orderly, timely, and efficient relocation of displaced persons.

5. Churches and Institutions

There are six churches, two cemeteries, a school, and a library located in the project area.

Churches and Cemeteries

There are six churches located in the project area: West Metro Church of Christ, Community Outreach Ministries, Salt of the Earth Ministries, Sweet Home Baptist Church, Hiram United Methodist Church, and Poplar Springs Baptist Church. There are two cemeteries associated with two of the churches

located within the project's area of potential effect (APE): Sweet Home Baptist Church Cemetery and Poplar Springs Baptist Church Cemetery.

No property would be required from the West Metro Church of Christ or the Community Outreach Ministries.

The building that the Salt of the Earth Ministries meets in would be displaced. The church currently rents the facility. The building is located on the south side of Oak Street, directly across from the Strickland Memorial Park, approximately 5 feet from the existing right-of-way. The building would be displaced due to the turning lane that would be added to Oak Street for the SR 92 intersection.

Right-of-way would be required from the Sweet Home Baptist Church and cemetery. Approximately up 0.15 acre of right-of-way and 0.02 acre of easement would be required from the front of these properties along Oak Street. The area to be acquired consists of parking and grassy sloped lawn. About 10 parking spaces would be acquired of the 100 spaces in the church parking lot under the preferred alternative. No grave sites or any other facilities of the cemetery or church are located in this area. To protect the cemetery during construction, orange fencing will be placed at the right-of-way to ensure that no construction or staging activities disturb the areas where the graves are located.

Right-of-way would be required from the Hiram United Methodist Church property. Approximately 60 to 80 feet of right-of-way and 20 to 60 feet of easement would be required from the front of the property. About 35 parking spaces would be acquired of the 95 total parking spaces on the church property.

The Poplar Springs Baptist Church was relocated as an early acquisition. The church was located on the west side of SR 92 and a portion of the church's cemetery is located directly east across SR 92. During the project development, it was determined that widening the road along the existing alignment would either impact the cemetery (if widening the roadway to the east) or the church (if widening the roadway to the west), the GDOT project team met with church officials to determine how they wanted to proceed. It was decided that under the preferred alternative, the new roadway would be shifted west onto the church buildings and the cemetery would remain undisturbed. The church selected their new site on the western side of SR 92, just south of Nebo Road and moved to their newly constructed facility in the winter of 2008.

Portions of Poplar Springs Baptist Church Cemetery are also located at two additional sites along CW Sims Road and Rosedale Drive. No grave sites from either portion of the cemetery would be impacted by the proposed project. To protect the cemeteries during construction, orange fencing will be placed along the cemetery property boundary at the right-of-way to ensure that no construction or staging activities disturb the areas where the graves are located.

Schools

There is one school located along the project corridor: East Paulding Middle School. The school is located on the west side of SR 92 just north of Hardy Circle. The project would widen SR 92 in front of the school. Up to 12 feet of right-of-way and 18 to 30 feet of easement would be required from the front of the school. This area consists of a grassed slope and a few trees; no parking or any other facilities are located within the required right-of-way or easement. Both driveways would be reconstructed to tie into the widened SR 92.

Libraries

There is one public library located along the project corridor: the Maude P. Ragsdale Public Library. The library is located on the east side of SR 92 just north of Nebo Road. Approximately 10 to 27 feet of easement would be required along the front of the library. This area consists of some landscaping and a small portion of the parking lot. About 4 parking spaces would be acquired of the 30 total parking spaces in the current lot.

6. Public Involvement

A Public Information Open House (PIOH) was held on January 29, 2004, at the Hiram Community Center from 5:00 to 7:00 PM. A total of 277 people were in attendance. The Mayor of Hiram, Dewey Pendley, was in attendance. Comments were taken at the meeting, via the comment card or the court reporter, and ten days following the meeting, via the comment card or letter. From the 76 comments received, 63 were in support of the project, 3 were opposed, 8 were conditional, and 2 were uncommitted to the project.

Three alternatives were shown at the PIOH. Alternative 1 utilized existing location throughout the entire project corridor. Alternative 2 following the existing alignment of SR 92 until just south of Grays Mill Creek bridge, where it goes west of the existing alignment onto new location; it would tie into the existing alignment just north of the bridge over the Southern Railroad. Alternative 3 was the preferred alternative as described in the Description of Alternatives Section IIA above. Of the comments received that indicated a preference, 14 people indicated support for Alternative 1, four people indicated support for Alternative 2, and eight people indicated support for Alternative 3.

A majority of the comments requested median breaks at specific intersections or businesses. A few commenters suggested adding additional traffic signals along the project. Median breaks are regularly reevaluated throughout the project development, so the intersections or businesses that were suggested by commenters will be evaluated throughout the process. Some median breaks or traffic signals cannot be considered due to the proximity to other median breaks or signals.

Some commenters wanted the median removed from the project and suggested instead a center turn lane. The traffic on this section of SR 92 warrants a raised median versus a center turn lane due to the high traffic volumes that are anticipated by the design year of 2032. All commenters received a response from GDOT; please see Appendix D for a copy of the summary of comments and the responses.

Although Alternative 1 was preferred by the public, further engineering that was completed after the meetings were held showed that to construct this alternative, an offsite detour around Hiram would need to be utilized, as the construction of the new bridge over the Southern Railroad would require the old bridge to be closed for up to one year. Also, it was determined that access to Main Street off of SR 92 would need to be removed under this alternative. During coordination with city officials, it was determined that the impacts to the Historic Hiram Commercial District as a result of the detour and the Main Street closure would be devastating to the city's economy, the community, and cause an adverse effect to the district. Therefore, in coordination with the city, it was decided that Alternative 1 was no longer prudent and that Alternative 3 would be taken forward as the preferred alternative.

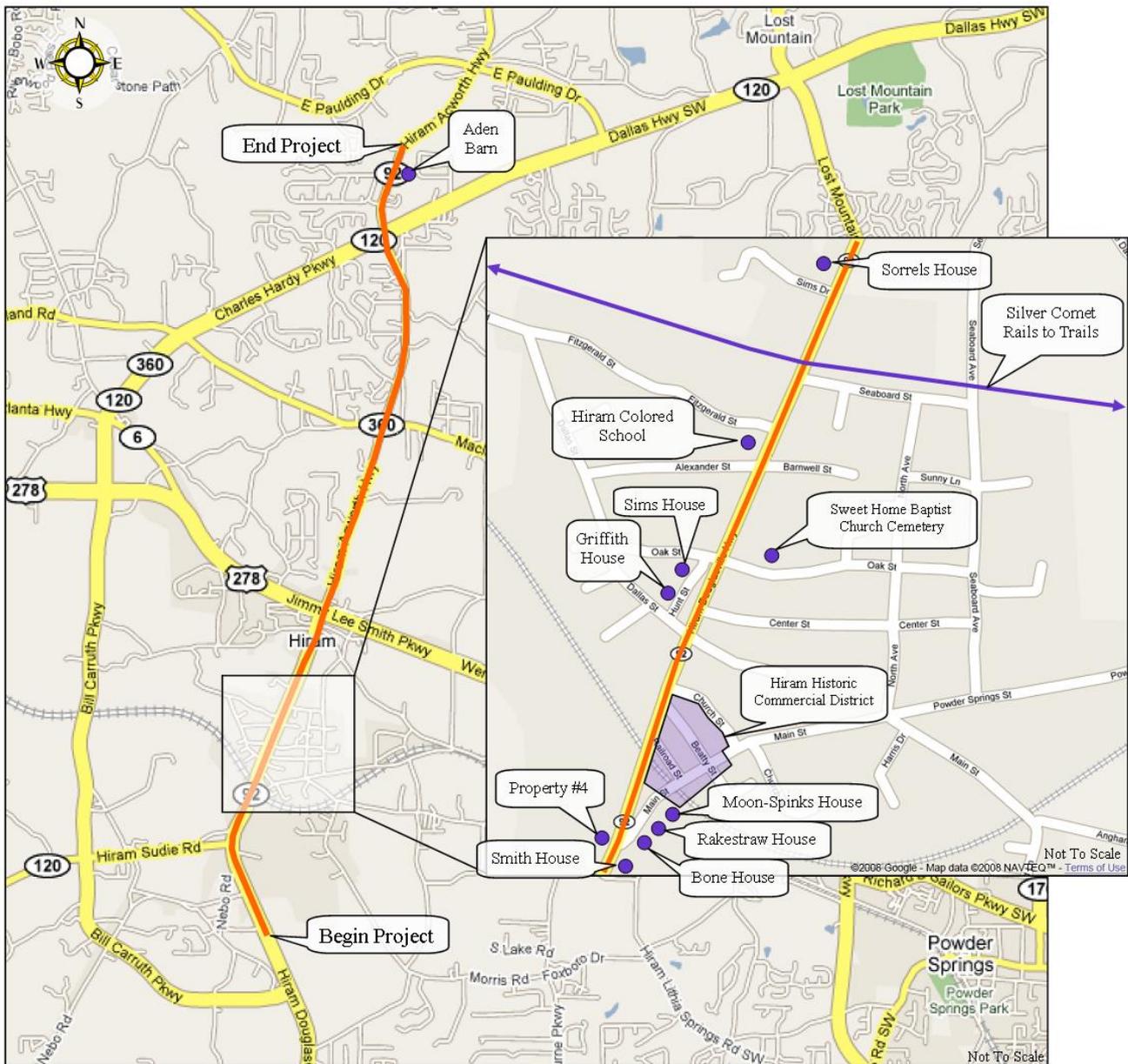
C. Effects on the Cultural Environment

1. Cultural Resources

In compliance with Section 106 of the National Historic Preservation Act of 1966 and amendments thereto, GDOT has surveyed the proposed project for archaeological and historic resources, especially those on or eligible for inclusion in the National Register of Historic Places. The purpose of the survey was to locate, identify and evaluate the significance of any historic and archaeological resources within the project corridor. The survey boundary and methodology were established using the GDOT/Federal Highway Administration (FHWA) Cultural Resource Survey Guidelines. These guidelines were established as a result of past interaction with the State Historic Preservation Officer (SHPO) and his staff and were agreed upon by FHWA and the SHPO.

As a result of these efforts, thirteen historic resources and no archeological resources considered resources eligible for the National Register were identified within the proposed project's area of potential effect (APE) (see Figure 10).

Figure 10 – Eligible Historic Resources



Historic Property Location Map

SR 92 Widening from Nebo Road to SR 120
 Projects STP00-0186-01(025) and BRST0-0186-01(041)
 Paulding County
 P.I. Numbers 621720 and 632921



2. Historic Resources

Direct Effects

Twelve properties considered resources eligible for the National Register were identified within the proposed project’s APE. One additional property within the proposed project’s APE is listed in the National Register.

The eligibility for listing in the National Register and the effects determinations of the following properties were coordinated with the SHPO. Concurrences on the eligibility in the Historic Survey Reports are dated October 29, 2002, April 7, 2008, April 11, 2008, and May 27, 2008, and can be found in Appendix A. Concurrences on the effects determinations in the Assessments of Effects (AOE) are dated May 23, 2005, June 11, 2008, and March 12, 2009, and can also be found in Appendix A.

Table 7 describes the historic resources along the project corridor. The table includes the **National Register Criteria** under which the property was listed or described as eligible for listing in the National

Register. Table 8 summarizes the impacts expected to each historic property.

National Register Criteria

Criterion A – Property associated with events that have made a significant contribution to the broad patterns of our history

Criterion B – Property associated with the lives of significant persons in the past.

Criterion C – Properties that embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Criterion D – Properties that have yielded or may be likely to yield information important in history or prehistory.

Table 7: Summary of Historic Resources

Historic Property	Location	Description	Criteria Used for Eligibility Determination	Size of Property within Historic Boundary
Smith House	1435 SR 92	Circa 1945 Minimal Traditional building type	C	0.15 acre
Property #4	1318 SR 92	Circa 1920 Georgia Cottage building type with elements of the Craftsman style	C	1.25 acres
Bone House	1325 SR 92	Circa 1920 Temple Front building type	C	1.08 acres
Rakestraw House	4 Main Street/Powder Springs Street	1920 Queen Anne Cottage building type	C	1.14 acres
Moon-Spinks House	44 Railroad Street	1910 Georgian Cottage building type	C	1.41 acres

Projects STP00-0186-01(025) and BRST0-0186-01(041)
Draft Environmental Assessment and Section 4(f) Evaluation

Historic Property	Location	Description	Criteria Used for Eligibility Determination	Size of Property within Historic Boundary
Hiram Historic Commercial District	Located just east of SR 92, between the SR 92 and Main Street/Powder Springs Street intersection and Church Street	The district includes the main historic commercial core of Hiram and is comprised of various late nineteenth to early twentieth century buildings.	A, C	4.36 acres
Griffith House	20 Hunt Street	Circa 1910 Gabled Ell Cottage building type	C	0.28 acre
Sims House	28 Hunt Street	Circa 1910 Gabled Ell Cottage building	C	0.31 acre
Hiram Colored School*	736 SR 92	1930 Julius Rosenwald school	A, C	1.68 acres
Silver Comet Rails to Trails	Property extends in an east to west direction and is located north of the city of Hiram, between East Seaboard Avenue and Barnwell Street	The resource is the former Seaboard Coast Line's rail bed of the Silver Comet passenger service.	A	61 miles long
Sorrels House	Northwest corner of the SR 92 and Sims Road intersection	Circa 1925 Front Gable Bungalow building type	C	0.09 acre
Sweet Home Baptist Church Cemetery	295 Oak Street	A historic African-American cemetery comprised of approximately one hundred graves, containing a variety of hand-crafted and mass produced grave markers, historic coping and slabs.	A, C	0.89 acre
Aden Barn	2914 SR 92	Circa 1900 transverse crib barn	C	0.17 acre

Source: October 29, 2002, April 7, 2008, April 11, 2008, and May 27, 2008 History Survey Reports

*Listed on the National Register

Table 8: Summary of History Impacts

Historic Property	Right-of-Way Required	Temporary Construction Easement Required	Physical Effect	Change in Character of Physical Features	Introduction of Visual Elements	Project Impact
Smith House	No	No	No Effect	No Effect	No Effect	No Effect
Property #4	1.11 acres	No	Adverse Effect	N/A	N/A	Adverse Effect
Bone House	No	No	No Effect	No Adverse Effect	No Adverse Effect	No Adverse Effect
Rakestraw House	0.07 acre	0.01 acre	No Adverse Effect	No Adverse Effect	No Effect	No Adverse Effect
Moon-Spinks House	0.04 acre	No	No Effect	No Effect	No Effect	No Effect
Hiram Historic Commercial District	0.07 acre	0.13 acre	No Effect	No Effect	No Effect	No Effect
Griffith House	No	No	No Effect	No Effect	No Effect	No Effect
Sims House	0.01 acre	No	No Effect	No Effect	No Effect	No Adverse Effect

Projects STP00-0186-01(025) and BRST0-0186-01(041)
Draft Environmental Assessment and Section 4(f) Evaluation

Historic Property	Right-of-Way Required	Temporary Construction Easement Required	Physical Effect	Change in Character of Physical Features	Introduction of Visual Elements	Project Impact
Hiram Colored School*	0.20 acre	0.15 acre	No Effect	No Adverse Effect	No Effect	No Adverse Effect
Silver Comet Rails to Trails	No**	No**	No Adverse Effect	No Effect	No Effect	No Adverse Effect
Sorrels House	No	No	No Effect	No Effect	No Effect	No Effect
Sweet Home Baptist Church Cemetery	0.08 acre	0.01 acre	No Adverse Effect	No Effect	No Effect	No Adverse Effect
Aden Barn	No	No	No Effect	No Effect	No Effect	No Effect

Source: May 23, 2005, June 11, 2008, and March 12, 2009 Assessments of Effects

*Listed on the National Register

**The Silver Comet Rails to Trails, in the area of the project, is owned by GDOT. Therefore, no right-of-way from the resource is required.

Although right of way or permanent easements would be required from the property of the Moon-Spinks House, the Hiram Commercial District, and the Sims House, these acquisitions do not fall within the historic boundaries of these resources and do no impact any features that contribute to the eligibility of the resources.

As a result of the project, Property #4 would be displaced thereby causing an Adverse Effect. A detailed evaluation of the impacts to this property is discussed in Chapter IV Section 4(f) Evaluation.

A small portion of the front and side yards included within the boundary of the Hiram Colored School would be required to construct the shoulders of the widened roadway.

A small portion of the front yard included within the boundary of the Rakestraw House would be acquired to construct the project.

The Sweet Home Baptist Church Cemetery is located along Oak Street. Due to the minor realignment of Oak Street and SR 92, a very small amount of right-of-way and easement is required to perform this work. More information about this work can be found in Section C.5., Churches and Institutions.

The Silver Comet Rails to Trails is a paved abandoned rail bed known as the Silver Comet Trail. No right-of-way would be required from the Silver Comet Rails to Trails as it is owned by GDOT. However, 0.65 acre of the resource would be occupied during construction of the project to install the pedestrian culvert. This occupation would not obstruct the recreational use of the trail. Project construction associated with the Silver Comet Trail would include the replacement of the SR 92 bridge with a pedestrian culvert. During construction, the trail could be detoured under the northern part of the existing bridge while the culvert is constructed on the existing alignment of the trail. Then, the trail can be shifted back to its original alignment, under the culvert. The activity and use of the trail would not be

impacted during construction or after the project is completed. Lighting inside the pedestrian culvert would be included in the design.

Coordination and Mitigation

All of the findings were coordinated with the SHPO and the letters of concurrence can be found in Appendix A. A Memorandum of Agreement (MOA) between the FHWA, SHPO, and GDOT is currently under review, and a draft copy can be found in Appendix A. The following stipulations have been proposed in order to take into account the effect of the project on Property #4.

1. Prior to project implementation, FHWA will ensure that the exterior and interior of Property #4 will be documented using medium format photography as well as other additional mitigation measure(s) to be determined at a later date following consultation with SHPO and other interested parties. The documentation will be prepared per the guidelines set forth in the GDOT and Georgia SHPO's Guidelines for Establishing a Permanent Archival Record. The photography will be submitted to the Georgia SHPO for acceptance and retention.
2. Prior to project implementation, GDOT will explore the feasibility and desirability of the relocation of Property #4 which would be demolished as a result of project implementation. Options for relocation include but are not limited to relocating the house further back on the current property or coordinating with the city of Hiram for relocation within the city limits of Hiram.

Details regarding the proposed lighting and surface treatment of the walls surrounding the culvert openings for the pedestrian culvert at the Silver Comet Rails to Trails have not been decided at this time. This additional information, when they become available, will be provided to the SHPO for review.

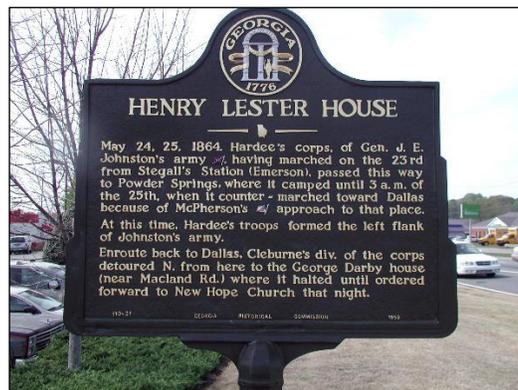
Tribal coordination has been completed for this project. All The letters of concurrence can be found in Appendix A.

3. Archaeological Resources

Georgia DOT archaeologists conducted an archaeological survey within the project corridor. No archaeological resources were located within the proposed project corridor. Therefore, the project would not affect archaeological resources on or eligible for inclusion in the National Register. This conclusion has been coordinated with the SHPO as of March 14, 2003.

4. Historic Markers

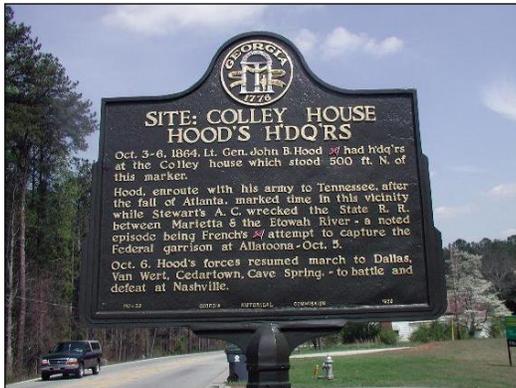
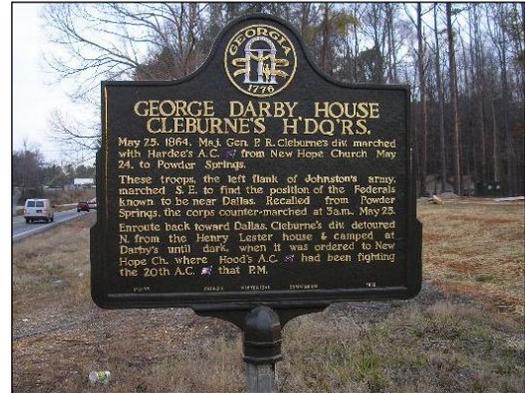
Three historic markers are located on SR 92 and one historic marker is located on SR 360 in the project area. The first marker, "The Hiram Rosenwald School," is located in front of the Hiram Colored School historic property at the intersection of SR 92 and Alexander Street. This marker is not



located within the required right-of-way and would not be disturbed during construction.

The second marker, “Henry Lester House,” is located at the southwest corner of US 278 and SR 92 within the existing right-of-way. This marker would be removed prior to construction and reset after construction.

The third marker, “George Darby House-Cleburne’s Headquarters,” is located in the existing right-of-way on the east side of SR 92, in front of the Darby’s Crossing retail center. This marker would be removed prior to construction and reset after construction.



The fourth marker, “Colley House-Hood’s Headquarters,” is located on the south side of SR 360 across from Maxwell Road. This marker is just beyond the construction limits of SR 360 and would not be disturbed during construction.

The construction contractor will coordinate the removal, storage, and replacement of the historic markers that would be within the construction limits of the project with the Georgia Department of Natural Resources (GDNR)

Historic Marker Program.

5. Parklands/Recreation Areas/Wildlife Refuges

There are two publicly owned parks located along the project corridor: the Ben Hill Strickland Memorial Park and the Silver Comet Rails to Trails. Ben Hill Strickland Memorial Park is owned by the City of Hiram and is located on the west side of SR 92 between Oak and Alexander Streets. The 11-acre park includes two tennis courts, two picnic pavilions, a fenced-in playground, a pond, walking trail, basketball courts, and a small amphitheater. The city hosts a variety of events in the park, including a summer music program, with local bands performing in the amphitheater. In 2009, the city bought three adjacent parcels along Alexander Street and added them to the park property. Two homes were removed and a parking lot was added, and a third home is currently used as storage.

Because of the improvements proposed along Oak Street, right-of-way and easements would be required from within the boundary of the park. Approximately 0.05 acre of right-of-way and 0.174 acre of easement would be required. The area within the proposed right-of-way and easement is a slope planted with grass and pine trees. The home that the city currently uses for storage would be displaced by the realignment of Alexander Street;



Looking west along Oak Street from the north-west corner of SR 92 and Oak Street. The park is on the right side of the picture.

however, the city was aware that this home was going to be impacted by the project, and they have stated that they could easily purchase another building for storage. No other park amenities or parking spaces would be affected by the proposed acquisition. A municipal water well is located within the construction easement; the proposed construction would not disturb the well or its function. The driveways to enter the south side of the park would be reconstructed as a part of the project; however, access to the park would be maintained throughout construction. There is also access and parking on the north side of the park, from Alexander Street.

A 250-foot long by 5.5-foot tall retaining wall would be constructed along Oak Street adjacent to the park, on the proposed transportation right-of-way, in order to minimize the amount of right-of-way required from the park. In consultation with the City of Hiram, a context-sensitive decorative finish will be chosen and applied to the wall during construction.

The Silver Comet Rails to Trails crosses the project corridor. The Silver Comet Rails to Trails is a paved abandoned rail bed known as the Silver Comet Trail. In 1998, the PATH Foundation helped formulate a partnership between GDOT, Georgia State Parks, and three counties – Cobb, Paulding, and Polk – to build the trail. The Silver Comet Trail is a 61 mile-long, converted rail-trail going from Smyrna, about 15 miles northwest of Atlanta, to the Georgia-Alabama state line; there it meets the Chief Ladiga Trail, the continuation of the old Seaboard Air Line train route. The trail is open every day from dawn until dusk. The trail allows for recreational activities such as biking, jogging, hiking, and horseback riding. Because the Silver Comet Rails to Trails is also a historic resource, also see Section 2, Historic Resources, for more information. In the area of the project, the trail property is owned by GDOT.

Project construction associated with the Silver Comet Trail would include the replacement of the SR 92 bridge with a pedestrian culvert. During construction, the trail could be detoured under the northern

part of the existing bridge while the culvert is constructed on the existing alignment of the trail. Then, the trail can be shifted back to its original alignment, under the culvert. The activity and use of the trail would not be impacted during construction or after the project is completed. Lighting inside the pedestrian culvert would be included in the design.

6. Section 4(f) Applicability

Section 4(f) of the USDOT Act of 1966 stipulates that the Federal Highway Administration (FHWA) and other DOT agencies cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless there is no feasible and prudent alternative to the use of land and the action includes all possible planning to minimize harm to the property resulting from use.

The following Section 4(f) resources have been identified within the APE of the proposed project: Smith House, Bone House, Rakestraw House, Moon-Spinks House, Property #4, Hiram Historic Commercial District, Griffith House, Sims House, Hiram Colored School, Silver Comet Rails to Trails, Sorrels House, Sweet Home Baptist Church Cemetery, Aden Barn, and Ben Hill Strickland Memorial Park.

The Silver Comet Rails to Trails is considered a Section 4(f) resource both as a historic property and as a publicly owned recreational area. For the purposes of the recreational use, Section 4(f) does not apply. The trail is on GDOT right-of-way, and although construction would take place within the right-of-way for the trail, the construction would not affect or change the recreational use of the trail.

The proposed project would require some easements and/or right-of-way from the Moon-Spinks House and the Hiram Commercial District, however, these acquisitions do not fall within the historic boundaries of these resources therefore, Section 4(f) does not apply. In addition, an easement is required from the Sims house; however, there are no features that contribute to the eligibility of the resource within the easement. Section 4(f) does not apply to the temporary occupancy, including those resulting from a right-of-way entry, construction, other temporary easements or short-term arrangements, of a significant publicly owned park, recreation area or wildlife and waterfowl refuge, or any significant historic site where temporary occupancy of the land is so minimal that it does not constitute a use within the meaning of Section 4(f).

Because the proposed project would require some easements and/or right-of-way from within the NRHP-eligible boundary of the Rakestraw House, Sweet Home Baptist Church Cemetery, and Property #4; from within the NRHP boundary of the Hiram Colored School; and from within the property boundary of the Ben Hill Strickland Memorial Park, Section 4(f) applies. The Section 4(f) Evaluation can be found in Section IV.

D. Effects on the Natural Environment

1. Water Quality

No significant impacts to the water quality in the project area are expected to occur as a result of the proposed project.

Provisions in the construction contract would require the contractor to exercise every reasonable precaution during construction to prevent the pollution of streams in the project vicinity. Where possible, disturbed areas would be revegetated early so as to hold soil movement to a minimum. Dumping of chemicals, fuels, lubricants, bitumens, raw sewage, or other harmful wastes into or alongside of streams or impoundments, or natural or manmade channels leading thereto, would be prohibited.

Additional contract provisions would require the use of temporary erosion control measures as shown on the construction plans or as deemed necessary during construction. These temporary measures may include the use of berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains, and other erosion control devices or methods, as applicable. These provisions are coordinated with the permanent erosion control features insofar as practical to assure economical, effective, and continuous erosion control throughout the construction and post-construction periods and are in accordance with the 23 CFR, Part 650, Subpart B.

2. Waters of the U.S.

The proposed project corridor has been surveyed with respect to involvement with Waters of the U.S. as required by the provisions of Executive Order 11990 and subsequent federal regulations. The project was originally surveyed and documented in a 2005 Ecology Assessment. An addendum to the 2005 Ecology Assessment was prepared in July 2012, documenting surveys to identify and delineate jurisdictional waters of the U.S. within the project corridor that were conducted on September 18, 2007, April 27, 2010, June 22, 2010, and throughout 2011 and 2012. A total of 40 jurisdictional waters of the U.S. were identified, including 29 streams, two jurisdictional ephemeral channels, six wetlands, and four open waters. Due to the length of time that has occurred since the 2005 Ecology Assessment, all waters of the U.S. were renumbered for the 2012 addendum, as described in the following subsections.

a) Wetlands

Six wetland sites were identified in the project area during field surveys (see Figures 11a-e). These wetland sites displayed the characteristics required for wetland definition as given in the 1987 Corps of Engineers Wetlands Delineation Manual:

- 1) prevalence of hydrophytic vegetation,
- 2) hydric soils, and
- 3) permanent or periodic inundation or saturation.

Areas were considered wetlands if they exhibited evidence of all three of the above wetland parameters. The following table describes the wetland sites identified along with the area of impact anticipated by implementation of the preferred alternative.

Table 9: Summary of Wetland Impacts

Wetland Site	Impact Type	Area of Temporary Impact (acres)	Area of Permanent Impact (acres)
Wetland 7	Fill/Clear	0.59	0.12
Wetland 8	Fill/Clear	0.29	0.04
Wetland 31	Fill/Clear	0.25	0.09
Wetland 39	Fill/Clear	0.06	0.08
Wetland 42	None	0	0
Wetland 43a	None	0	0
Totals		1.19	0.33
Total Impacts		1.52	

The functions provided by these wetlands are the provision of wildlife habitat, nutrient/sediment retention, some dissipation of erosive forces, and overflow for nearby streams. The maximum acreage of potential permanent wetland impact, determined by measuring within the proposed construction limits, is 0.33 acre. The maximum acreage of potential temporary wetland impact, determined by measuring between the proposed construction limits and right-of-way limits, is 1.19 acres. Temporary wetland impacts are anticipated due to clearing of vegetation in the right-of-way.

The project would be expected to produce some increased siltation within the two downstream wetlands during the construction phase. Environmental harm would be minimized by standard construction erosion and sedimentation control devices, which are discussed in more detail in Section III.D.2(d), Measures to Avoid and Minimize Impacts. Unavoidable wetland losses will be mitigated by debiting credits from a Georgia DOT-owned mitigation bank or through the purchase of credits from a US Army Corps of Engineers (USACE) approved bank. A total of 6.7 wetland mitigation credits are required as a consequence of constructing the proposed project.

b) Streams

Twenty nine streams were identified in the project area as part of the field surveys (see Figures 11a-e). These streams exhibited a defined channel and showed evidence of water flow at times other than major storm events. The following table describes the streams identified along with the area of impact anticipated by implementation of the preferred alternative.

Table 10: Summary of Stream Impacts

Stream Site	Type	Impact Type	Impact Length (feet)
S1	Perennial	Culvert	151
S2	Perennial	Culvert	151
S5	Intermittent	Culvert	89
S9	Perennial	Culvert	48
S10 (Mill Creek)	Perennial	None (existing bridge retained)	0
S10a	Intermittent	None	0
S11	Perennial	Culvert	224
S12b	Intermittent	None	0
S13	Intermittent	Fill	15
S14	Intermittent	Culvert/riprap	81
S23	Intermittent	Culvert	145
S24	Perennial	Culvert	160
S25	Intermittent	Culvert/Fill	51
EC25	Ephemeral	Culvert	110
EC27	Ephemeral	Fill/Relocation	123
S28 (Rakestraw Creek)	Perennial	Culvert	214
S29	Intermittent	Culvert/riprap	139
S33	Intermittent	Fill	16
S37	Intermittent	Culvert/Fill/Relocation	235
S40	Intermittent	Culvert	48
S41	Intermittent	Culvert	119
S43	Intermittent	None	0
S44	Intermittent	None	0
S44a	Intermittent	None	0
S45 (Powder Springs Cr)	Perennial	None (Con/Span)	0
S47	Intermittent	None	0
S47a	Intermittent	Culvert Extension	24
S48	Perennial	None	0
S48a	Intermittent	None	0
S49	Perennial	None	0
S50	Perennial	None	0
Total			2,143

Source: July 2012 Georgia DOT Ecology Addendum

Total potential stream impacts (including impacts to jurisdictional ephemeral channels) as a result of the proposed project are 2,143 linear feet. The project would be expected to produce some increased siltation within the downstream streams during the construction phase. Environmental harm would be minimized by standard construction erosion and sedimentation control devices, which are discussed in more detail in Section III.D.2(d), Measures to Avoid and Minimize Impacts.

The Fish and Wildlife Coordination Act (FWCA) was enacted to protect fish and wildlife when federal actions result in the control or modification of a natural stream or body of water. The statute requires federal agencies to take into consideration the effect that projects would have on fish and wildlife resources; take action to prevent loss or damage to these resources; and provide for the development and improvement of these resources. Impacts to Stream 1, Stream 2, Stream 11, Stream 23, Stream 24, Stream 25, Stream 28, Stream 29, Stream 37, and Stream 41 require FWCA coordination. The USFWS concurrence is in progress, this will be complete prior to advancing to the Final EA, stating that the impacts to the streams are unavoidable and necessary to complete the project. Please see Appendix A, Correspondence, for a copy of the concurrence letter.

Figure 11a – Water Resources

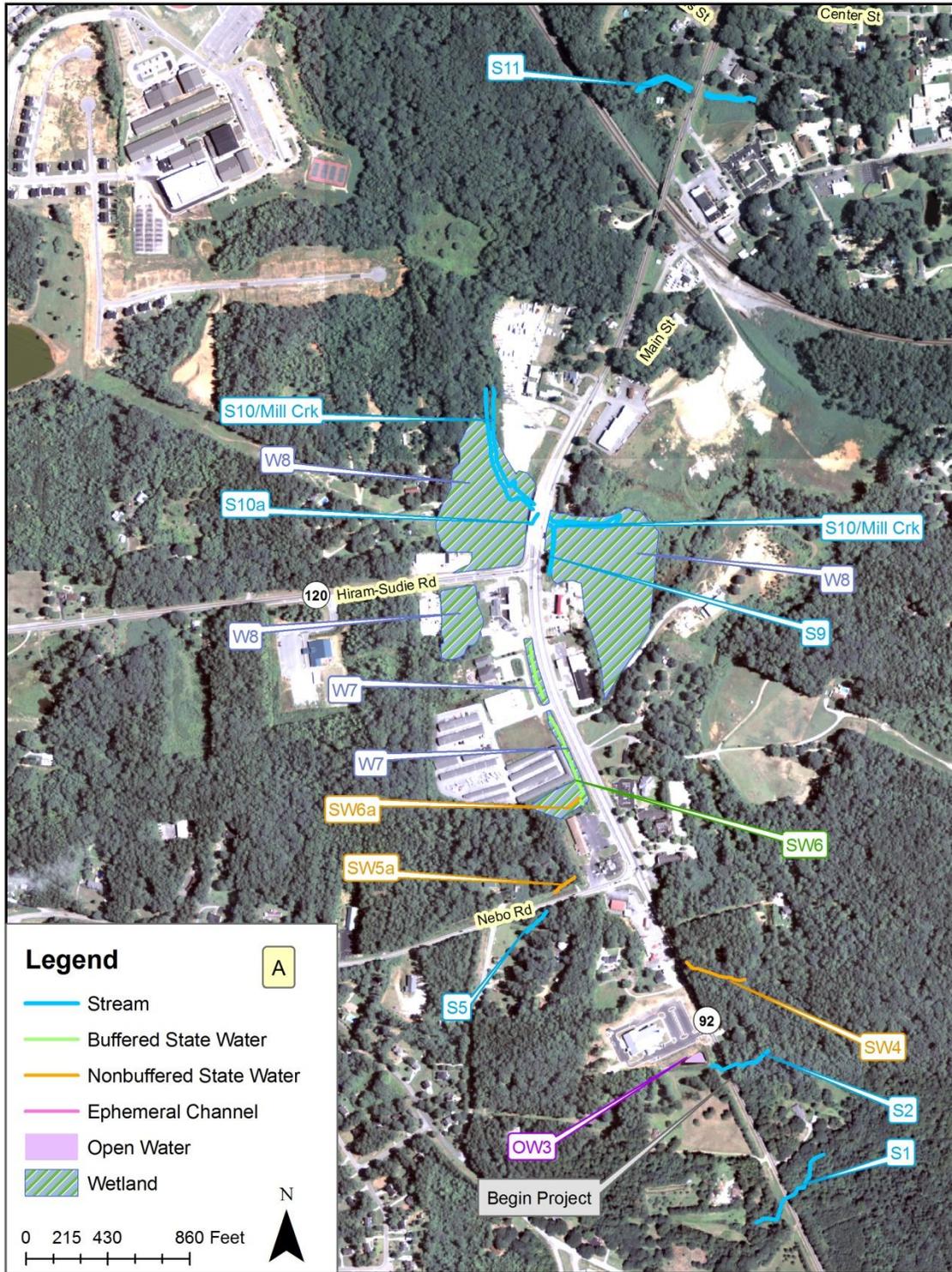


Figure 11b – Water Resources

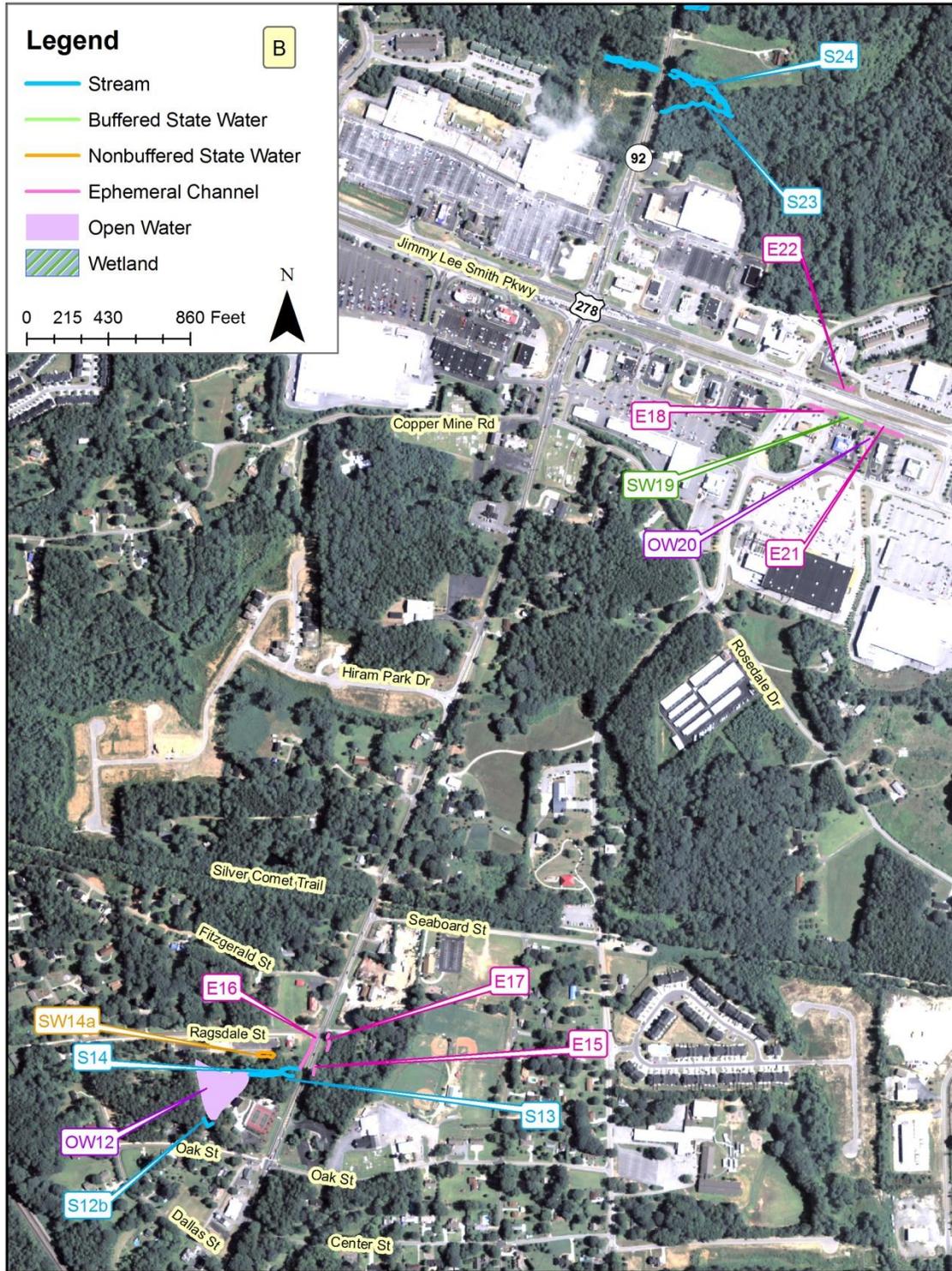


Figure 11c – Water Resources

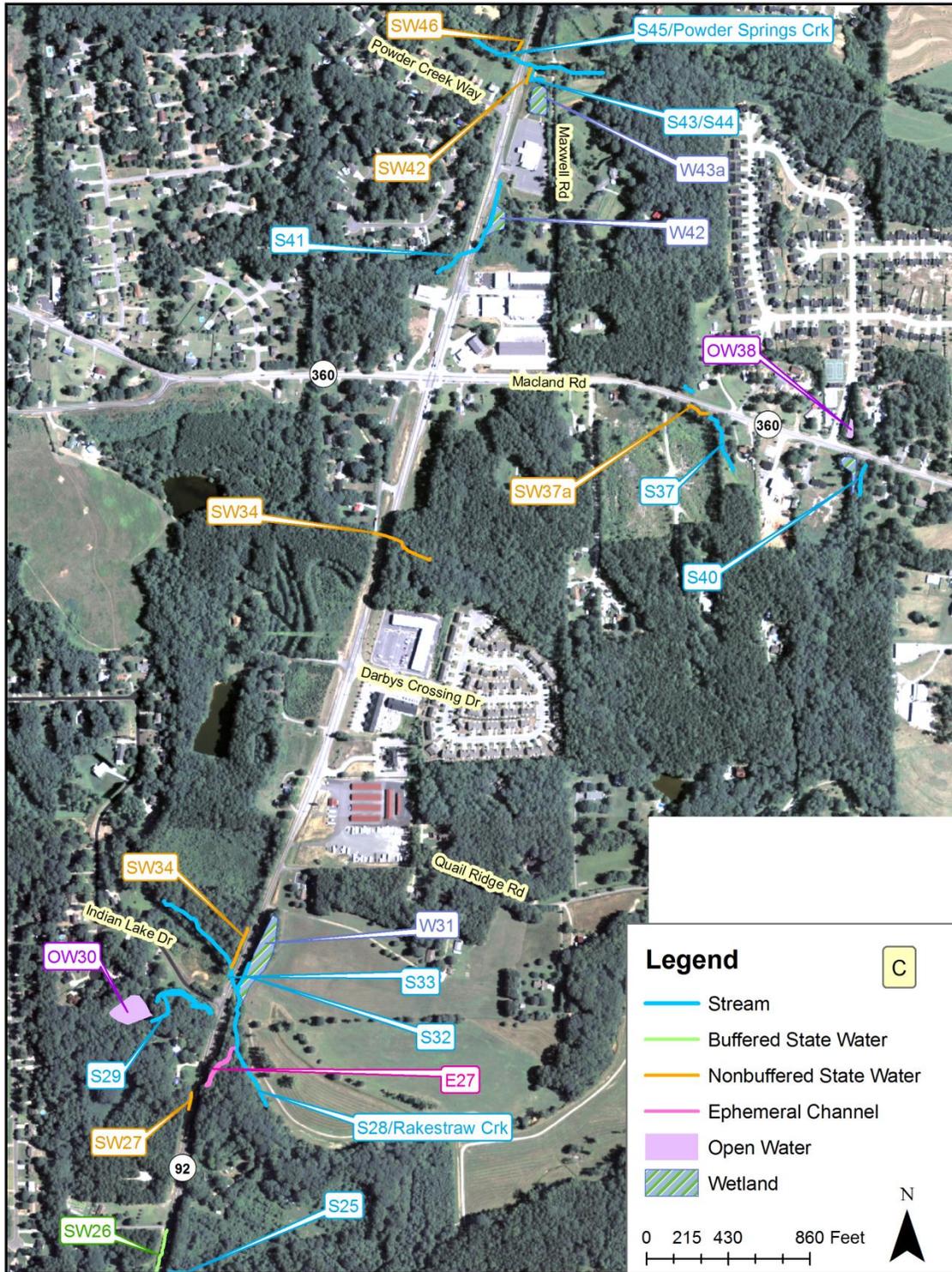
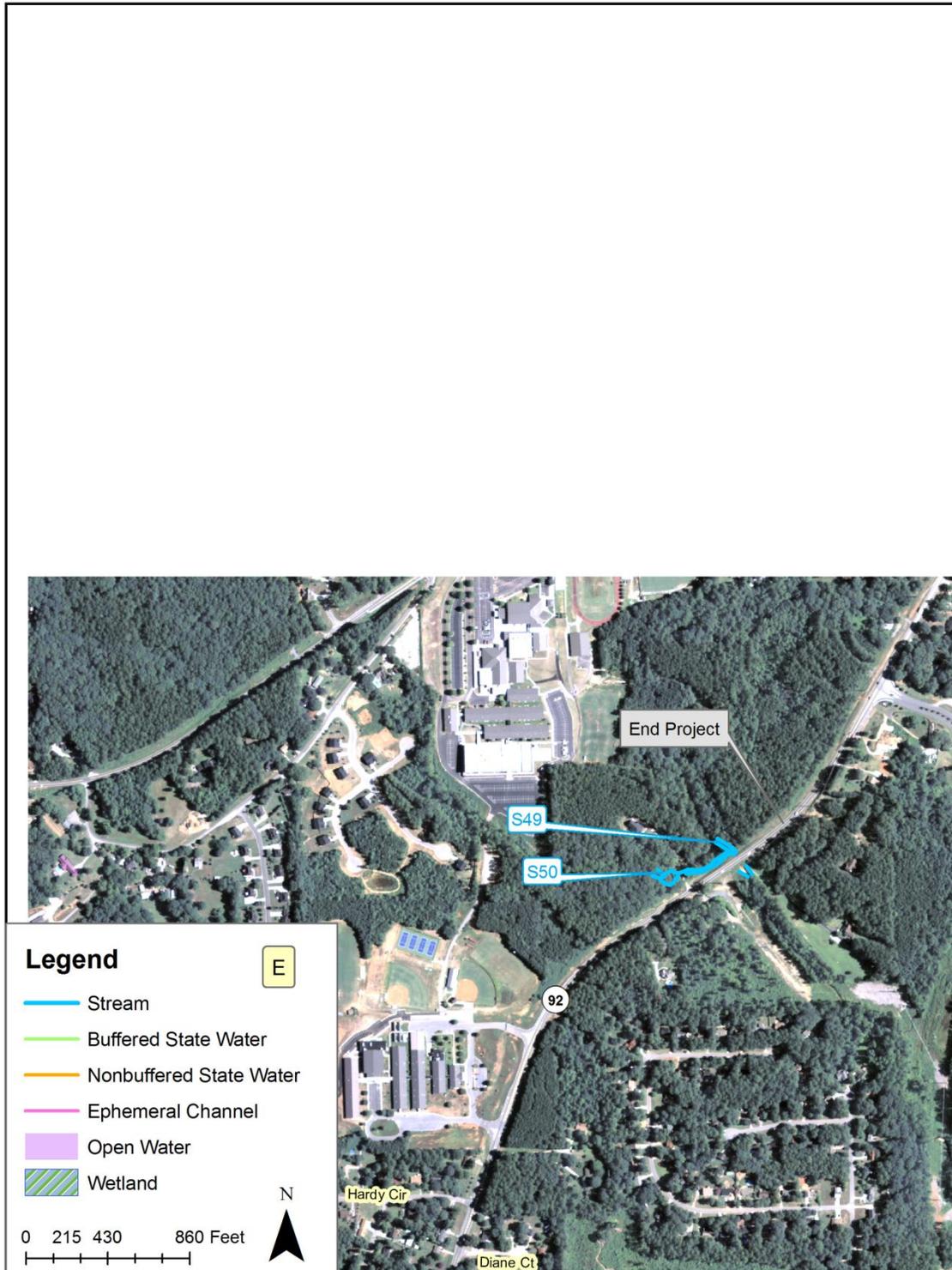


Figure 11d – Water Resources



Figure 11e – Water Resources



c) Open Waters

Four open waters were identified within the project corridor. However, none of them would be impacted by the proposed project.

d) Measures to Avoid and Minimize Impacts

In accordance with Section 404(b)(1) guidelines, alternatives were considered to avoid and minimize wetland and stream impacts. The alignment for the proposed project was developed by GDOT, which, as a standard procedure, includes all environmental considerations as a part of the location investigation prior to laying out a proposed alignment. Basic data of the corridor was gathered and studied. Data for the project included aerial photography, topographic maps, traffic (existing and projected), previous studies, wetland inventory maps, soil survey maps, floodplain maps, and GDNR historic resource survey maps at a minimum.

Any existing wetland or hydric soil boundaries, floodplains, parks and recreational facilities, known or suspected historical and archaeological sites, existing rights-of-way, possible UST/landfill/hazardous waste sites, and areas of known endangered species habitat were delineated on aerial photography prior to laying out an alignment. Also identified on the aerial photography were other “controls” such as homes, churches, cemeteries, schools, hospitals, and any other sensitive sites. Only at this point was the final concept developed with every attempt made to avoid sensitive social, ecological, historical, and archaeological areas. In the event that avoidance was not possible, every attempt was made to minimize harm to such resources.

The project corridor location and design to satisfy the project need and purpose are limited by the existing SR 92 location, road safety design, existing locations of other roads intersecting SR 92 within the project corridor, and the many residential and commercial properties within the project corridor. Widening the roadway on existing location, compared to using new location to build all or part of the roadway, will significantly reduce impacts to jurisdictional water resources.

Extensive efforts to avoid and minimize impacts to waters of the U.S. have occurred throughout the design process since the 2005 Ecology Assessment, and especially during 2011 and 2012 as a result of updated ecology surveys. Throughout the project corridor, proposed lane/median width has been reduced, and slopes have been tightened to the greatest extent possible. To avoid impacts to the trout stream, SR 92 was shifted to the west. In addition, lane widths were reduced from 12-feet to 11-feet and the median width was reduced from 20-feet to 14-feet. Specific design changes relative to each resource have been made to avoid and minimize impacts to the greatest extent possible, and are discussed in detail in the 2012 ecology addendum.

This project would be expected to produce some increased siltation within the wetlands and stream crossings during the construction phase. Environmental harm would be minimized by standard construction erosion and sedimentation control devices. Measures to minimize harm to wetlands, water quality, wildlife, and fish and game habitat include:

- 1) Preservation of roadside vegetation beyond the limits of construction where possible;
- 2) Early revegetation of disturbed areas so as to minimize soil erosion;
- 3) The use of slope drains, detention/retention structures, surface, sub-surface and cross drains, designed as appropriate or needed, so that discharge would occur in locations and in such a manner that surface and sub-surface water quality would not be affected (the outlets may require aprons, bank protection, silt basins and energy dissipaters);
- 4) Inclusion of construction features for the control of predicted erosion and water pollution in the plans, specifications and control pay items (GDOT Standard Specification 715 identifies the pollution control measures which may be used);
- 5) The prohibition of dumping of chemicals, fuels, lubricants, bitumens, raw sewage, or other harmful wastes into or alongside streams or impoundments, or into natural or manmade channels leading thereto,

Compliance with terms of the National Pollutant Discharge Elimination System (NPDES) permit for construction activities to include preparation and submittal of project Notice of Intent (NOI) and Notice of Termination (NOT). The NPDES permit also requires preparation and implementation of an Erosion, Sedimentation, and Pollution Control Plan and a Comprehensive Monitoring Program. Best Management practices outlined in the Erosion, Sedimentation, and Pollution Control Plan must be consistent with, and no less stringent than, practices set forth in the *Manual for Erosion and Sedimentation Control in Georgia*.

3. Floodplains

A survey of the project corridor for floodplains as required by the provisions of Executive Order 11988 has identified a transverse crossing of the 100-year floodplain associated with Mill Creek, Rakestraw Creek, and Powder Springs Creek (see Figures 12a-12b). Floodplain maps for this area were updated September 29, 2006 and regulated floodways were identified at all three crossings. Construction of the project could require the placement of fill material in the floodplain. The project would be designed in such a way that it would have no significant encroachment on this floodplain. The project would not represent a significant risk to life or property; it would not have a significant impact on natural and beneficial floodplain values; it would not support incompatible floodplain development; and it would not interrupt or terminate a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route.

Figure 12a – Floodplains

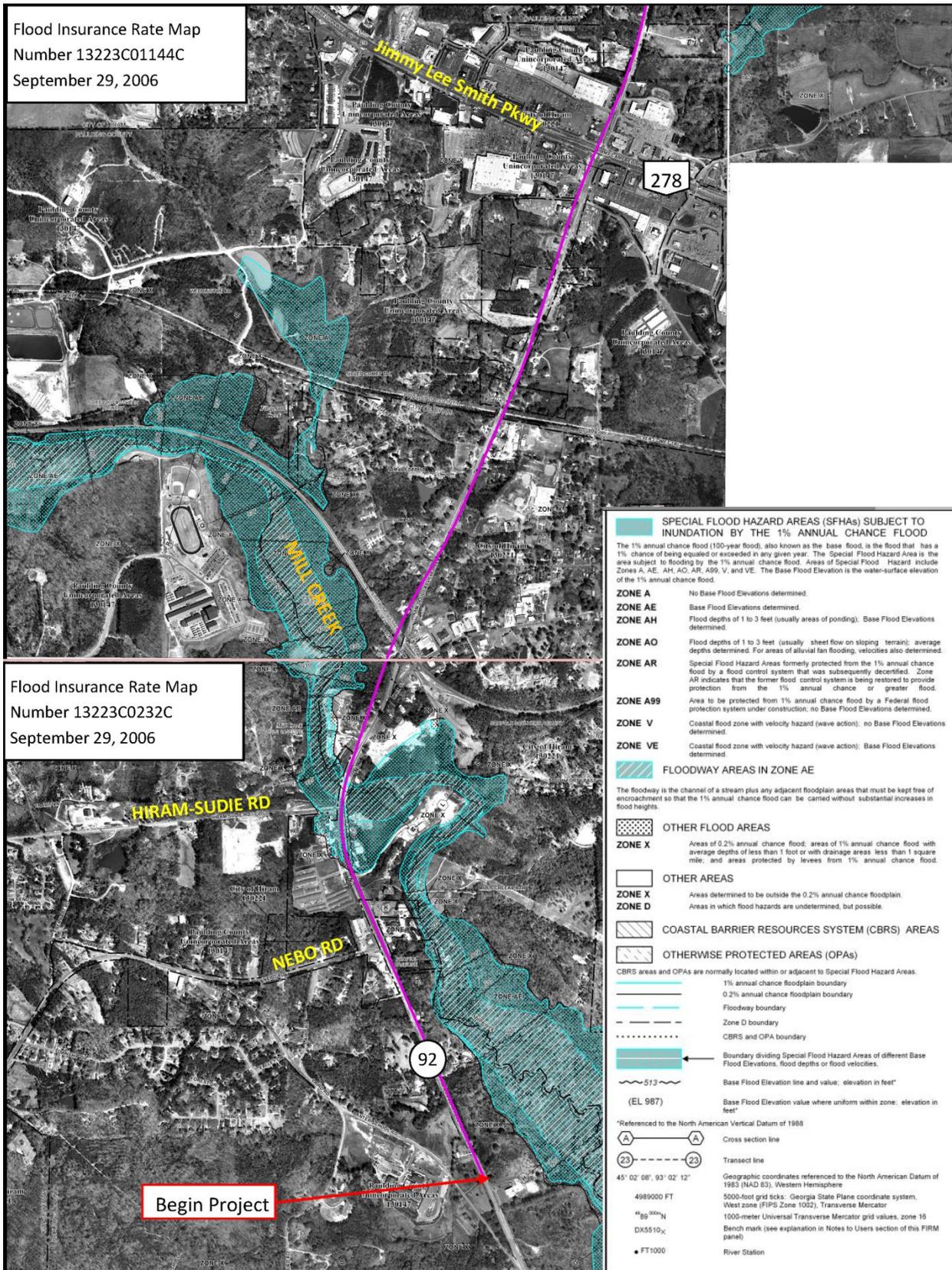
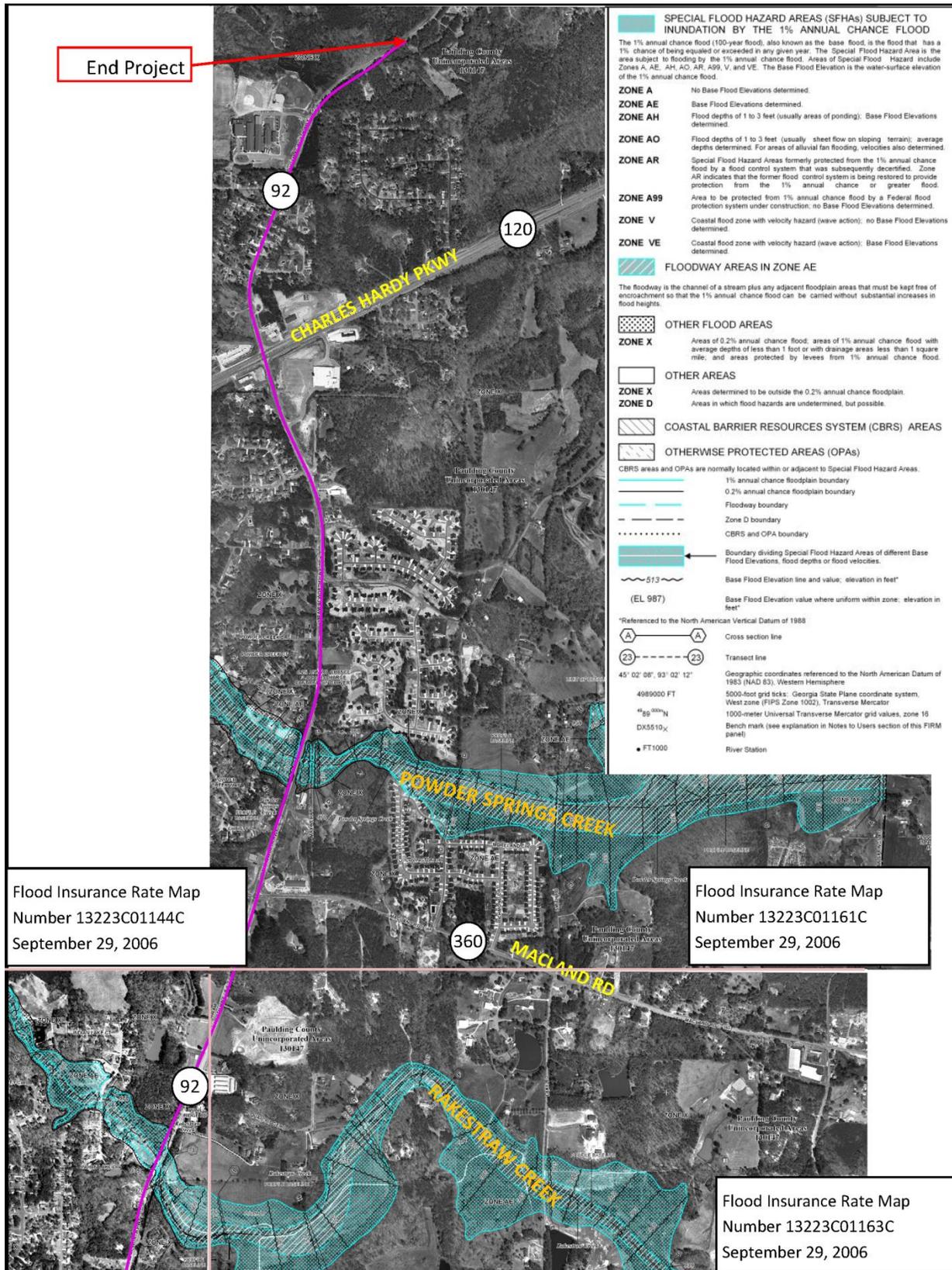


Figure 12b – Floodplains



Paulding County is a member of the National Flood Insurance Program. An encroachment on the regulatory floodway associated with Mill Creek, Rakestraw Creek, and Powder Springs Creek would occur as a result of the proposed widening. The existing culvert at Rakestraw Creek would be extended as part of the widening. A second bridge would be constructed parallel to existing bridge over Mill Creek. The existing culvert for Powder Springs Creek would be replaced with a CON/SPAN bridge. The proposed improvements would be designed to minimize impacts on this regulatory floodway. Procedures for Coordinating Highway Encroachments on Floodplains with the Federal Emergency Management Agency are being followed, and the Georgia Department of Natural Resources has been notified of the project's involvement.

4. Farmland

The project is being developed in compliance with provisions of the National Farmland Protection Policy Act. In accordance with 7 CFR, Part 658, criteria have been applied to determine effects to farmland, and the project is compatible with the provisions of the Farmland Policy Act. The project would displace approximately 8.3 acres of farmland, which represent about 33 percent of the total required right-of-way. Approximately 1.6 acres are classified as prime and unique by the Natural Resources Conservation Service (NRCS). However, the site assessment criteria score and the results of coordination with the NRCS indicate that the total farmland impact rating would be less than 160 points. Therefore, no additional alternates need to be examined on the basis of farmland effects. See Appendix A, Correspondence, for documentation.

5. Threatened and Endangered Species

In compliance with Section 7 of the Endangered Species Act (ESA), GDOT must identify the presence of threatened and endangered species, and their designated critical habitat as well as evaluating project impacts.

Prior to field surveys, protected species lists, including the USFWS County Listing of Threatened and Endangered Species in Paulding County; the GADNR County Listing of Locations of Special Concern Animals, Plants and Natural Communities in Paulding County, Georgia; the GADNR Listing of Locations of Special Concern Animals, Plants and Natural Communities by Quarter Quad for USGS 7.5 Minute Topographic Quadrangles; and the GADNR list for HUC 03130002 were reviewed to determine the proposed project's potential impact to protected species in Paulding County. The US Fish and Wildlife Service (USFWS) County listing of Threatened and Endangered Species in Paulding County; the Georgia Department of Natural Resources (DNR) County Listing of Locations of Special Concern Animals, Plants, and Natural Communities in Paulding County; and the Georgia DNR Listing of Locations of Special Concern Animals, Plants, and Natural Communities by Quarter Quad for USGS 7.5 Minute Topo Quads

Dallas, Lost Mountain, and Nebo were reviewed to determine the proposed project’s potential impact to protected species in Paulding County. Pursuant to the Endangered Species Act of 1973, a survey was conducted to identify federally protected species or potential habitat for protected species within the project corridor. Table 11 lists the surveyed species and their biological determinations.

Table 11: Listed Species Known to Occur in Paulding County

Scientific Name	Common Name	Federal Status	State Status	Habitat Present	Biological Determination
<i>Etheostoma etowahae</i>	Etowah darter	E	E	No	No Effect
<i>Etheostoma scotti</i>	Cherokee Darter	T	T	No	No Effect
<i>Hamiota altilis</i>	Fineline pocketbook	T	T	No	No Effect
<i>Symphotrichum georgianum</i>	Georgia aster	C	T	Yes	No Significant Adverse Effect

Source: July 2012 Georgia DOT Ecology Addendum

Field surveys conducted at various times throughout 2010 and 2011 determined that limited suitable habitat for the Georgia aster is located within the project corridor. A protected species survey was most recently conducted on October 27, 2011, during the flowering season for Georgia aster. No individuals or populations were located within the proposed project corridor. However, several areas within the project corridor appeared to have been recently mowed. Furthermore, known Georgia aster populations are located within several miles of the northern terminus of the project corridor, increasing the likelihood that individuals or populations could be present within the project corridor prior to the proposed project construction. Therefore, the proposed project will have “no significant adverse effect” on the Georgia aster. The Department will continue identifying suitable habitat for Georgia aster and conduct surveys during the flowering season in order to ensure that any new individuals or populations are documented and relocated prior to the proposed project construction. A determination of no effect was made for all other federally listed species (See Appendix A, Correspondence and Appendix B, Report Coordination).

Critical habitat has been designated for the finelined pocketbook in certain Tallapoosa and Coosa river drainages in Georgia. A portion of Paulding County falls within the Tallapoosa drainage; however, the proposed project corridor falls within the Middle Chattahoochee basin. No other federally protected species have critical habitat designated. Therefore, the project would have no adverse modifications on critical habitat.

The Bald and Golden Eagle Protection Act of 1940 provides



for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. No bald eagle nests are located within one mile of the proposed project corridor, and no suitable foraging habitat exists within the project area. Therefore, the proposed project would have no effect on the bald eagle.

6. Wildlife and Habitat

GDOT has a policy of identifying wildlife habitat that would be impacted by a proposed project, including surveying under bridges and large culverts which would be reconstructed or removed as part of a proposed project. If birds, such as the barn swallow, are observed nesting under the bridge or culvert, demolition or reconstruction of that structure will be scheduled to take place at a time when the nests are not being used.

Habitat for migratory birds is located throughout the project corridor. Barn swallow nests have been observed on the Gray's Mill Creek (Stream 5) bridge. This bridge structure will be utilized under the preferred alternative, and will not be affected by the proposed project. The Southern Railroad bridge, approximately at Sta. 74+00 over the Southern Railroad, and the Silver Comet Trail bridge approximately at Sta. 103+50 are proposed for removal. The former is proposed for replacement with a new bridge, while the latter would be replaced by a 120' x 12' x 12' pedestrian culvert. Both bridges provide migratory bird habitat. Additionally, several large culverts proposed for replacement or extension, including those at Stream 28/Rakestraw Creek and S45/Powder Springs Creek, also provide migratory bird habitat. Special Provision 107.23G will be implemented for all proposed work on bridges and large culverts within the proposed project corridor, requiring restrictive netting/flaps or seasonal restrictions.

The proposed project involves widening of existing roadway in a developed corridor and does not propose new location construction; therefore, impacts to other wildlife habitat would be minimal.

7. Invasive Species

In accordance with Executive Order 13112, a survey for populations of invasive species that may be spread during construction was conducted for this project. The invasive species for which the survey was conducted are those that have been identified by the Georgia DOT as having the highest priority due to environmental and economic impacts. Both the selected species and the management practices will be re-evaluated and revised as more information is obtained.

The following invasive species were observed extensively during field surveys: Chinese privet (*Ligustrum sinense*), Japanese honeysuckle (*Lonicera japonica*), kudzu (*Pueraria montana*), mimosa (*Albizia julibrissin*), English ivy (*Hedera helix*), sericea lespedeza (*Lespedeza cuneata*) and multiflora rose (*Rosa multiflora*).

During the construction process, the Georgia DOT will take measures to prevent or minimize the spread of these species as appropriate for the time of the year. These measures will include removal and

disposal of vegetative parts in the soil that may reproduce by root raking, burning on site any such parts and aboveground parts that bear fruit, controlling or eradicating infestations prior to construction, and cleaning of vehicles and other equipment prior to leaving the infested site. The measures used will be those which are appropriate for the particular species and the specific site conditions which exist on the project, as described in Georgia Standard Specifications Section 201, Clearing and Grubbing of Right-Of-Way.

E. Effects on the Physical Environment

1. Noise

An increase in traffic-generated noise can be expected to occur due to the road widening. The Noise Impact Assessment was completed in July 2009, and an Addendum in 2012 as a result of regulatory changes. The assessment report and addendum documents GDOT's noise analysis which provides baseline noise levels to determine project impacts, predicts the effects that the project would have on the noise environment, identifies noise sensitive sites where noise impacts are likely to occur, and determines the feasibility of noise abatement measures that would eliminate or reduce expected noise impacts.

Existing noise levels along the project corridor range from 39.5 to 70.7 dBA Leq. The predicted build noise levels within the study area range from 39.9 to 74.2 dBA Leq. The predicted no-build noise levels range from 40.3 to 72.7 dBA Leq. A total of 523 receptors were identified in the July 2012 Noise Impact Assessment Addendum. Construction of the proposed project would result in 26 impacts, all 26 on the basis of approaching or exceeding the noise abatement criteria (NAC). The proposed project would result in a 7.9 decibel increase in traffic generated noise.

Alternative noise abatement measure for reducing or eliminating noise impacts along the proposed corridor were evaluated for all noise sensitive sites which exceeds the noise abatement criteria. The types of abatement considered are below.

- 1) Abatement Barriers – Among the most common barriers are earth berms and free-standing walls. These kinds of abatement measures would not be feasible for this project because there would not be full control of access. Openings required for points of access (like driveways and cross streets) would render a barrier ineffective.
- 2) Acquisition of Rights-of-Way – The acquisition of rights-of-way to create buffer zones would result in disruptive relocations.
- 3) Traffic Management – Measure such as traffic control devices and signing for prohibition of certain vehicle types, and modified speed limits would prevent the project from serving its intended purpose. Exclusive land designations would be inappropriate for a project of this scope and would not reduce traffic noise levels.
- 4) Alteration of Horizontal and Vertical Alignments – Alignment modifications as a means of noise abatement would be infeasible for this project.

Noise abatement for the impacted receptors was considered and two barriers were determined to be feasible and reasonable abatement measures. See Figure 13 for the location of the three noise barriers.

Although temporary in nature, construction noise can, at times, interfere with day-to-day activities. Construction equipment would be required to have factory-installed mufflers or their equivalents in good working order during the life of the construction contract, and construction, where feasible, would take place during the less noise sensitive daylight hours to avoid impacts during the hours associated with sleep.

Figure 13 – Project Recourses Map

2. Air

The 1990 Clean Air Act amendments and guidelines, issued by the Environmental Protection Agency, set forth guidelines to be followed by agencies responsible for attainment of the National Ambient Air Quality Standards (NAAQS). In complying with these guidelines, the Georgia DOT has completed an analysis on the effects of this proposed project on air quality. Four different classes of air pollutants were analyzed: carbon monoxide (CO), mobile source air toxics (MSATs), ozone, and fine (2.5 micrometer) particulate matter (PM_{2.5}).

Carbon Monoxide (CO)

Carbon monoxide concentrations were predicted for the anticipated first year of operation, 2009, and the design year, 2029. The peak one-hour concentrations would reach 1.6 parts per million (ppm) in 2009, and increase to 2.0 ppm by 2029. The State of Georgia and the federal government set the maximum acceptable average CO concentrations at 9 ppm for a continuous eight-hour period or 35 ppm for a maximum one-hour averaging time. The predicted one-hour CO concentrations for the project in conjunction with the major cross streets are below the NAAQS for the eight-hour ambient level of 9 ppm, so an eight hour concentration for each receptor was not calculated. The results are in compliance with state and federal standards.

Ozone

This project is in an area where the State Implementation Plan contains transportation control measures. Therefore, conformity procedures apply to this project. The Clean Air Act requires Transportation Plans and Transportation Improvement Programs in areas not meeting the NAAQS to conform to the emissions budget of the State Implementation Plan for air quality. The FY 2008-2013 TIP is the current adopted plan for the Atlanta region showing the region's highest transportation priorities. It was adopted by the Atlanta TMA Board on September 26, 2007 and was approved by US DOT on October 10, 2007. This project is identified in the FY 2012 –2017 TIP by reference numbers PA-027 and PA-092B1.

Mobile Source Air Toxics (MSATs)

Introduction

Mobile Source Air Toxics (MSAT) assessments are required statewide for most federal transportation projects. Based on the example projects defined in the FHWA guidance “Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents,” dated December 6, 2012, the construction of the SR 92 widening and reconstruction project in Paulding County would be classified as a project with *Low Potential MSAT Impacts*. In addition to the criteria air pollutants that must meet the NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-

road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Qualitative MSAT Assessment

Because the estimated VMT under the build alternative is higher, it is expected there would be appreciable difference in overall MSAT emissions among the no-build alternative. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 80 percent between 2010 and 2050. 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 nearly all cases. . **Table 12**, Vehicle Miles Traveled (VMT) presents the vehicle miles of travel summary for the no build and build alternatives.

Table 12: Vehicle Miles Traveled

	AADT	Project Length	VMT
Existing Year (2010)	23,450	4.5 Miles	105,525
No-Build Design Year (2040)	36,400	4.5 Miles	163,800
Build Design Year (2040)	39,500	4.5 Miles	177,750

The additional travel lanes contemplated as part of the project build alternative will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under the build alternative, there may be localized areas where ambient concentrations of MSAT could be higher than the No-Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections of SR 92. However, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). In addition, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than current levels.

Incomplete or unavailable information for project-specific MSAT health impacts analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives.

The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

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

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, <http://pubs.healtheffects.org/view.php?id=282>) or in the future as vehicle emissions substantially decrease (HEI, <http://pubs.healtheffects.org/view.php?id=306>).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable. The results produced by the EPA's MOBILE6.2 model, the California EPA's Emfac2007 model, and the EPA's Draft MOVES 2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel particulate matter (PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of EPA's guideline CAL3QHC model was conducted in an NCHRP study (http://www.epa.gov/scram001/dispersion_alt.htm#hyroad), which

documents poor model performance at ten sites across the country - three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location.

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

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the

uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Fine Particulate Matter (PM_{2.5})

An Interagency Group consisting of representatives from the U.S. Environmental Protection Agency (EPA), FHWA, Georgia Environmental Protection Division (EPD), and the Atlanta Regional Commission (ARC) reviewed this project. The Interagency Group has determined that this project is not a project of air quality concern under 40 CFR 93.123(b)(1) as of July 16, 2008. The Clean Air Act and 40 CFR 93.116 requirements were met without a hot spot analysis. A qualitative PM_{2.5} hotspot analysis is not required for this project since it is NOT a project of local air quality concern under 40 CFR 93.123(b)(1). Documentation of this determination is provided in Appendix A, Correspondence.

Construction

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

The EPA has listed a number of approved diesel retrofit technologies; many of these can be deployed as emissions mitigation measures for equipment used in construction. This listing can be found at: www.epa.gov/otaq/retrofit/retroverifiedlist.htm

3. Greenhouse Gas Emissions and Climate Change

The issue of global climate change is an important national and global concern that is being addressed in several ways by the Federal government. The Transportation section is the second largest source of total greenhouse gas emissions (GHG) in the U.S. and the largest source of CO₂ emissions – the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all U.S. CO₂ emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels, which account for approximately 80 percent of anthropogenic emissions of carbon worldwide. Almost all (98 percent) of transportation-sector emissions result from the consumption of petroleum products such as motor gasoline, diesel fuel, jet fuel, and residual fuel.

To date, no national standards have been established regarding greenhouse gases, nor has the US Environmental Protection Agency (USEPA) established criteria or thresholds for GHG emissions. On April 2, 2007, the Supreme Court issued a decision in *Massachusetts et al v. Environmental Protection Agency et al* that the USEPA does have authority under the Clean Air Act to establish motor vehicle emissions standards for CO₂ emissions. The USEPA is currently determining the implications to national policies and programs as a result of the Supreme Court decision. However, the Court's decision did not have any direct implications on requirements for developing transportation projects.

Recognizing these concerns, FHWA is working with other modal administrations through the Department of Transportation Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to greenhouse gases – particularly CO₂ emissions – and to assess the risks to transportation systems and services from climate changes.

Because climate change is a global issue and the emissions changes due to project alternatives are very small compared to global totals, GHG emissions were not calculated for the alternatives considered. FHWA does not believe it is informative at this point to consider GHG gas emissions in a project level NEPA document. The climate impacts of CO₂ emissions are global in nature. Further, due to the interactions between elements of the transportation system as a whole, emissions analyses would be less informative than ones conducted at regional, state, or national levels. Because of these concerns, CO₂ emissions cannot be usefully calculated in this document in the same way that other vehicle emissions are addressed. As more information emerges and as policies and legal requirements evolve, approaches to climate change at both the project and policy level will be reviewed and updated.

4. Energy/Mineral Resources

The construction of a transportation facility represents a considerable one-time expenditure of energy resources both in the fabrication of construction materials and in the actual roadway construction process. The proposed improvements would allow for energy conservation by providing an efficient highway section that would help eliminate existing bottlenecks and provide a stable flow of traffic.

Another factor, which has been given consideration, is the possibility of making sources of raw material for energy production unavailable due to road construction. There are no proven energy reserves such as oil or natural gas in the project corridor; therefore, the project would have no such impacts.

5. Construction/Utilities

Construction of the proposed project would create unavoidable inconveniences to motorists, but construction activities would be conducted in a manner that would maintain access and minimize conflict with traffic. The safety and convenience of the general public and residents of the area would be provided for at all times.

Any necessary relocation of utilities i.e., water, sewer, telephone, etc. would be accomplished with no long term interruption of services. All other required construction functions would be accomplished in a timely and orderly fashion so as to keep disruptions minimal, for short duration and so as not to compromise safety.

6. UST's/Hazardous Waste Sites

A survey for sites which may contain hazardous materials, including soil and/or water contaminated by leaking underground storage tanks, has been conducted for this project. Ten sites which may contain underground storage tanks (UST's) or hazardous waste were identified. Subsurface testing was conducted to determine if any contaminants are leaking into the soil. See the table below for the results of the testing for each site.

Table 13: UST and Hazardous Waste Investigation Results

Site Number	Parcel Number	Site	Address	Amount of Contamination Encountered
1	269	Conoco Food Mart gas station	3601 Macland Road	Minimal
2	307	C First Shell & Carwash gas station	2651 Marietta Highway	None
3	N/A*	Citgo gas station	4373 Jimmy Lee Smith Parkway	None; EPD UST Confirmed Release Site
4	35	Happy China Restaurant (former service station)	SR 92	Minimal
8	N/A*	BP Amoco 13656 gas station	4439 Jimmy Lee Smith Parkway	None; EPD UST Confirmed Release Site
9	206	Contract Services Company	711 Highway 92	Minimal
11	50	Ad A Boy Tool Rental	488 Hiram-Douglasville Highway	Minimal
12	N/A*	Kauffman Tire	4471 Jimmy Lee Smith Parkway	Minimal
13	N/A*	Former Country Cupboard/Sav-a-Ton	Southwest corner of SR 92 and SR 120	None
48	48	Vacant property	Northeast corner of SR 92 and Church Street	Minimal

Source: UST/Hazardous Waste Investigation Reports, May 18, 2004 & March 27, 2008

*Right-of-way is not required from these properties

Applicable laws and regulations concerning the removal of toxic or hazardous material will be followed. Sites 3 and 8 are Environmental Protection Division (EPD) UST Suspected/Confirmed Release Sites, which means that the responsible party has been identified for the subject release. The EDP indicates that a No Further Action (NFA) was issued for site 3 in 1993 and for site 8 in 2003.

Contaminated soil excavated from Parcels 269, 35, 206, 50, and 48 during construction will be disposed of at a permitted lined municipal solid waste landfill. The location of the UST systems at Parcel 35 could not be determined in the field. If the USTs are encountered during construction, they will be handled in accordance with Georgia DOT standard specifications for construction for removal of underground storage tanks. Implementation of the proposed project will not preclude any necessary site remediation to be performed by others.

F. Permits/Variations

1. US Coast Guard Permit

A US Coast Guard Permit is not required for this project because no waters under Coast Guard jurisdiction are involved.

2. Forest Service/US Army Corps of Engineers Land

No property owned by either agency is located along the project corridor.

3. Section 404

The placement of fill material in Waters of the United States requires a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act of 1977. There are three levels of this permit, and the determination of the appropriate one is based primarily on the type of fill activity and the amount and location of fill involved.

Based on the current agreement between GDOT and the U.S. Army Corps of Engineers, compensatory mitigation is required for all impacts on projects that impact more than a tenth (0.10) of an acre of wetlands, open water, and ephemeral channel or more than 100 linear feet of jurisdictional streams.

As a result of the proposed project, approximately 2,143 linear feet of jurisdictional stream and 1.52 acres of jurisdictional wetland/open water/ephemeral channel would occur. Based on the current Section 404 permit impact thresholds, application for a Regional Permit 1 would be made prior to project certification for let.

The aforementioned impacts would require 6.7 wetland mitigation credits and 9,590 stream mitigation credits. Calculations for these credit totals can be found in the tables following this addendum.

Multiple mitigation banks selling stream and wetland credits currently list HUC 03130002 as a primary or secondary service area. Potential banks from which credits can be purchased will be identified at a later date, when more accurate credit supply totals will be available.

4. Tennessee Valley Authority

There are no Tennessee Valley Authority (TVA) lands associated with the proposed project. Therefore, no coordination with the TVA would be required.

5. Stream Buffer Variance

State Waters are defined by the Official Code of Georgia 12-7-1 and protected by the Georgia Erosion and Sedimentation Control Act of 1975. In compliance with the National Pollutants Discharge Elimination System (NPDES) permit under Section 402 of the Clean Water Act, any encroachment within the designated 25-foot or 50-foot buffer of a state water requires a stream buffer variance. A total of thirty-seven buffered state waters have been identified within the project corridor, and the following are anticipated to require a buffer variance: Buffered State Water 6, Stream 11, Stream 13, Buffered State Water 19, Stream 23, Stream 24, Buffered State Water 26, Stream 28/Rakestraw Creek, Stream 29, Buffered State Water 32, Stream 37, Stream 41, Stream 43, Stream 45/Powder Springs Creek, Stream 47, Stream 48, Stream 48a, and Stream 50.

Before the project is let to construction, a stream buffer variance for impacts to the buffers of these 18 buffered state waters would be obtained by GDOT from the Georgia Department of Natural Resources (DNR) Environmental Protection Division (EPD).

6. Coastal Zone Management Coordination

The proposed project is not located in a coastal zone; therefore, no coastal zone management coordination would be required.

IV. DRAFT SECTION 4(F) EVALUATION

A. Introduction

Section 4(f) of the 1966 U.S. Department of Transportation Act (49 U.S.C. 1653, now 49 U.S.C. 303) declared a national policy that special efforts be made to preserve public park and recreation lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation may approve projects that require the use of significant publicly-owned parks, recreation areas, wildlife and waterfowl refuges, or any significant historic site protected under Section 4(f) only if:

- There is no prudent and feasible avoidance alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the resource resulting from such use.

When such resources are affected, documentation of no feasible and prudent avoidance alternative and planning to minimize harm is included in the federal environmental document. A Section 4(f) use occurs:

- When land is permanently incorporated into a transportation facility;
- When there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purposes; or

- When there is a constructive use of land (23 CFR 771.135[p]).

Thirteen historic resources protected under Section 4(f) have been identified within the project's area of potential effect (APE). These resources include one National Register of Historic Places (NRHP) listed property, the Hiram Colored School, and 12 resources considered eligible for listing in the NRHP: the Smith House, Property #4, Bone House, Rakestraw House, Moon-Spinks House, Hiram Historic Commercial District, Griffith House, Sims House, Silver Comet Rails to Trails, the Sorrels House, the Sweet Home Baptist Church Cemetery and Aden Barn. For complete descriptions of all of these historic resources and a map of their location, see Section C.2. (Refer to Appendix A for correspondence with SHPO.)

In addition to the historic resources, there are two publicly owned parks or recreation areas in the project corridor, the Ben Hill Strickland Memorial Park and the Silver Comet Rails to Trails.¹

Section 4(f) Applicability

Of the eligible or listed historic resources, Property #4 would be displaced by the project and a Section 4(f) Evaluation is required for Property #4.

Because no property would be required from the NRHP-eligible boundaries of the Smith House, Bone House, Moon-Spinks House, Griffith House, Silver Comet Rails to Trails, Sorrels House, the Hiram Historic Commercial District, Aden Barn and Sims House, Section 4(f) would not apply to these resources.

In addition, no addition right of way is required for the Silver Comet Trail (as a recreation area), in the area of the project. Although construction would take place within the right of way for the trail, access to the trail will be maintained throughout construction and the project would not affect or change the recreational use of the trail and therefore, Section 4(f) would not apply.

At the Sims House, a temporary easement of between two feet to nine feet will be required along the north border of the Sims House; there are no features which contribute to the eligibility of the resource located within the area of the propose easement. The temporary easement necessary for this project will not require a Section 4(f) evaluation because Section 4(f) does not apply to the temporary occupancy, including those resulting from a right-of-way entry, construction, other temporary easements or short-term arrangements, of a significant publicly owned park, recreation area or wildlife and waterfowl refuge, or any significant historic site where temporary occupancy of the land is so minimal that it does not constitute a use within the meaning of Section 4(f).

¹ The Silver Comet Rails to Trails is considered both a historic resource and a recreational area.

The project would require easements and/or minor amounts of right of way from the Rakestraw House, the Hiram Colored School, and Sweet Home Baptist Church Cemetery. In accordance with 6009(a) of the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the proposed project would have a de minimis impact on these properties and a Section 4(f) Evaluation is not required. The SHPO, the official with jurisdiction over these historic properties, was informed of FHWA's intent to make a de minimis impact finding based on their written concurrence in the Section 106 determination of "no adverse effect" for these properties. See SHPO's letter of acknowledgment of the de minimis finding in Appendix A.

For the publicly-owned parks or recreation areas, the acquisition of minor amounts of right-of-way and/or easement would result in a de minimis impact to the Ben Hill Strickland Memorial Park. Per a meeting held on April 7, 2008 between the City of Hiram and GDOT, and further communication via email and phone with city staff, the Mayor of the City of Hiram, the official with jurisdiction over the park, intends to concur in a de minimis finding for the park. Formal coordination with the mayor will be completed after the public has had a chance to comment on the proposal at the Public Hearing Open House (PHOH).

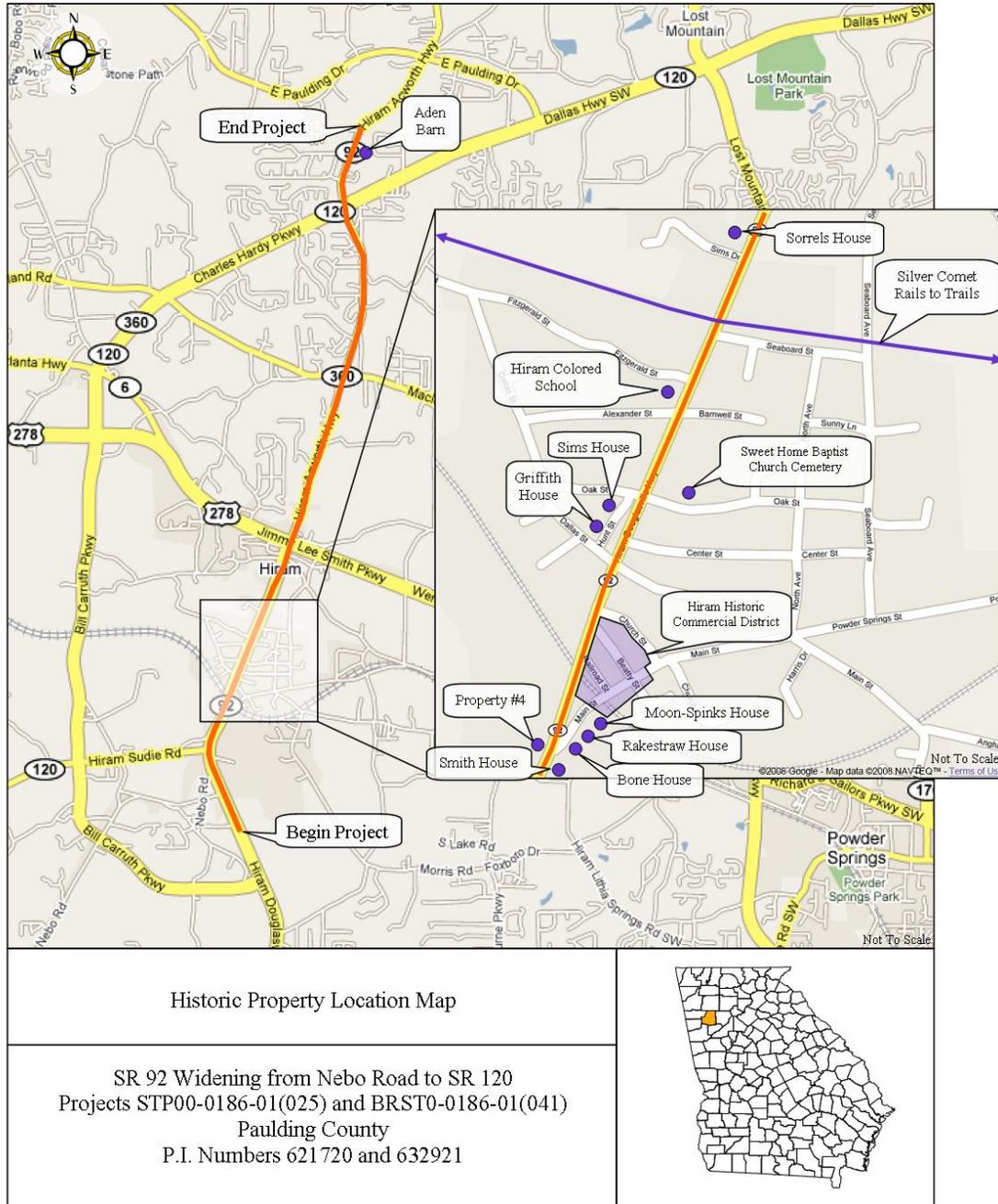
Table 14: Impacts to Section 4(f) Resources

	Resource Name	Section 106 Impact to Resource	Right-of-Way Acquisition within Historic Boundary (acre)	4(f) Impact?
Historic Resources				
1	Smith House	No Effect	No	No
2	Property #4	Adverse Effect	1.11*	Yes
3	Bone House	No Adverse Effect	No	No
4	Rakestraw House	No Adverse Effect	0.07	De minimis
5	Moon-Spinks House	No Effect	No	No
6	Hiram Historic Commercial District	No Adverse Effect	No	No
7	Griffith House	No Effect	No	No
8	Sims House	No Adverse Effect	Temporary easement	No
9	Hiram Colored School	No Adverse Effect	0.2	De minimis
10**	Silver Comet Rails to Trails	No Adverse Effect	No	No
11	Sorrels House	No Effect	No	No
12	Sweet Home Baptist Church Cemetery	No Adverse Effect	0.08	De minimis
13	Aden Barn	No Effect	No	No
Parks & Recreational Areas				
10**	Silver Comet Rails to Trails	N/A	No	No
14	Ben Hill Strickland Memorial Park	N/A	0.75	De minimis

*This acquisition results in the displacement of the house.

** Resource is both a historic resource and a recreational area.

Figure 14: Historic Resources



B. Proposed Action

See Section II .A on page 10 for a description of the project and Section I.C on page 3 for the needs for the proposed project.

C. Description of Section 4(f) Resources

Property #4

Property #4, located at 1318 SR 92, is a circa 1920 Georgia Cottage building type with elements of the Craftsman style. Notable features include: an off-center projecting front gable porch supported by simple wood columns and a wood balustrade, a primary entrance surrounded by multi-pane sidelights and transom, simple, paired and triple double hung 5/1 window types, exposed rafters and triangular knee braces, and two off-center ridgeline brick chimneys. The setting of Property #4 has been compromised by the intrusion of non-historic commercial properties to the south. This property was evaluated for eligibility for listing in the NRHP under Criterion C: the property possesses a local level of significance in the area of architecture as a good and representative example of a Georgian Cottage that retains many intact original and character-defining architectural details.

Because the historic boundary is no longer intact and because there are no other significant or character-defining features within the legal boundary that contribute to the architectural significance of the property, the eligible NRHP boundary consists of a visual boundary. The eligible boundary contains all NRHP qualifying characteristics and features of the property and includes the house and the immediate surrounds. The edge of pavement along SR 92 has been proposed as the eastern border of the proposed boundary because the area within the existing right-of-way contains a portion of the property's grassed lawn and the concrete steps and sidewalk leading to the front porch. These features are considered contributing elements of the setting of the proposed historic boundary.

D. Impacts to Section 4(f) Resources

Property #4

In the area of the resource, project implementation would consist of the widening and realignment of SR 92 to the west and the realignment of the currently skewed SR 92 and Main Street intersection. Right of way acquisition and construction of the project would result in the physical destruction of Property #4, resulting in a finding of Adverse Effect from SHPO.

E. Avoidance Alternatives

The following alternatives were considered to avoid any use of land from Property #4 (See Figure 15, for a map):

1. No-Build
2. Western Alignment Alternative
3. Eastern Alignment Alternative

The following findings were made as a result of the evaluation of avoidance alternatives.

1. No-Build Alternative

Under the no-build alternative, no improvements would be made to SR 92 between Nebo Road and SR 120. This alternative would fail to improve congestion, safety, or the structural integrity of the bridges over the Southern Railroad and Silver Comet Trail. Although this alternative would not meet the need and purpose of the project, it would avoid the direct impacts to the Section 4(f) resource resulting from the implementation of the build alternative.

The no-build alternative ignores the basic transportation need and purpose and would not improve the efficiency of this north/south corridor that services the east side of Paulding County. Presently, the many roadway segments within the corridor are experiencing congestion and unacceptable levels of service (LOS). It is anticipated that the majority of the road would operate at LOS F by the year 2020, indicating traffic volumes that greatly exceed the capacity of the road and cause lengthy delays. If the no-build alternative were selected, the corridor would experience increasingly high traffic volumes and diminishing LOS throughout the corridor.

The corridor also has crash and injury rates that surpass the overall statewide average. Data indicates that crashes increase as traffic volumes increase and congestion continues to worsen. Of the total crashes reported at this time period, 61% were rear-end collisions. These types of collisions are often the results of traffic volumes that exceed roadway capacity, coupled with motorists turning left and right into driveways and side streets without turn lanes. The high percentage of rear-end collisions indicates the need to separate through traffic from turning movements. Without the proposed improvements, accidents and injuries are likely to continue to increase due to the increases predicted in traffic volumes.

Additionally, with the no-build alternative, the substandard bridges over the Southern Railroad and the Silver Comet Rails to Trails would not be replaced. These bridges would continue to deteriorate until they would eventually require vehicle weight restrictions and could eventually be closed to traffic.

The no-build alternative would not meet the need and purpose for the proposed project because it would fail to improve congestion, safety, or the structural integrity of the bridges within the project area; therefore, this alternative was not considered feasible and prudent.

2. Western Alignment Alternative

A Western Alignment Alternative was considered to avoid involvement with Property #4. Under this alternative, the alignment would shift west onto new alignment just south of the Grays Mill Creek bridge and cross the Southern Railroad west of the existing crossing. The alignment shifts to the eastern side of the existing roadway at Dallas Street, and ties back into the existing roadway just north of Oak Street. The existing SR 92 just south of the intersection with Main Street would be realigned in order to provide a continuous roadway. The existing SR 92 roadway between Main Street and Church Street would be removed; Beatty Street would no longer have direct access to SR 92, but it would have access via Main Street.

Beatty Street is currently one way (from SR 92 to Main Street); to provide connectivity between SR 92 and Main Street, the roadway would have to become a two-way street. Angled parking spots along the north side of the roadway would need to be restriped to be useful to the area business patrons and the road would be resigned. While Beatty Street is located within the Hiram Historic Commercial District, no property would be required and the use of the historic district would not change, so Section 4(f) would not apply.

Several businesses and residences would be displaced under this alternative. The businesses displaced would include a motorcycle/BMX shop and track, Kirby Trucking, Hiram Animal Hospital, a loan business, and a bank. Four residences would also be displaced.

Wetlands associated with Grays Mill Creek would be impacted by this alternative.

This alternative was also shown at the 2004 PIOH as Alternative 2. This alternative was the least popular, preferred by only 15% of those who indicated a preference for an alternative. Many citizens also expressed concerns for this alternative verbally to the staff at the PIOH. These citizens, as well as city officials, were concerned about how far removed the southern access to downtown Hiram would be from SR 92. Concerns for the economic vitality to the Historic Hiram Commercial District were due to the change in access from SR 92 to the south side of the downtown area after the project was completed. City representatives believe that economic harm could be caused by the project by moving the access to the south side of the District because the downtown area would no longer be able to be seen from the roadway. This impact could ultimately affect the eligibility of the Historic Hiram Commercial District should the businesses close, as the land could become more profitable under another land use. The change in access the southern portion of the Hiram Historic Commercial District could compromise the continued use of the

property. While this alternative would not require any property from the Historic Hiram Commercial District, and therefore not constitute an impact Section 4(f), the alternative could potentially have an adverse effect to the District under Section 106.

There are also construction issues associated with this alignment. To construct the new bridge at Grays Mill Creek, SR 92 would need to be closed and a detour would be required for up to approximately 12 months. This detour would reroute traffic to Bill Carruth Parkway and US 278. The vitality of the District during construction, while the majority of SR 92 traffic is rerouted away from the downtown area, is a concern with the city and community under this alternative. The route to get to the downtown area during the detour would be inconvenient to those with destinations in the downtown area. Without the volume of through traffic passing by the downtown area, it would likely experience a decrease in patronage. While this decrease would be temporary, the city has concerns about the viability of the businesses during this time. The city has implemented a redevelopment plan for the downtown area, including recruiting new businesses to the area and hosting local events downtown or at the Strickland Memorial Park across SR 92.

Due to the impacts associated with this alternative, alignments farther west were investigated. If the alignment were shifted farther west, a detour would no longer be required as the bridge over Grays Mill Creek could be constructed while traffic utilizes the old bridge. However, the intersection with Hiram-Sudie Road would need to be realigned, which would cause the displacement of a day care, gas station, used car dealership, and dollar store. Eight additional residences could also be displaced. To tie back into existing SR 92 to the north, three Section 4(f) resources would be impacted: the two historic houses on Hunt Street, the Griffith House and the Sims House, would be displaced, and playground equipment and tennis courts at Strickland Memorial Park would be impacted. Alignments further west would present additional access issues for the Hiram Historic Commercial District. Due to the increase in the number of Section 4(f) resources that would be impacted by a western shift in this alignment, additional alternatives in this area were not given additional consideration.

This avoidance alternative, while avoiding any use of Section 4(f) resources, poses several major impacts to the community. The economic and historic impacts to the Hiram Commercial Historic District by the permanent change in access to the District and the one-year, off-side detour that would be required for the replacement of the bridge over Grays Mill Creek would be detrimental to the City of Hiram. Due to these issues and due to lack of public support, it was decided that this alternative is not a prudent or feasible alternative.

3. Eastern Alignment Alternative

The Eastern Alignment Alternative was considered to avoid involvement with Property #4. Under this alternative, the proposed alignment would shift east onto new location at Nebo Road, cross the Grays Mill Creek and the Southern Railroad east of the existing bridges, and tie back into the existing alignment just north of Oak Street. Hiram-Sudie Road would be extended east to create an intersection with the new alignment of SR 92. Church Street would be realigned and extended east to create an intersection with the new alignment of SR 92. Main Street east of the new alignment would have access to SR 92, but west of the new alignment Main Street would not be provided access to SR 92. Instead, access in that area would be provided via Church Street. Access would be maintained to the businesses and residences along the existing SR 92 alignment.

While Grays Mill Creek would be bridged under this alternative, the wetland system associated with the stream would be impacted by this alternative.

Under this alternative, no property would be required from Property #4, the Bone House, Rakestraw House, Moon-Spinks House, or the Hiram Historic Commercial District. Environmental windshield surveys were conducted for this alternative, including the identification of potential Section 4(f) resources. Windshield surveys identified two historic houses located between Church Street and Harris Drive on the south side of Main Street that were likely to be eligible for the NRHP and thus, Section 4(f) resources. These two houses would be displaced by the alignment. This alternative was strongly opposed by city officials; they stated that it would not support the plans for the historic district redevelopment.

This alignment would not only displace two Section 4(f) resources, but would cause community impacts, as well. The municipal building, community center, and post office, all located just north of the Hiram Historic Commercial District, would be displaced by the proposed alignment. The proximity of the municipal complex to the District has been cited by both the businesses and the city officials as essential to the partnership and contributing to the vitality of the downtown area. The alignment would also begin to encroach onto the residential community of Hiram east of existing SR 92 along Center and Oak Streets.

In addition to the three displacements at the municipal complex, a used car dealership and a bank would be displaced by this alternative. Five residences would also be displaced.

Under this alternative, existing SR 92 between the tie-ins with the new location portion would likely remain open to provide access to the existing homes and businesses along this portion of the road. This would require two grade-separated crossings of the Southern Railroad, the replacement of the existing bridge on SR 92 and the construction of a new bridge on the new location section of the alternative.

Because this alternative requires property from two Section 4(f) resources and also displaces the municipal building, community center, and post office, windshield surveys were taken farther east to examine the area for Section 4(f) and other resources. A church, the Hiram Seventh Day Adventist, is

located just east of Harris Drive south of Main Street. Two historic houses likely eligible for the NRHP were identified north of Main Street west of North Avenue. Many of the houses along Center Street are also likely eligible for the NRHP. Shifting the alignment farther east would impact additional historic properties, displace the Hiram Seventh Day Adventist or Sweet Home Baptist Churches, or impact the Sweet Home Baptist Church Cemetery. Alignments east of this alternative would also displace numerous homes within the residential area of Hiram.

Under this alternative, although the use of Property #4 is avoided, two additional Section 4(f) properties would be displaced and the city would endure substantial community and economic impacts as compared to the preferred alternative, rendering this alternative undesirable.

F. Minimization Alternatives

The following minimization measures were considered to minimize impacts to Property #4 (See Figure 15 for a map):

1. Existing Alignment Minimization Alternative
2. Existing Alignment with Main Street Access Minimization Alternative

The following findings were made as a result of the evaluation of minimization alternatives.

Figure 15: Avoidance Alternatives



Section 4(f) Avoidance Alternatives

SR 92 Widening from Nebo Road to SR 120
 Projects STP00-0186-01(025) and BRST0-0186-01(041)
 Paulding County
 P.I. Numbers 621720 and 632921



1. Existing Alignment Minimization Alternative

The Existing Alignment Minimization Alternative (also known as the Existing Alignment Alternative for NEPA purposes) was considered to minimize involvement with Property #4. Under this alternative, the proposed alignment would follow the existing alignment along SR 92 in the area of Property #4. The alignment would tie into the existing bridge over Grays Mill Creek and use a reverse curve, or “s-curve,” in the area between the stream and the Southern Railroad to minimize impacts to the historic properties in the area. The bridge over the Southern Railroad would be rebuilt on the alignment of the existing bridge. Because minimum design and safety standards could not be reached at the intersection of Main Street and SR 92 under this alternative, Main Street would be closed at the intersection. Access to Main Street from SR 92 would be via Church Street.

Environmental studies were completed for this alternative. Under this alternative, no property would be required from Property #4. The alignment would shift the roadway east, slightly away from the resource, increasing the distance from the front of the house to the edge of pavement from 15-25 feet to 30-40 feet. Property would be required from the Rakestraw House, which is located on Main Street across SR 92 from Property #4. Approximately 10 to 40 feet of right-of-way would be required from the Rakestraw House along Main Street. The alignment of SR 92 would shift towards the Rakestraw House, decreasing the distance to the edge of pavement from 125-130 feet to 110-120 feet, a difference of only 10 to 15 feet. Because the house is situated on a steep rise overlooking Main Street, but is obscured by vegetation and would remain shielded from the roadway by the remaining vegetation, the affect of this alignment on the resource was not considered adverse. No property would be required from the Bone House or the Moon-Spinks House. While this alternative would require land from the Rakestraw House, the SHPO agreed that the affect would not be considered adverse, so the alignment would have a de minimis impact on this property and no Section 4(f) Evaluation would be required.

Under this alternative, there would be five business and one residential displacements, including an emissions shop, a package store, a florist, a loan business, and a restaurant would be displaced.

This alternative was also shown at the 2004 Public Information Open House (PIOH) as Alternative 1. It was the most popular alternative, preferred by 54% of those who indicated a preference for an alternative. However, at the time the PIOH was held, Main Street was shown with access to SR 92. It was not until after the PIOH, further into the design of the alignment, that it was determined that Main Street would need to be closed at SR 92. This created a concern for two reasons. According to Norfolk Southern, 50 to 70 trains a day utilize the track and it is the busiest freight line in the country. The removal of the southern access would result in safety concerns for emergency vehicles reaching the residences along Main Street due to the high volume of rail activity that would block access. This compromise in safety is

unreasonable considering part of the need and purpose of the project is to improve safety along SR 92. Also, further into the design process it was determined that replacing the bridge over the Southern Railroad would require SR 92 to be closed in this area during reconstruction of the bridge. A detour for SR 92 would be in place for up to approximately 12 months. This detour would reroute traffic to Bill Carruth Parkway and US 278.

Both the closure of Main Street and the detour of SR 92 for the construction of the Southern Railroad were points of controversy with the City of Hiram officials. This alignment would impact the economic vitality to the Historic Hiram Commercial District due to the rerouting of traffic for up to a year away from the downtown area during construction, along with the limited access from SR 92 to the downtown area after the project was completed. The economic harm caused by the project could affect the eligibility of the Historic Hiram Commercial District should the businesses close, as the land could become more profitable under another land use. Removal of the access to the southern portion of the District would compromise the continued use of the property. While this alternative would not require any property from the Historic Hiram Commercial District, and therefore not constitute a Section 4(f) use, the alternative could cause an adverse effect to the District under Section 106.

The Historic Hiram Commercial District is also an important community resource. Many of those that commented at the 2004 PIOH indicated that the historic nature of the downtown area was important to the community and should be preserved. The city also has a redevelopment plan for the District and according to city officials, its historic nature, along with northern and southern access to SR 92, is essential to the plan.

The effect this alternative would have on the downtown area and the Historic Hiram Commercial District renders this alternative undesirable. The adverse impacts to the Historic Hiram Commercial District, which is a multiple structure district with importance to the community, outweighs the adverse impact to Property #4 as a result of the preferred alternative.

2. Existing Alignment with Main Street Access Minimization Alternative

The Existing Alignment with Main Street Access Minimization Alternative would be similar to the Existing Alignment Minimization Alternative above. However, under this alternative, direct access from Main Street to SR 92 would be provided. Main Street would be realigned on new location, south of the existing intersection with SR 92, in order to allow the intersection to remain open. This alternative resolves some of the major issues associated with the Existing Alignment Minimization Alternative because access to downtown Hiram and the Hiram Historic Commercial District would remain intact. Therefore, the indirect effects that would potentially adversely affect the District are avoided. The issues

with the one-year long off-site detour associated with the replacement of the bridge over Southern Railroad would remain under this alternative.

In order to realign Main Street, the three historic properties just south of the existing roadway, the Bone House, Rakestraw House, and Moon-Spinks House, would be displaced. Under this alternative, Property #4 would be avoided, but property from three Section 4(f) resources would be required. Two additional Section 4(f) properties would be displaced under this alternative compared to the preferred alternative, which renders this alternative undesirable.

Table 15
Impacts of Alternatives Considered Compared to Preferred Alternative

	Preferred Alternative	No-Build Alternative	Western Alignment	Eastern Alignment	Existing Alignment Minimization	Existing Alignment with Main St. Access
Relocations	Residential: 5 Business: 4	Residential: 0 Business: 0	Residential: 4 Business: 5	Residential: 5 Business: 2 Institutional: 3	Residential: 1 Business: 5	Residential: 4 Business: 5
Community Impact	None	None	Hiram commercial district	City of Hiram – commercial and residential	Hiram commercial district	Hiram commercial district
Stream Crossings	1 (existing bridge)	1 (existing bridge)	1 (new bridge)	1 (new bridge)	1 (existing bridge)	1 (existing bridge)
Grade Separated RR Crossing	1	1	1	2	1	1
Meets Need and Purpose	Yes	No	Yes	Yes	Yes	Yes
Requires New Location	Yes	No	Yes	Yes	No	No
Requires Off Site Detour During Construction	No	No	No	No	Yes	Yes
History (Section 106) Impacts - adverse	Property #4	None	Hiram Commercial District	2 NRHP potentially eligible houses	Hiram Commercial District	Bone, Rakestraw, Moon-Spinks Houses
Section 4(f) Impacts	Yes	No	No	Yes	No	Yes

Table 4 shows a comparison of impacts of the avoidance alternatives and the minimization alternatives to the Preferred Alternative. Based on the impacts of these alternatives, there is no feasible or prudent alternative to using Property #4.

G. Measures to Minimize Harm

Prior to project implementation, GDOT will explore the feasibility and desirability of the relocation of the house located on Property #4 which would otherwise be demolished as a result of project implementation. Options for relocation include, but are not limited to, relocating the house further back on the current property or relocation within the city limits of Hiram, as coordinated with the City of Hiram.

Relocation further back on the current property is the most desirable option for minimizing impacts to the resource. The house would not be demolished and the wooded, rural setting and its association with the existing highway would be maintained. The concrete steps and sidewalk, which are contributing elements, however, would be demolished.

Relocation to a different parcel within the City of Hiram is also desirable because the house would not be demolished; however, the setting would be compromised.

H. Proposed Mitigation Measures

The following mitigation measures are proposed in order to take into account the effect of the project on Property #4:

1. Prior to project implementation, FHWA will ensure that the exterior and interior of Property #4 will be documented using medium format photography as well as other additional mitigation measure(s) to be determined at a later date following consultation with SHPO and other interested parties. The documentation will be prepared per the guidelines set forth in the GDOT and Georgia SHPO's Guidelines for Establishing a Permanent Archival Record. The photography will be submitted to the Georgia SHPO for acceptance and retention.

Details regarding the proposed lighting and surface treatment of the walls surrounding the culvert openings for the pedestrian culvert at the Silver Comet Rails to Trails have not been decided at this time. This additional information, when they become available, will be provided to the SHPO for review.

V. INDIRECT EFFECTS ANALYSIS

A. Methodology

The objective of an indirect effects analysis is to understand the causal relationship between a transportation project, the growth that may be caused by the project, and the impacts that may result from

that growth. These causal relationships provide the framework for the approach to conducting the indirect effects analysis described below (adapted from AASHTO Practitioner's Handbook 12, *Assessing Indirect Effects and Cumulative Impacts under NEPA*, April 2011). In order to analyze the indirect effects of the project on each resource, the area of potential indirect effects has been extended outside the project footprint. In general, the area of potential indirect effects is bounded by the cities of Acworth, Douglasville, Dallas, and Powder Springs, and generally consists of a corridor along SR 92 from US 41/Cobb Parkway to I-20. For some resources, the area of potential indirect effects differs due to the information that is available, and this is described in the relevant sections below.

1. Assess the potential for increased accessibility.

A project's area of indirect influence is typically considered the geographic extent to which the project affects traffic and increases accessibility. This project is intended to improve safety, reduce congestion, and increase accessibility within an already developing corridor. Congestion on this segment of SR 92 is approaching or exceeds unacceptable levels as a result of increased residential and commercial development in the corridor that is outpacing infrastructure improvements.

Increased accessibility is not expected outside the project corridor. Forecasted travel demand is localized and based primarily on the land uses and trip generation/destination occurring within the corridor; traffic volumes drop and levels of service improve beyond the project limits. The study area for analysis of the project's potential indirect effects includes various land use and development nodes and boundaries within the project corridor, based on 2030 population and employment forecasts consistent with local and regional comprehensive and long-range transportation planning.

2. Assess the potential for induced growth.

After determining the potential for increased accessibility resulting from the proposed project, the next step in the analysis is to assess the potential for the increased accessibility to induce growth. Growth is already occurring in the project corridor, and it is likely that the current growth trends would continue regardless of whether the proposed project was constructed. The current and forecasted traffic does indicate that the carrying capacity of SR 92 in this location is limited and will become increasingly congested at unacceptable levels; thus, it is possible that the additional capacity and increased mobility that the proposed project would provide could spur new development that might not occur without the expanded transportation infrastructure to support it.

However, based on population and employment trends and forecasts for Paulding County, growth in the project area is expected to occur with or without the proposed project (see Tables 17, 18, and 19).

However, while the project is not expected to induce new/more growth, it could potentially affect the type or pace of growth within the corridor, allowing planned development to occur more rapidly. Changes in population growth rates, development patterns, or land use outside of the project corridor are not expected as a result of the project, as increased accessibility from the project is not anticipated beyond the project limits.

Table 17. Historic Population Change, 1980 to 2010

Geographic Area	Total Population				Percent Change		
	1980	1990	2000	2010	1980-1990	1990-2000	2000-2010
Paulding Co.	26,110	41,611	81,678	142,324	59 %	96%	74%
Georgia	5,462,989	6,478,146	8,186,453	9,687,660	18%	26%	18%

Source: Census Bureau

Between 1980 and 2010, Paulding County grew nearly fivefold in population, from 26,110 to 142,324 (see Table 11). The greatest growth in recent history occurred between 1990 and 2000 when Paulding grew by 96 percent (adding 40,067 persons). Since 1980, the county’s rate of growth has been high as compared to the state, as shown in Table 11. Paulding County has experienced significant growth and is expected to continue at this pace. By 2030, Paulding County is expected to have 275,726 residents, a growth rate of nearly 94 percent from 2010 (see Table 18).

Table 18. Population Projections, 2010 to 2030

Geographic Area		2010	2015	2020	2025	2030
Paulding Co.	Population	142,324	169,702	200,653	236,668	275,726
Georgia	Population	9,687,660	11,076,619	12,189,252	13,426,590	14,687,906

3. Assess the potential for impacts on sensitive resources.

Once the potential for induced growth is determined, analysis of indirect effects involves consideration of the connection between induced growth and environmental impacts. This stage of the analysis involves the most uncertainty, because it requires an assessment of the location of induced growth, which is especially difficult to predict.

For most resource categories, either it is not present within the project corridor, or specific, quantitative impacts (i.e., locations/amount/extent) could not be determined because of the uncertainties that are difficult to predict or delineate (e.g., types and rate of increase in land use changes, development type/intensity/location, etc.). Qualitative analysis was used if applicable, and quantitative estimates were determined where possible based on best professional judgment.

There are several undeveloped areas along the project corridor that are, for the purposes of indirect effects analysis, considered the most likely location of any potential induced development. The total area of undeveloped land adjacent to SR 92 is approximately 169 acres. Sensitive resources present within the undeveloped areas include wildlife habitat, wetlands, and streams. However, based on analysis of current property ownership and comprehensive plan documents, future development is anticipated, and would occur with or without the project.

4. Assess potential minimization and mitigation measures.

The last step in the analysis is consideration of potential minimization and mitigation measures. Potential strategies could include zoning and comprehensive planning efforts and growth management regulations, which are identified and discussed below if appropriate and/or feasible.

B. Indirect Effects

1. Land Use Changes

As a bedroom community to Atlanta and the western-most county of Atlanta's Metropolitan area, Paulding County's suburban residential growth is expected to increase and to push westward. According to the Paulding County (Dallas, Hiram, and Braswell) Comprehensive Plan 2007-2027, upholding its rural character seems to be very important to the county and various zoning requirements and ordinances regarding appearances (such as signage and landscaping) are expected to be implemented to keep intrusion of the new land uses minimal to the rural character of the county.

The Paulding County (Dallas, Hiram, and Braswell) Comprehensive Plan 2007-2027 Community Agenda lays out the community's vision for the future. The Future Development Maps for Paulding County and the City of Hiram are located in Figures 6 and 7. The maps show character areas, which according to the plan, attempt to address the overall pattern of development within an area rather than focusing on the specific use of each individual parcel.

Although each character area has different characteristics and goals, in general within the area of potential indirect effects, future mixed-use infill development is anticipated to be directed between Bill Carruth Parkway and SR 120, while future residential infill is anticipated to be encouraged outside of that area.

To meet the goals associated with each character area, the plan recommends establishing a long-range plan to direct and accommodate future growth. Goals specifically recommended include adopting standards and policies to ensure the locations of certain land uses, promoting pedestrian-friendly mixed-use development nodes, and controlling urban sprawl. To achieve these goals, the plan recommends

implementing a land use plan and zoning map that support mixed uses; restrict uses between zones to agricultural, low-density residential, or undeveloped; and enforce signage controls, landscaping, and tree protection to create a pedestrian friendly environment.

The Paulding County Zoning Ordinance was amended in 2008, and currently it only allows mixed uses within the Paulding Airport Master Overlay District. South of Bill Carruth Parkway to the Douglas county line, the Low Density Quality Residential Overlay District was adopted in 2007 and is currently in place. (The ordinance defines low density as 2.5 dwelling units per acre.)

Development of eastern Paulding County has occurred quickly over the last 20 years and the road infrastructure has not been upgraded to keep up with the demand this development has created. The purpose of the project is to relieve this existing congestion.

Similar conditions can be found in the surrounding areas: Douglas County and the City of Douglasville, and in Cobb County with the Cities of Acworth and Powder Springs. A review of the comprehensive plans for Douglas County, Acworth, and Powder Springs show that road infrastructure is struggling to keep up with the traffic demands that development has created.

Georgia DOT has held conversations with staff of the City of Hiram and Paulding County and citizens that live in the area during the course of the project development. Many stated that the area was developing without the roadway infrastructure in place to accommodate the existing traffic. All stated that the increase in rate of development of SR 92 frontage is likely with the road widening. Paulding County also stated that there could be an increase in the rate of industrial development near the railroad with the more efficient roadway. Because the area is continuing to develop although the roadway is congested, it is reasonable to assume that the road widening would not spur new growth, but without any land use controls in place, it would increase the rate of land use changes and development of the corridor.

2. Economy

According to the Paulding County Comprehensive Plan, the top employers of the county include Paulding County Board of Education, county government, Wal-mart, Kroger, and WellStar Health System. The county plans to focus on development of the airport and surrounding property and the expansion of Chattahoochee Tech in the next 20 years. Redevelopment of vacant buildings, utilizing the cultural history of the area to promote tourism, and attracting businesses and tourism related to the Silver Comet Trail are other objectives of the county. The 2010 average unemployment rate in Paulding County was 10 percent, more than double the rate in 2005 (see Table 19).

Table 19. Paulding County Labor Force Activity, 1990 to 2010

Year	Labor Force	Unemployment Rate
1990	22,174	4.8%
1995	31,280	3.4%
2000	45,965	2.6%
2005	58,954	4.6%
2010	71,831	10.1%

Source: Georgia Department of Labor

The increase in the rate of land use changes in the area could serve to support some of the county’s goals and objectives. However, because the county’s major economic goals regarding the airport and Chattahoochee Tech are so removed from the project area, it is not likely that the increase in land use changes close to the project area would have much effect on those goals. The increase in the rate of land use changes due to the project would likely not have an overall effect on the economy of Paulding County.

3. Wildlife and Habitat

Potential indirect impacts to wildlife could occur as a result of induced development of the forested/undeveloped habitat areas along the project corridor. The proposed project could indirectly accelerate the loss of edge and interior habitat for migratory birds and other species in this undeveloped area of the county. The type, intensity, location and extent of future development, the amount of potentially lost acreage would vary significantly.

Habitat for migratory birds and bat species is located throughout the project corridor. The amount of potential lost habitat resulting from induced development is unknown but anticipated because of the future plans for development along this corridor. The proposed project is the widening of an existing transportation corridor, therefore indirect effects on habitats outside of the right-of-way are unlikely because the area has already been disturbed. The majority of the nesting and foraging habitat for migratory bird species would remain intact, and depending on the actual location and rate of development, there would be no net loss of edge habitat.

VI. CUMULATIVE IMPACTS ANALYSIS

1. Methodology

Cumulative impact analysis begins with consideration of which resources are most likely to be substantially affected by the proposed project (based on direct and indirect effects); the severity of the effects; and the sensitivity of resources. Depending on the direct and indirect effects, the analysis then considers the combined effects of the project with other actions and their impacts. In order to analyze the

past actions on each resource, the cumulative effects analysis was completed using 1980 as the base year due to the changes in growth that occurred during this decade. For example, between the years 1984 and 1987, the population growth rate (per year) increased from approximately 3 percent to 8 percent. Also, 74 percent of the available housing in the year 2000 was built after the year 1980 (Paulding County Comprehensive Plan).

B. Cumulative Impacts

No significant adverse impacts of the proposed project were identified in the analysis of direct or indirect effects. The indirect impacts associated with the reasonably foreseeable development within the project corridor are ultimately expected to happen, which is consistent with local land use and development plans. This project is being completed to serve a known need in the area that is a result of the intensive existing and planned development along the corridor. The project is supported to provide for development in this section of the county. It has been vetted through the planning process to support the residential and commercial development and is consistent with the local and regional planning goals.

High growth rates in Paulding County began in the 1980's, likely due to the outward expanding growth of the Atlanta Metropolitan region. In 1980, the number of households in Paulding County was 8,745 (320 of those in Hiram). By 2005, this number jumped almost 350 percent to 38,720 (636 in Hiram). Between 1990 and 2006, Paulding County's population has increased 192 percent, ranking within the top ten counties nationally as one of the fastest growing counties by percent change. CNN Money reported on June 21, 2010, that Paulding County ranked as the 8th fastest growing county in the nation (between 2000 and 2009). Between 1990 and 2006, Douglas County's population by comparison increased by 89 percent.

Using the University of Georgia Land Use Trends tool online, the acreage of different land use types by county can be estimated from previous years. In this tool, low intensity urban land use is defined as single family dwellings, recreation, cemeteries, playing fields, campus-like institutions, parks, and schools. High intensity urban land use is defined as multi-family dwellings, commercial/industrial, prisons, speedways, junkyards, confined animal operations, transportation, roads, railroads, airports, runways, and utility swaths. See Figures 16 and 17 below for the percentages of land use in Paulding County from 1985 to 2005.

Figure 16: Land Use in Paulding County in 1985

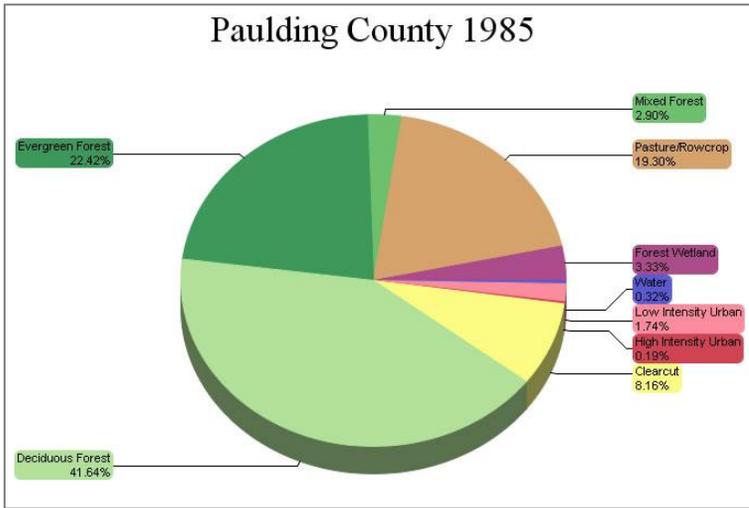
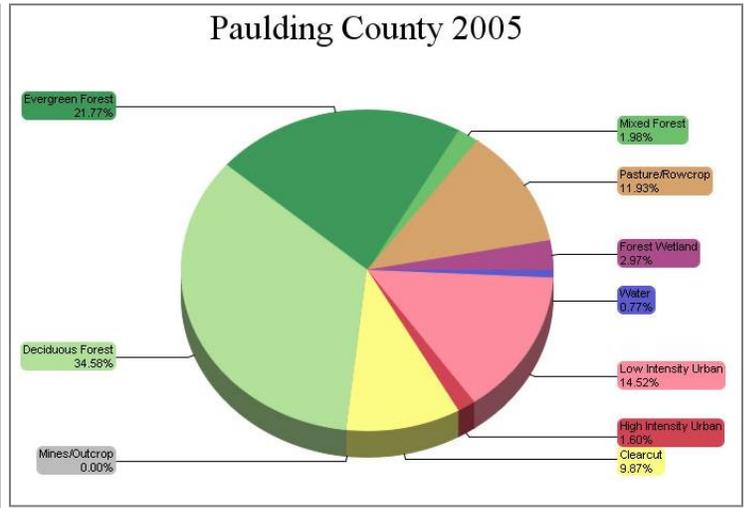


Figure 17: Land Use in Paulding County in 2005



The high and low intensity urban land uses have both increased by over seven times within this 20-year period. So although its rural nature is said to be important to the citizens of the county, Paulding County has seen major growth in its urban land uses in recent years.

The same online tool was used to create the following figures for Douglas County.

Figure 18: Land Use in Douglas County in 1985

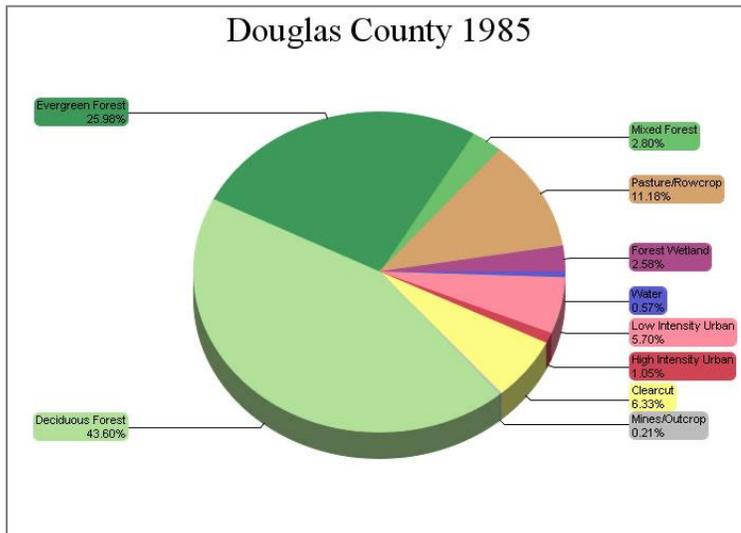
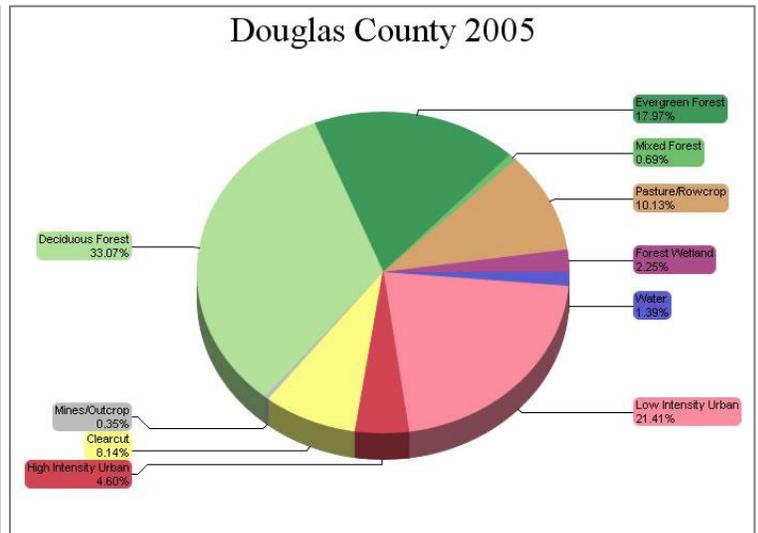


Figure 19: Land Use in Douglas County in 2005



The high and low intensity urban land uses have both increased by almost four times within this 20-year period. Again, this county, like Paulding, has experienced substantial growth in urban land uses in recent years.

Georgia DOT widened US 278 in the 1990's. In 1993, the only development along US 278 in the project area was the Paulding Commons Shopping Center (which was built in 1991). These aerial images, taken from Google Earth, show the development that has occurred in the US 278/SR 92 area over the past 20 years.



In conclusion, the future plans of Paulding and Douglas Counties show that within the city limits of Hiram and Douglasville, infill mixed-use development would occur. Between these cities and north of Hiram, suburban residential growth is expected to occur. The rates of growth in Paulding and Douglas Counties have been staggering over the past 30 years, without the improved roadway. According to the referenced material, a high rate of growth is expected to occur in the next 20 years due to many factors; the most cited one is the general expansion of the Metropolitan Atlanta area. Because the widened roadway would improve access to Hiram and Douglasville, to I-20, it is reasonable to assume that this project would increase the rate of development in this area. Because so much development has already occurred without the proposed improvements, it is reasonable to assume that the area would continue to develop without them.

The proposed project has minor direct impacts that may be mitigated as documented in the previous sections. Potential indirect impacts are not anticipated because of the local planning efforts and attention to the reasonably foreseeable growth in the area, which has been analyzed and documented and in support of this project. Therefore, there are no cumulative impacts anticipated as a result of the project.

VII. COORDINATION AND COMMENTS

During the early project development, a number of agencies, including local governments and local planning agencies, were contacted and asked for their comments on the proposed action. Copies of comments received from the responding agencies appear in Appendix A. A public information open house was held on January 29, 2004. Information about the meeting and the comments received are available in Appendix D.

Georgia DOT will advertise the availability of this environmental assessment and will hold a public hearing. Any comments concerning this environmental assessment should be addressed to the following:

Mr. Glenn Bowman, P.E.
State Environmental Administrator
Georgia Department of Transportation
600 West Peachtree Street
16th Floor
Atlanta, GA 30336

or Mr. Rodney N. Barry, P.E.
Division Administrator
Federal Highway Administration
Atlanta Federal Center
61 Forsyth Street, S.W.
Suite 17 T100
Atlanta, GA 30303-3104

After reviewing the comments received during the comment period, the responsible officials will decide which alternative will be selected.

VIII. REFERENCES

Paulding County. Community Development Department. *Paulding County Comprehensive Plan 2007 – 2027, Community Assessment, Citizen Participation Plan*. Dallas: Paulding County Community Development Department, 2007.

RS&H. *Paulding County Comprehensive Transportation Plan*. Dallas: Paulding County Department of Transportation, 2008 <<http://www.paulding.gov/pdflibrary/>>.

US EPA Environmental Justice Geographic Assessment Tool
<<http://www.epa.gov/enviro/html/em/index.html>>

Paulding Northwest Atlanta Airport website <www.pauldingairport.com>

Paulding County Chamber of Commerce website www.pauldingchamber.org

Douglas County Comprehensive Plan

Douglas County Comprehensive Transportation Plan
http://www.celebratedouglascounty.com/view/departments/view_dept/&cdept=56