

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

**OFFICE OF DESIGN POLICY & SUPPORT
INTERDEPARTMENTAL CORRESPONDENCE**

FILE P.I. # 0007692 **OFFICE** Design Policy & Support
CSSTP-0007-00(692)
Cobb & Paulding Counties
GDOT District 6 - Cartersville **DATE** May 1, 2014
GDOT District 7 - Metro Atlanta
SR 92 from SR 120 to CR
473/Cedarcrest Road –Segment 3&4

FROM  for Brent Story, State Design Policy Engineer

TO SEE DISTRIBUTION

SUBJECT APPROVED CONCEPT REPORT

Attached is the approved Concept Report for the above subject project.

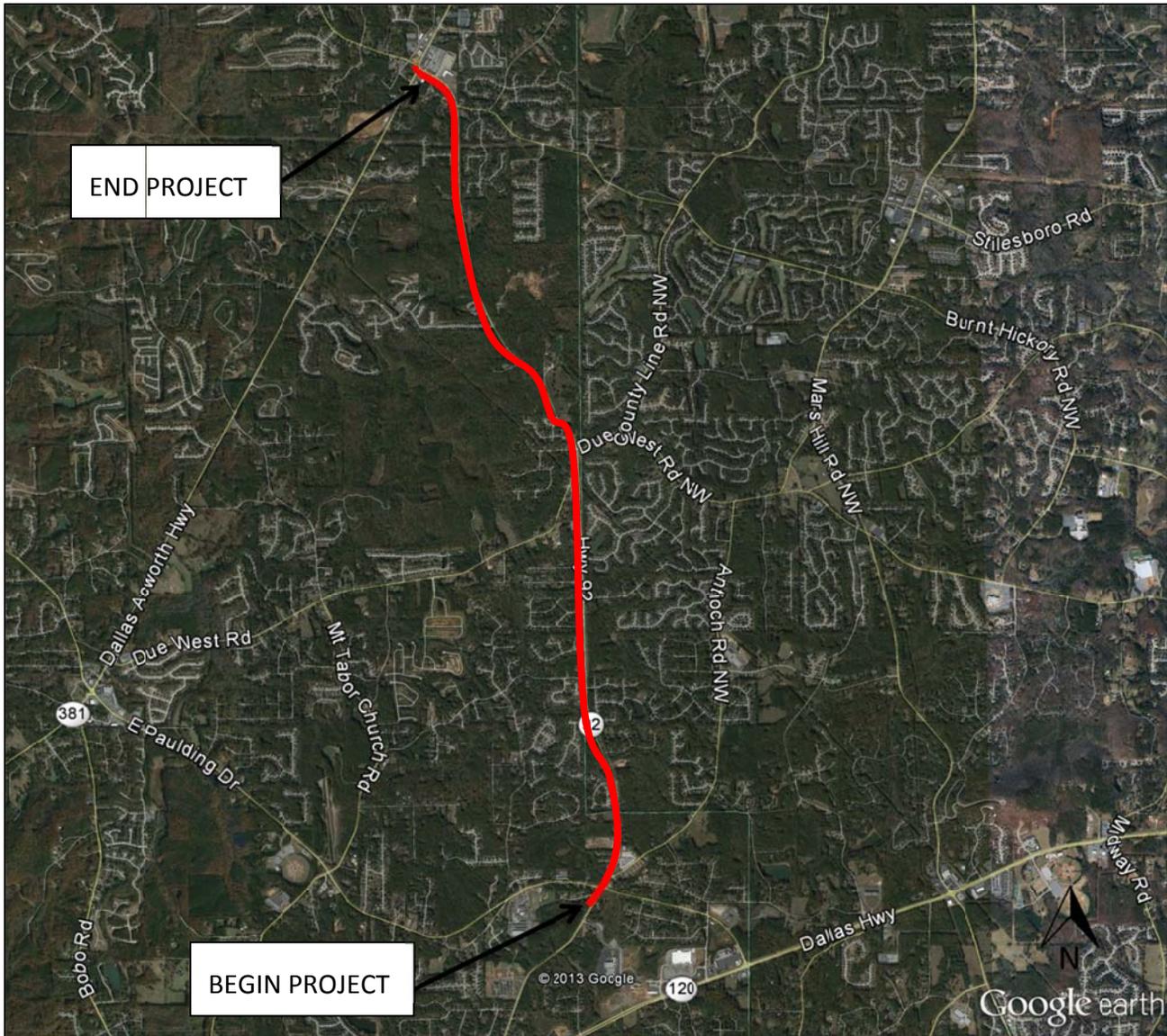
Attachment

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County: Paulding & Cobb

PROJECT LOCATION MAP



PI Number: 0007692
County: Paulding & Cobb Counties
Description: SR 92 from 790 feet north of E Paulding Middle School to 505 feet north of CR 473/ Old Burnt Hickory Road – Segment 3 & 4

County: Paulding & Cobb

PLANNING AND BACKGROUND

Project Justification Statement:

The improvement project for this segment of SR 92 extends from 790 feet north of East Paulding Middle School to 505 feet north of Old Burnt Hickory Road. The project originated primarily out of a desire to decrease congestion on the project corridor.

The purpose of the improvement project is to:

- Alleviate traffic congestion; accommodate the need for mobility, access, and goods movement; and better accommodate future travel demand through the addition of a travel lane and auxiliary lanes.
- Facilitate more efficient operation of SR 92 through the addition of a median, which will restrict left turn movements to median openings and better manage traffic flow.
- Address geometric deficiencies along SR 92 where appropriate and feasible to provide adequate stopping sight distance.
- Provide improved transportation options for the traveling public; through the addition of a sidewalk and a 10-foot multi-use path.

The following table summarizes the existing and future LOS for the no build condition for the existing, open and design years:

LOS Analysis for Intersections on the Project Corridor

Intersection	Traffic Control (No Build)	Traffic Control (Build)	Peak Hour	2013 No Build	2020 No Build	2040 No Build
				LOS ¹	LOS	LOS
SR 92/Old Burnt Hickory Road	Two-Way Stop Control	Traffic Signal	AM	F	F	F
			PM	F	F	F
SR 92/Battle Gate Lane	Two-Way Stop Control	Two-Way Stop Control	AM	C	D	F
			PM	C	D	F
SR 92/Pine Bluff Drive	Two-Way Stop Control	Two-Way Stop Control	AM	D	E	F
			PM	C	D	F
SR 92/Abbey Lane	Two-Way Stop Control	Two-Way Stop Control	AM	E	E	F
			PM	C	D	F
SR 92/Due West Road (North)	Traffic Signal	Roundabout	AM	B	B	D
			PM	C	E	F
SR 92/Due West Road (South)	Two-Way Stop Control	Roundabout	AM	F	F	F
			PM	F	F	F
SR 92/Wiley Path	Two-Way Stop Control	Two-Way Stop Control	AM	D	D	E
			PM	D	D	F
SR 92/Woodlore Drive	Two-Way Stop Control	Two-Way Stop Control	AM	C	C	E
			PM	C	C	F
SR 92/Paige Street	Two-Way Stop Control	Two-Way Stop Control	AM	D	D	E
			PM	D	D	F
SR 92/Womack Avenue	Two-Way Stop Control	Two-Way Stop Control	AM	D	D	E
			PM	D	D	F
SR 92/Wiscasset Parkway	Two-Way Stop Control	Two-Way Stop Control	AM	C	C	E
			PM	C	D	E
SR 92/Presidential Drive	Two-Way Stop Control	Two-Way Stop Control	AM	C	D	F
			PM	C	C	F
SR 92/Viola Drive	Two-Way Stop Control	Two-Way Stop Control	AM	C	D	F
			PM	C	C	E
SR 92/Holland Road	Two-Way Stop Control	Two-Way Stop Control	AM	C	D	F
			PM	C	D	F
SR 92/Wyndham Lakes Drive	Two-Way Stop Control	Two-Way Stop Control	AM	C	D	F
			PM	C	C	F
SR 92/Kensley Way	Two-Way Stop Control	Two-Way Stop Control	AM	C	D	F
			PM	B	C	E
SR 92/Sayre Drive	Two-Way Stop Control	Two-Way Stop Control	AM	C	C	F
			PM	C	C	E

County: Paulding & Cobb

SR 92/Meryton Park	Two-Way Stop Control	Two-Way Stop Control	AM	C	C	E
			PM	C	C	E
SR 92/Cedar Grove Path	Two-Way Stop Control	Two-Way Stop Control	AM	C	C	F
			PM	B	B	E
SR 92/Antioch Road	Two-Way Stop Control	Two-Way Stop Control	AM	F	F	F
			PM	F	F	F
SR 92/East Paulding Drive	Traffic Signal	Traffic Signal	AM	D	E	F
			PM	D	E	F

¹ Analysis Used Highway Capacity Manual outputs from Synchro 7 Software. LOS for stop controlled intersections is for the stop-controlled (side street/critical) movement. LOS For signalized intersections and roundabouts is the weighted average of all movements.

Existing conditions: Within the study limits, the SR 92 project corridor is largely characterized by two 12 foot travel lanes (one lane in each direction) with 0 to 2 foot shoulders. Sidewalks are absent on the majority of the corridor. Utilities on the project include a major overhead cross-country power transmission line, a water main, sanitary sewer mains, a natural gas main, and other buried and overhead communications facilities. A major natural gas transmission line crosses the project just south of the Due West Rd. (CR 466) intersection. Major structures on the project include the transmission line poles, a pump station at the southeast corner of SR 92 and Woodlore Dr., a power substation approximately 920’ north of SR 92 and Woodlore Dr., and a 8’ x 7’ concrete box culvert at Pickett’s Mill Creek. The major intersections on the project are at East Paulding Dr., Due West Rd. (CR 466), Due West Rd. (CR 2839), and Old Burnt Hickory Rd.

Other projects in the area:

- GDOT – PI# 621720 – SR-92 from Nebo Rd to SR120 including Powder Springs Creek Bridge.
- GDOT – PI# 0006857 – SR-92 from Cobb County Line to CR 73/Burnt Hickory Road.
- Cobb County DOT & Paulding County DOT - Widen Cedarcrest Road from Harmony Grove Church Road to Governors Towne Drive. This project is currently in design.
- Paulding County DOT – This project involves widening East Paulding Drive from the existing two lane roadway to a four lane roadway with a median from SR 92 to SR 120. The project would include upgraded shoulders and two signal modifications. This project schedule is undetermined to date.

MPO: Atlanta Regional Commission (ARC)

MPO Project ID PA-092C

Regional Commission: Atlanta Regional Commission

RC Project ID PA-092C

Congressional District(s): 11, 14

Federal Oversight: Full Oversight Exempt State Funded Other

Projected Traffic: ADT

Current Year (2013): 16,400 Open Year (2020): 19,700 Design Year (2040): 34,500
 Traffic Projections Performed by: GDOT Office of Planning

Functional Classification (Mainline): Urban Minor Arterial Street

Complete Streets - Bicycle, Pedestrian, and/or Transit Warrants:

County: Paulding & Cobb

IRP

Warrants met: None Bicycle Pedestrian Transit

Is this a 3R (Resurfacing, Restoration, & Rehabilitation) Project? No Yes

Pavement Evaluation and Recommendations

Preliminary Pavement Evaluation Summary Report Required? No Yes

Preliminary Pavement Type Selection Report Required? No Yes

Feasible Pavement Alternatives: HMA PCC HMA & PCC

DESIGN AND STRUCTURAL

Description of the proposed project: This project proposes to widen and reconstruct SR 92 from north of State Route 120 to south of Cedarcrest Road through Paulding and Cobb County Georgia. Project improvements include the additional of curb and gutter, sidewalks and a multi-use trail for bike accommodations.

Major Structures:

Structure	Existing	Proposed
223-0030-0 (concrete box culvert)	This is a double 8' wide x 7' high concrete box culvert, which conveys Pickett's Mill Creek. It has a sufficiency rating of 89.15.	A sunken box culvert is proposed with a hydraulic capacity equivalent to the 24' wide x 6' natural bottom arch culvert. The culvert will be approximately 420 feet long.
Retaining walls	There are no existing retaining walls on the project corridor.	<ol style="list-style-type: none"> 1. A 150-ft long cut wall is proposed west of SR 92 and south of E. Paulding Dr to avoid impacting a cemetery. 2. A 230-ft long fill wall is proposed east of SR 92 and north of Antioch Rd. to avoid impacts to a business property. 3. A 200-ft long fill wall is proposed west of SR 92 and south of 3 Cedars Path to minimize impacts to a commercial property. 4. A 75-ft long cut wall is proposed west of SR 92 between Cedar Grove Path and 3 Cedars Path to minimize impacts to a residential property. 5. A 365-ft long cut wall is proposed west of SR 92 and north of Cedar Grove Path to avoid displacements of

		<p>commercial properties.</p> <p>6. A 95-ft long fill wall is proposed at the SW corner of SR 92 and Viola Drive to avoid impacting a residential driveway.</p> <p>7. A 640-ft long cut wall is proposed west of SR 92 and north of Presidential Dr to avoid impacting and/or displacing residences.</p> <p>8. A 93-ft long cut wall is proposed east of SR 92 and approximately 400-ft north of Due West Rd to minimize impacts to and avoid displacement of a displacement.</p> <p>9. A 135-ft long fill wall is proposed west of SR 92 and north of Battle Gate Ln to minimize impacts to and avoid displacement of a residence.</p> <p>10. A 240-ft long fill wall is proposed at the SE corner of SR 92 and Old Burnt Hickory Rd to avoid displacement of tennis courts.</p> <p>11. While approximate volumes of proposed detention ponds have been estimated, exact configurations of ponds are not known. The concept level plans currently show a worst-case scenario for area impacted by the proposed ponds. It is likely that retaining walls will be utilized in order to minimize property impacts resulting from installation of the ponds.</p>
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Mainline Design Features: SR 92/Hiram Acworth Highway

Feature	Existing	Standard*	Proposed
Typical Section			

County: Paulding & Cobb

- Number of Lanes	2	4	4
- Lane Width(s)	11' min	10'-12'	11'-12'
- Median Width & Type	None	20' raised median	20' raised median
- Outside Shoulder or Border Area Width	0'-8' rural	12' urban	18.5' – 23.5' urban
- Outside Shoulder Slope	6% max	2% max	2% max
- Inside Shoulder Width	n/a	n/a	n/a
- Sidewalks	None	4' min	5'-10'
- Auxiliary Lanes	None	N/A	As required
- Bike Lanes	None	N/A	None
Posted Speed	45-55 mph	N/A	45 mph
Design Speed	45-55 mph	45 mph	45 mph
Min Horizontal Curve Radius	900'	711'	712'
Maximum Superelevation Rate	4% max	4% max	4% max
Maximum Grade	0.5% to 7.2%	0.5% to 7%	0.5% to 7%
Access Control	N/A	Raised median	Raised median
Design Vehicle	SU	WB-40	WB-67**
Pavement Type	HMA	HMA	HMA

*According to current GDOT design policy if applicable

**Accommodates Oversize Truck

Major Interchanges/Intersections:

- Hiram Acworth Highway (SR 92) at East Paulding Drive (four-way, signalized): This at-grade intersection is proposed to be widened to incorporate the new 4-lane typical of SR 92 including dual left turn lanes onto East Paulding Drive. East Paulding Drive at the intersection will also be widened to incorporate dual thru lanes in either direction. The intersection will require signal and pedestrian head upgrades.
- Hiram Acworth Highway (SR 92) at Due West Rd/CR 466 (“T” intersection, unsignalized): Traffic on Due West Rd/CR 466 is stop controlled while traffic on SR 92 is uncontrolled. The traffic study done by Kittelson & Associates shows that a 3-way, 2-lane roundabout at this intersection provides the best level of service for this intersection. Incorporation of a roundabout will require widening and realignment of the roadway approaches. Smaller radius curves (greater than the 711-ft minimum) are proposed for entering and exiting Due West Rd roundabouts in order to encourage deceleration, reduce acceleration rate, and reduce the probability and severity of possible collisions.
- Hiram Acworth Highway (SR 92) at Due West Rd (CR 2839)/Due West St (four-way, signalized): A roundabout is proposed at this at-grade intersection to incorporate the new 4-lane typical of SR 92. The traffic study done by Kittelson & Associates shows that a 4-way, 2-lane roundabout provides the best level of service at this intersection. Incorporation of a roundabout will require widening and realignment of the roadway approaches. Minimal impact is proposed to Due West Street to preserve the existing residential properties on the west side of the intersection. Smaller radius curves

County: Paulding & Cobb

(greater than the 711-ft minimum) are proposed for entering and exiting Due West Rd roundabouts in order to encourage deceleration, reduce acceleration rate, and reduce the probability and severity of possible collisions.

- Hiram Acworth Highway (SR 92) at Old Burnt Hickory Rd (“T” intersection, unsignalized): Traffic on Old Burnt Hickory Rd is stop controlled while traffic on SR 92 is uncontrolled. This at-grade intersection is proposed to be widened to incorporate the new 4-lane typical of SR 92 including dual left turn lanes onto Old Burnt Hickory Road. The intersection will incorporate new traffic signal and pedestrian heads. Based upon the traffic study done by Kittelson & Associates, a traffic signal with dual southbound left turn lanes provides the most efficient operation as compared to a 3-way, 2-lane roundabout at this intersection.

Lighting required: No Yes

Lighting maintenance commitment letter from Paulding County for roundabout locations attached.

Off-site Detours Anticipated: No Undetermined Yes

It is not anticipated that detours will be required for this project.

Transportation Management Plan [TMP] Required: No Yes

If Yes: Project classified as: Non-Significant Significant

TMP Components Anticipated: TTC TO PI

County: Paulding & Cobb

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

FHWA/AASHTO Controlling Criteria	No	Undetermined	Yes	Approval Date (if applicable)
1. Design Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Lane Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Shoulder Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Bridge Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Horizontal Alignment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Superelevation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Vertical Alignment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Grade	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Stopping Sight Distance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Cross Slope	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Vertical Clearance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Lateral Offset to Obstruction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Bridge Structural Capacity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Design Variances to GDOT Standard Criteria anticipated:

GDOT Standard Criteria	Reviewing Office	No	Undetermined	Yes	Approval Date (if applicable)
1. Access Control/Median Openings	DP&S	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not submitted yet
2. Intersection Sight Distance	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Intersection Skew Angle	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Lateral Offset to Obstruction	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Rumble Strips	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Safety Edge	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Median Usage	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Roundabout Illumination Levels	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Complete Streets	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. ADA & PROWAG	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. GDOT Construction Standards	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. GDOT Drainage Manual	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. GDOT Bridge & Structural Manual	Bridges	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Per Section 7.3 of the GDOT Design Policy Manual, median openings may be spaced less than 1000-ft and greater than 660-ft it can be demonstrated that left turning volumes are nominal. Because the Due West Rd median openings correspond to roundabouts, the left turning volume requirement does not apply as left turning movements do not occur at roundabouts. The Due West roundabouts, are, however, less than 660-ft apart so a variance must be obtained to construct them at the proposed locations, which are the same locations as the existing SR 92/Due West Rd intersections.

County: Paulding & Cobb

VE Study anticipated: No Yes Completed – Date: 3/19/2013

UTILITY AND PROPERTY

Temporary State Route needed: No Yes Undetermined

Railroad Involvement: None

Utility Involvements:

- Georgia Power Company – Electric power transmission company and service provider
- Georgia Transmission Corporation – Electric power transmission company
- GreyStone Power Electric Cooperative – Electric power distribution service provider
- Colonial Pipeline – Cross-country natural gas transmission company
- Atlanta Gas Light Company – Natural gas service provider
- AT&T – Georgia – Telecommunications company
- Comcast – Cable TV service provider
- Paulding County Water – Municipal drinking water provider
- Cobb County Water – Municipal drinking water provider

SUE Required: No Yes Undetermined

Public Interest Determination Policy and Procedure recommended (Utilities)? No Yes

Right-of-Way (ROW): Existing width: 100-ft typical Proposed width: 120-ft typical
 Required Right-of-Way anticipated: None Yes Undetermined
 Easements anticipated: None Temporary Permanent Utility Other

Anticipated total number of impacted parcels: 222
 Displacements anticipated: Businesses: 4
 Residences: 7
 Other:
 Total Displacements: 11

Location and Design approval: Not Required Required

County: Paulding & Cobb

ROUNABOUTS

Roundabouts are proposed at the following intersections:

- Hiram Acworth Highway (SR 92) at Due West Rd/CR 466 (“T” intersection, unsignalized): Traffic on Due West Rd/CR 466 is stop controlled while traffic on SR 92 is uncontrolled. The traffic study done by Kittelson & Associates shows that a 3-way, 2-lane roundabout at this intersection provides the best level of service for this intersection. Incorporation of a roundabout will require widening and realignment of the roadway approaches.
- Hiram Acworth Highway (SR 92) at Due West Rd (CR 2839)/Due West St (four-way, signalized): A roundabout is proposed at this at-grade intersection to incorporate the new 4-lane typical of SR 92. The traffic study done by Kittelson & Associates shows that a 4-way, 2-lane roundabout provides the best level of service at this intersection. Incorporation of a roundabout will require widening and realignment of the roadway approaches. Minimal impact is proposed to Due West Street to preserve the existing residential properties on the west side of the intersection.
- Kittelson & Associates originally evaluated a roundabout at the Old Burnt Hickory Rd intersection in January 2013 and found a partial two lane roundabout to be a feasible alternative based upon 2037 design year volumes. Based upon updated 2040 design year volumes, the original two lane roundabout concept is a viable alternative through interim year 2038. A partial three-lane roundabout with a free-flow WB right-turn bypass is an option that provides acceptable operations through the 2040 design year. It is proposed to construct the partial two lane roundabout in the build year and preserve right of way for future expansion to a three lane section if warranted.

The approval of the State Traffic Engineer is required with approval of this Concept Report regarding the inclusion of roundabouts at the intersections discussed above.

Roundabout Lighting Agreement/Commitment Letter received: No Yes

See Attachment 8b for Letter of Support for roundabouts from Paulding County.

Roundabout Planning Level Assessment: Please see the roundabout Feasibility Study prepared for this project in Attachment Section 8.

Roundabout Feasibility Study: The following is a summary of the Roundabout Feasibility Study conducted by Kittelson & Associates.

Intersections that required additional consideration of turn lane improvements or changes in traffic control are: SR 92/Old Burnt Hickory Road, SR 92/Due West Road (South), and SR 92/East Paulding Drive. At these locations, both roundabouts and improved signalized alternatives were considered. A roundabout was also considered as an alternative at Due West (North) due to the proximity to the Due West (South) intersection. When compared to the signalized or unsignalized alternatives, roundabouts at the intersections of SR 92/Due West

County: Paulding & Cobb

Road (South) and SR 92/Due West Road (North) generally provide lower average delays and vehicle queues.

In comparison to the signalized alternatives, roundabouts were identified as the preferred traffic control for year 2040 design-year conditions at the intersections of SR 92/Due West Road (North) and SR 92/Due West Road (South). Roundabouts have been demonstrated to improve operational performance and to reduce crash frequency and severity at intersections under certain traffic conditions. It is believed that roundabout will provide these benefits at the Due West Road intersections.

A partial two lane roundabout is feasible at the Old Burnt Hickory Rd intersection based upon 2037 design year volumes. Based upon updated 2040 design year volumes, the original two lane roundabout concept is a viable alternative through interim year 2038. A partial three-lane roundabout with a free-flow WB right-turn bypass is an option that provides acceptable operations through the 2040 design year. A roundabout alternative was dropped from consideration at SR 92/East Paulding Drive. At SR 92/East Paulding Drive, a two- or three-lane roundabout is not expected to provide adequate levels of service for the 2040 Design Year volumes. Turn lane improvements to the existing signalized intersections is recommended to provide acceptable operations.

Roundabout Peer Review Required: No Yes Completed – Date:

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern:

Potential environmental and cultural resource impacts on the project corridor include the following:

- 1) Impacts to Waters of the United States
- 2) Impacts to stream buffers
- 3) Impacts to Section 4(f) properties
- 4) Impacts to Environmental Justice properties
- 5) Impacts to Historic properties

The Paulding County Comprehensive Plan (PCCP) shares the stated value of minimizing impacts to the above listed resources.

A preferred alternative for widening the SR 92 roadway that minimizes or balances impacts to these resources was selected from five alternatives discussed in the Practical Alternatives Report for this project. These five alternatives are summarized in the Alternatives Discussion section below.

Additionally, the PCCP expresses the goal to create pedestrian and bicycle friendly transportation facilities that provide connectivity between greenspaces and existing trail systems and promote economic development.

Although Paulding County is within the Coosa Valley Regional Development Center area, projects within Paulding County must comply with the Atlanta Metropolitan Planning Organization (Atlanta Regional Commission-ARC) regarding transportation planning and clean-air standards. Because this project involves state and federal funding, it must be included in

County: Paulding & Cobb

the ARC's Regional Plan and Transportation Improvement Program. Paulding County also participates in the ARC's Regional Plan update process. Paulding County is within the Metropolitan Region for Developments of Regional Impact (DRI). Therefore, Metropolitan standards apply to all projects in Paulding.

Cobb and Paulding Counties are defined as "MS4 Permitted Areas" under the NPDES GDOT MS4 Permit (Permit). This Permit regulates new and existing point source discharges of stormwater from roadways and facilities owned and/or operated by GDOT to waters of the State of Georgia. This project, therefore, must comply with the Permit requirement to install post-construction MS4 BMPs to treat the first 1.2 inches of stormwater runoff for water quality and to provide detention of the channel protection volume, and safe passage of the 100-year storm event for all runoff from the roadway.

As many residences and subdivisions are accessed from SR 92 along the project segment, construction staging must be done such that access is maintained for residents and residents are informed regarding changes to their access.

Context Sensitive Solutions Proposed:

Project stakeholders will be engaged at key milestones throughout the life of the project in compliance with the GDOT's public meeting process.

Below are the proposed context-sensitive solutions for the issues discussed above:

Issue: Create pedestrian and bicycle friendly transportation facilities.

Solution: The installation of an urban section with a 10-foot multi-use path and sidewalk will make this segment of SR 92 more pedestrian and bicycle friendly.

Issue: Paulding County has a goal of attracting industry, businesses, and retail development to the county.

Solution: As a truck route, this segment of SR 92 is a route by which commercial transportation of goods and services takes place. The improved Level of Service provided by the project should contribute toward creating a smoother flow of commerce through the area.

Issue: Paulding County desires to establish a clear and specific community identity in promoting economic development.

Solution: Based on statements in the Paulding County Comprehensive Plan (PCCP), the county desires to increase exposure and usage of the Silver Comet Trail and tap into marketability and economic benefits that may be derived from resident and visitor usage of the trail. While the 10-foot multi-use path on this project will not directly connect to the Silver Comet Trail, it will connect to the Nebo Rd to SR 120 segment of SR 92 (PI# 621720), which crosses and will connect to the Silver Comet Trail about 3.1 miles south of SR 120. The proposed multi-use path on this project is aligned with the community identity Paulding County wishes to establish. Use of roundabouts on the SR 92 corridor will be aesthetically pleasing and will provide enhanced operations of these intersections.

County: Paulding & Cobb

Issue: Minimize impacts to environmentally sensitive areas (ESAs) and to historically significant structures/areas (Section 4(f) Resources). Protect the natural systems by managing erosion, sedimentation, and stormwater runoff.

Solution: The preferred alignment minimizes project impacts to ESAs, Section 4(f) resources (e.g., cemeteries, Pickett's Mill Battlefield, Griffith Farm, etc.). Temporary structural and vegetative erosion measures and permanent water quality detention ponds will be installed to protect downstream areas from sedimentation, pollution, or flooding that could result from roadway runoff. Grassed channels will also be installed to provide water quality treatment. In some cases grassed channels and ponds will be combined into a treatment train to achieve the desired level of treatment.

Issue: Preserve greenspace and rural characteristics and create an interconnected greenspace program including walking trails, bike trails, historical sites, and provide connectivity to local trail systems.

Solution: Pickett's Mill Battlefield is one of the better preserved Civil War Battlefields. This project enhances access of multi-modal transportation options to both Pickett's Mill Battlefield and Griffith Farm, both of which are greenspaces with rural characteristics. The presence of the proposed multi-use trail will ultimately provide connectivity between these valued greenspaces and historical resources and the Silver Comet Trail, which crosses SR 92 about 7.5 miles south of Pickett's Mill Battlefield (3.1 miles south of the beginning of this project).

While the 10-foot multi-use path on this project will not directly connect to the Silver Comet Trail, it will connect to the Nebo Rd to SR 120 segment of SR 92 (PI# 621720), which crosses and will connect to the Silver Comet Trail about 3.1 miles south of SR 120. A network of multi-use paths and trail spurs is in line the community identity Paulding County wishes to establish.

Issue: The project must comply with the Atlanta Metropolitan Planning Organization (AMPO)/Atlanta Regional Commission (ARC) regarding transportation planning and clean-air standards

Solution: The project will comply with AMPO transportation planning and clean-air standards.

Issue: The project area is highly residential. Many subdivisions and residential streets are accessed from this segment of SR 92.

Solution: Construction staging will be done so that access to residences on the corridor will be maintained. Property owners will be informed via public meetings at appropriate times regarding relevant temporary changes to access to properties. The completed project should improve overall access and Level of Service of SR 92's roadway segment within the project limits.

Issue: This project must comply with the NPDES GDOT MS4 Permit requirement to install post-construction MS4 BMPs to treat the first 1.2 inches of stormwater runoff for water quality and to provide detention of the channel protection volume, and safe passage of the 100-year storm event for all runoff from the roadway.

Solution: Wet detention ponds and grassed channels are proposed as MS4 BMPs at the concept planning level to meet this requirement. More detailed designs of BMPs will be developed during the PFPR phase of the project to meet MS4 requirements.

County: Paulding & Cobb

ENVIRONMENTAL & PERMITS

Anticipated Environmental Document:

GEPA: NEPA: CE EA/FONSI EIS

MS4 Permit Compliance – Is the project located in a MS4 area? No Yes

Environmental Permits/Variations/Commitments/Coordination anticipated:

Permit/ Variance/ Commitment/ Coordination Anticipated	No	Yes	Remarks
1. U.S. Coast Guard Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Forest Service/Corps Land	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. CWA Section 404 Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Individual Permit Required
4. Tennessee Valley Authority Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. Buffer Variance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GA EPD Variance Required
6. Coastal Zone Management Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. NPDES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GAR100002
8. FEMA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	LOMR
9. Cemetery Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. MS4 Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GAR041000
11. Other Commitments	<input type="checkbox"/>	<input type="checkbox"/>	
12. Other Coordination	<input type="checkbox"/>	<input type="checkbox"/>	

- It is anticipated that a Section 404 Individual Permit will be required for the project as a result of exceeding the linear stream disturbance threshold allowed under a Nationwide Permit.
- It is anticipated that a stream buffer variance must be obtained from the GA EPD because of disturbance to meandering buffered streams that parallel the SR 92 alignment. It is anticipated that buffer disturbance will extend beyond the 50-foot exemption box at skewed cross drain installations.
- Because the project disturbs more than 1 acre, the project is subject to NPDES receiving water and/or outfall sampling requirement.
- Because the project is located within an “MS4 permit area” as designated under the NPDES GDOT MS4 Permit (Permit), this project must comply with the water quality requirements set forth in the Permit.
- It is anticipated that the culvert modification at Pickett’s Mill Creek will require a Letter of Map Revision (LOMR) approval from FEMA. The new natural bottom sunken box culvert will provide greater hydraulic capacity than the existing culvert, which will affect the hydrologic or hydraulic characteristics of the flooding source (Pickett’s Mill Creek) and thus result in the modification of the existing Zone A Special Flood Hazard Area (SFHA). The LOMR will officially revise the Flood Insurance Rate Map (FIRM).

Is a PAR required? No Yes Completed – Date: 9/13/2013

The PAR has been reviewed and approved for submittal to USACE by Atkins Global. Atkins routed the USACE transmittal letter to obtain the appropriate GDOT signature prior to submittal.

Environmental Comments and Information:

NEPA/GEPA: The environmental document will be prepared during preliminary design of the project. It is anticipated that a Draft Environmental Assessment (EA) will be prepared followed by a Final EA/Finding of No Significant Impact (FONSI).

Section 4(f) resources impacted by the project include Antioch Cemetery, Pickett's Mill Battlefield, Bickers House, and Griffith Farm. These resources have been accounted for in the Historic Resources Survey Report prepared by GDOT. The preferred alignment minimizes impacts to these resources to the extent practicable as discussed in the Practical Alternatives Report (PAR) for this project. Other Section 4(f) resources are present near the project limits, but are not impacted by the project. See the table in the history section below for a list of Section 4(f) resources surveyed for this project.

One environmental justice community exists on the project at station range 588+00 to 593+00 on the west side of SR 92. The proposed roadway widening is offset to the east and a retaining wall is proposed to minimize impact to the community.

Ecology: An Ecology Resource Survey and Ecological Assessment of Effects (EAOE) are required for this project.

Aquatic and terrestrial protected species survey reports have been prepared by CCR Environmental, Inc. and Atkins Global, respectively. Suitable habitat was found on the project for the federally and state threatened dwarf sumac, the federal candidate and state threatened Georgia aster, the state unusual pink lady's slipper, the federally and state endangered Etowah darter and fine-lined pocketbook, and the federally and state threatened Cherokee darter. Protected species found on the project corridor include the Cherokee Darter, the Georgia aster, and the pink lady's slipper.

It is believed that the replacement of the existing concrete box culvert at the Pickett's Mill Creek crossing with a sunken box culvert will be an improvement to the Cherokee darter habitat. The natural bottom culvert will allow for better fish passage than the existing culvert. Portions of the Georgia aster and pink lady's slipper populations will be impacted by the preferred alignment. These impacts are unavoidable and comparable to impacts that would be caused by other alternates discussed in the Practical Alternatives Report (PAR) for this project.

The project study area contains second growth forested tracts, wooded riparian corridors and utility right-of-ways that could provide both suitable roosting habitat for bachelor and non-reproductive female Indiana bats (I-bats) and suitable foraging and commuting habitat for this species. Acoustic and mist netting surveys must be done for the I-bat. Additional surveys must also be completed for the presence of the Long-Eared bat.

County: Paulding & Cobb

It has yet to be determined whether or not the USFWS and FHWA will review and approve the PAR for this project prior to completion of Indiana bat surveys and the addition of that survey data to the PAR.

County: Paulding & Cobb

History:

Resource No.	Resource Name	Date of Construction	Type/Style	Location	National Register Recommendation
1	Aden Barn	c. 1900	transverse crib barn	2914 SR 92/Hiram-Acworth Highway	Eligible (PI #s 621720, 621022, & 632921)
2	Cross Gable Bungalow	1922	cross gable bungalow with craftsman stylistic elements	Approximately 470 feet south of the SR 92/Hiram-Acworth Highway and East Paulding Drive intersection	Not eligible
3	Antioch Cemetery	c. 1850 (according to oldest grave)	cemetery	SW corner of the SR 92/Hiram-Acworth Highway and East Paulding Drive intersection	Eligible
4	House	c. 1910	unrecognized house type with no stylistic elements	199 SR 92/Hiram-Acworth Highway (Cobb County)	Not eligible
5	Pyramidal cottage	1950 (relocated to current site prior to 1972)	pyramidal cottage with no stylistic elements	4723 SR 92/Hiram-Acworth Highway	Not eligible
6	Gabled wing cottage	c. 1900	gabled wing cottage with no stylistic elements	4967 SR 92/Hiram-Acworth Highway	Not eligible
7	Bickers House	1910	Georgian cottage with craftsman stylistic elements	6440 Due West Road (Cobb County)	Eligible
8	front Gable bungalow	1950	front gable bungalow with no stylistic elements	6425 SR 92/Hiram-Acworth Highway	Not eligible
9	Pickett's Mill Battlefield		battlefield	6789 SR 92/Hiram-Acworth Highway	National Register Listed
10	Griffith Farm	1890	center hall; farm complex	7732 SR 92/Hiram-Acworth Highway	Eligible

County: Paulding & Cobb

11	Grogan's Store	c. 1930	store	39 Dallas-Acworth Highway	Eligible (PI #s 0006857 & 0006866)
12	Grogan House	1930	front gable bungalow with craftsman stylistic elements	39 Dallas-Acworth Highway	Eligible (PI #s 0006857 & 0006866)
13	Grogan Farm Complex	c. 1900	farm complex	39 Dallas-Acworth Highway	Eligible (PI #s 0006857 & 0006866)

It is anticipated that the preferred alignment will impact Resources 3, 7, 9 and 10 as listed in the above table. The preferred alignment has been positioned such that impacts to these resources have been minimized to the extent practicable. SHPO concurrence is required for this project.

Archeology:

Antioch Cemetery and Pickett’s Mill Battlefield, listed in the Historical Resource table above, may also be listed as archeological resources. Preliminary data was collected on the Battlefield via a reconnaissance survey to aid in selecting the preferred alignment. Further studies are required. SHPO concurrence is required for this project.

County: Paulding & Cobb

Air Quality:

Is the project located in a PM 2.5 Non-attainment area?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
Is the project located in an Ozone Non-attainment area?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
Is a Carbon Monoxide hotspot analysis required?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes

The project is not exempt from the conforming plan.

The comparison between the project concept and the conforming plan’s model description is to be determined. The proposed project typical layout includes 4 through lanes (2 northbound and 2 southbound). The completed project is expected to open to traffic in the year 2020.

The project corridor contains a major signal at East Paulding Drive, which will undergo modifications to improve its operation. This intersection has a design year (2040) ADT greater than 10,000 VPD and the build condition is expected to operate during the design year peak hour at LOS E. Therefore, a CO hotspot analysis is required for the project.

Noise Effects: A Noise Impact Analyses is required for this project. Required mitigation measures will be determined by the studies.

Public Involvement: A Public Information Open House was held on October 22, 2013. A summary of the meeting is included in attachment 14.

A Public Hearing Open House must also take place after approval of the Draft EA.

Major stakeholders:

Major stakeholders identified for the project are the following:

1. Traveling public
2. Local residents
3. Local business owners
4. Local property owners
5. Pickett’s Mill Battlefield
6. Paulding County
7. Paulding County Chamber of Commerce
8. City of Dallas
9. Georgia DEP
10. Georgia DOT

County: Paulding & Cobb

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: It is anticipated that this project can be staged under traffic and detours will not be required. Restricted construction hours may be required to accommodate peak traffic hours and school-related traffic.

Installation of the replacement culvert at Pickett's Mill Creek was discussed at the Concept Team Meeting. The culvert will likely be a sunken box culvert to meet fish passage requirements. It will be installed at a skew to match the flow line of the creek and will be approximately 420 feet long. The proposed culvert will be installed at a new location offset from the existing culvert to allow continued conveyance of stream flow until the new culvert is operational.

Early Completion Incentives recommended for consideration: No Yes

COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

Initial Concept Meeting: The Initial Concept Meeting was held on June 9, 2010.

Key topics discussed at the meeting were the following:

- Paulding County indicated that they would prefer an urban typical section with a design speed of 45 mph. It was agreed that this should be the typical section for corridor continuity.
- The 85th percentile speed was requested and posted and preferred speeds were discussed.
- Known utility companies on the corridor were discussed.
- No bridges are present on the project. Major culverts were discussed at Pickett's Mill Creek and tributaries to Pickett's Mill Creek and Powder Springs Creek.
- The major transmission lines on the corridor and the need to avoid them due to relocation cost were discussed. It was agreed that they would be avoided as much as possible.
- The crash history of the corridor was discussed.
- The multi-use path was designated as the preferred bicycle accommodation for the project.
- Historical resource impacts (e.g., Pickett's Mill Battlefield) were discussed. Impacts to schedule due to 4f evaluation were discussed. It was agreed that impacts to all resources would be minimized during concept design.
- Median width was discussed in relation to minimizing the project footprint and also in relation to better sight distance.
- Logical termini determination was discussed.
- It was suggested that multiple PIOHs be held because of the many residences on the corridor. It was mentioned that a PIOH should not be held until historic resource boundaries are confirmed and a vertical analysis completed. A PIOH was held for PI#621720 on 1/24/04.
- Colonial Pipeline indicated that a minimum of 5 feet of fill is required over their facilities.

Concept Meeting: The Concept Team Meeting was held on December 5, 2013.

Key topics discussed at the meeting were the following:

- The project layout, typical section, and impacts to properties, ESAs and utilities were presented.
- The signal and roundabout intersection improvements were discussed.
- The need for a three (3) lane roundabout at Old Burnt Hickory Rd. in the 2040 design year was noted.
- The sufficiency rating of the existing Pickett's Mill Creek box culvert was discussed. The anticipated natural bottom requirement for the culvert would preclude the possibility of leaving the existing culvert in place. The existing culvert will be maintained only as needed for staging purposes.
- Paulding County stated that they are not aware of projects, other than those noted in the Concept Report draft, within the SR 92 project limits.
- The City of Hiram is amenable to the installation of roundabouts on the project.
- It is expected that power, water, natural gas, and communications utilities will be impacted by the project.
- It is not expected that the major natural gas pipeline that crosses the project near Due West Rd. (south) will be impacted by construction.
- A request was made that RFBs be considered at unsignalized street intersections or midblock crossings to facilitate pedestrian access to the multi-use path on the west side of the road.

Other coordination to date:

- Paulding County Coordination Meeting - See Attachment 21 for meeting minutes.

Project Activity	Party Responsible for Performing Task(s)
Concept Development	URS Corporation
Design	URS Corporation
Right-of-Way Acquisition	GDOT
Utility Relocation	Utility Owner/GDOT
Letting to Contract	GDOT
Construction Supervision	GDOT
Providing Material Pits	Construction Contractor
Providing Detours	GDOT Local / Contractor KUP
Environmental Studies, Documents, & Permits	GDOT
Environmental Mitigation	GDOT
Construction Inspection & Materials Testing	GDOT

Project Cost Estimate Summary and Funding Responsibilities:

	Breakdown of PE	ROW	Reimbursable Utility	CST*	Environmental Mitigation	Total Cost
Funded By	GDOT	GDOT	GDOT	GDOT	GDOT	
\$ Amount	\$1,908,330	\$17,211,000	\$7,297,400	\$31,324,055	TBD	\$58,140,785
Date of Estimate	5/16/2007	10/10/2013	10/3/2013	8/27/2013	N/A	

*CST Cost includes: Construction, Engineering and Inspection, and Liquid AC Cost Adjustment.

ALTERNATIVES DISCUSSION

Alternative selection:

Alternative 1 (Preferred Alternative): Strategically widen the existing roadway either symmetrically or offset widening to the east or west such that resource impacts and property displacements are minimized. The total length of the alignment is 5.67 miles.

Estimated Property Impacts:	222	Estimated Total Cost:	\$58,140,785
Estimated ROW Cost:	\$17,211,000	Estimated CST Time:	3 years

Rationale: This alternative was selected as the preferred because it causes the fewest property displacements (11 total) while impacting approximately equivalent or less ecological and cultural resource areas as compared to the other alternatives. The alternative with the next fewest displacements has 17. The most significant savings provided by the preferred alternative are (1.) reduced right-of-way cost and (2.) lower impacts to Section 4(f) resources.

The below table summarizes the various resource impacts on the Preferred Alternative:

Alternative 1 (preferred) Impacts Summary

Resource Type	Alternative 1 (preferred) Impact Quantity
Residential Property	10 displacements
Business Property	1 displacement
Institutional Property	0 displacements
All Properties	11 displacements
Waters of the US (linear)	2,670 feet
Waters of the US (area)	2.10 acres
Wetlands area	0 acres
Open Waters area	0 acres
Georgia Aster area	959 sq. ft. out of 1,020 sq. ft. total
Pink Lady's Slipper area	5,390 sq. ft. out of 7,832 sq. ft. total
Pickett's Mill Battlefield area	1.00 acres
Griffith Farm area	0 acres
Total Section 4(f) Properties	1.00 acres

Alternative 2: Widen only to the west side of the existing SR 92 using the existing west edge of pavement as the west EOP of the northbound lanes. The total length of the alignment is 5.67 miles.

Estimated Property Impacts:	188	Estimated Total Cost:	Unknown
Estimated ROW Cost:	Unknown	Estimated CST Time:	Unknown

Rationale: Alternative 2 makes use of about 24,000 square yards more existing pavement than the preferred alignment. The existing pavement would be reused for the northbound lanes and it is estimated this would amount to a pavement construction cost savings of about \$700,000. Alternative 2 was not selected as the preferred alignment because it causes greater impacts to waters of the US, 0.75 acres greater impact to Pickett’s Mill Battlefield (Section 4(f) resource) and 21 more property displacements than Alternative 1 (preferred alignment). It is anticipated that the combined environmental and Section 4(f) resource costs and right-of-way cost of the additional 21 displaced properties would significantly outweigh the construction cost savings that would result from greater pavement reuse.

In terms of utility costs, Alternative 2 would encroach on a power sub-station on the west side of SR 92 from Station 691+77 to Station 693+65. Relocation of sub-stations is generally costly. Alternative 1 avoids the sub-station and therefore avoids relocation costs.

Alternative 2 Impacts Summary

Resource Type	Alternative 2 Impact Quantity
Residential Property	31 displacements
Business Property	1 displacements
Institutional Property	0 displacements
All Properties	32 displacements
Waters of the US (linear)	2,900 feet
Waters of the US (area)	2.28 acres
Wetlands area	0.05 acres
Open Waters area	0 acres
Georgia Aster area	895 sq. ft. out of 1,020 sq. ft. total
Pink Lady's Slipper area	3,255 sq. ft. out of 7,832 sq. ft. total
Pickett's Mill Battlefield area	1.75 acres
Griffith Farm area	0 acres
Total Section 4(f) Properties	1.75 acres

Alternative 3: Widen only to the east side of the existing SR 92 using the existing east edge of pavement as the east EOP of the southbound lanes. The total length of the alignment is 5.67 miles.

Estimated Property Impacts:	188	Estimated Total Cost:	Unknown
Estimated ROW Cost:	Unknown	Estimated CST Time:	Unknown

Rationale: Alternative 3 makes use of about 24,000 square yards more existing pavement than the preferred alignment. The existing pavement would be reused for the southbound lanes and it is estimated this would amount to a pavement construction cost savings of about \$700,000. Alternative 2 was not selected as the preferred alignment because it causes 1.15 acres greater impact to Section 4(f) resources and 7 more property displacements than Alternative 1 (preferred alignment). It is anticipated that the combined additional Section 4(f) resource costs and right-of-way cost of the 7 additional displaced properties would significantly outweigh the construction cost savings that would result from greater pavement reuse.

Alternative 3 Impacts Summary

Resource Type	Alternative 3 Impact Quantity
Residential Property	17 displacements
Business Property	1 displacements
Institutional Property	0 displacements
All Properties	18 displacements
Waters of the US (linear)	2,600 feet
Waters of the US (area)	2.04 acres
Wetlands area	0 acres
Open Waters area	0 acres
Georgia Aster area	959 sq. ft. out of 1,020 sq. ft. total
Pink Lady's Slipper area	2,300 sq. ft. out of 7,832 sq. ft. total
Pickett's Mill Battlefield area	1.10 acres
Griffith Farm area	1.05 acres
Total Section 4(f) Properties	2.15 acres

Alternative 4: This is a new location alignment to the east of the existing SR 92 alignment. It cuts through a corridor of undeveloped and residential properties. The total length of the alignment is 5.91 miles.

Estimated Property Impacts:	Unknown	Estimated Total Cost:	Unknown
Estimated ROW Cost:	Unknown	Estimated CST Time:	Unknown

Rationale: Alternative 4 was not selected because of it requires 33 more displacements, higher right-of-way costs, and greater pavement construction costs than Alternative 1 (preferred alternative). It is anticipated that further field study would reveal environmental and cultural resource impacts to be equivalent to or greater than the impacts on Alternatives 1 through 3. A full width corridor of right-of-way would have to be purchased for the new location segment of Alternative 4.

Alternative 4 Impacts Summary

Resource Type	Alternative 4 Impact Quantity
Residential Property	44 displacements
Business Property	1 displacements
Institutional Property	0 displacements
All Properties	45 displacements
Waters of the US (linear)	*1,500 feet
Waters of the US (area)	*1.04 acres
Wetlands area	*0 acres
Open Waters area	*0 acres
Georgia Aster area	**
Pink Lady's Slipper area	**
Pickett's Mill Battlefield area	0 acres
Griffith Farm area	0 acres
Total Section 4(f) Properties	**

*Impacts to these resources were estimated based upon a desktop review of QUAD maps, aerial mapping, and/or the USFWS National Wetlands Inventory. A field study is required to determine actual impacts to these resources.

**A field study is required to determine impacts to Section 4(f) resources.

Alternative 5: This is a new location alignment to the west of the existing SR 92 alignment. It cuts through a corridor of undeveloped, institutional, and residential properties, follows the alignment of East Paulding Road to the west until it intersects with SR 381 and follows SR 381 to the north until it connects with SR 92 at Cedarcrest Road. The total length of the alignment is 7.1 miles.

Estimated Property Impacts:	Unknown	Estimated Total Cost:	Unknown
Estimated ROW Cost:	Unknown	Estimated CST Time:	Unknown

Rationale: Alternative 5 was not selected because it requires 26 more displacements, higher right-of-way costs, and greater pavement construction costs than Alternative 1 (preferred alternative). It is anticipated that further field study would reveal environmental and cultural resource impacts to equivalent to or greater than the impacts on Alternatives 1 through 3.

A full width corridor of right-of-way would have to be purchased for the new location segment of Alternative 5. It appears based upon a desktop review of aerial mapping that at least one structure on the west side of the East Paulding Middle School property (institutional property) would have to be demolished in order to construct the new location alignment of Alternative 5.

Alternative 5 does not offer improvements to the segment of SR 92 between SR 120 and Cedarcrest Road. Therefore, it improves other roads and does not match the Need and Purpose of the project. It is unknown whether or not Alternative 5 would alleviate congestion and improve the Level of Service for the design year on SR 92 between SR 120 and Cedarcrest Road.

Alternative 5 Impacts Summary

Resource Type	Alternative 5 Impact Quantity
Residential Property	35 displacements
Business Property	1 displacements
Institutional Property	1 displacements
All Properties	37 displacements
Waters of the US (linear)	*2,000 feet
Waters of the US (area)	*1.38 acres
Wetlands area	*0 acres
Open Waters area	*0.05 acres
Georgia Aster area	**
Pink Lady's Slipper area	**
Pickett's Mill Battlefield area	0 acres
Griffith Farm area	0 acres
Total Section 4(f) Properties	**

*Impacts to these resources were estimated based upon a desktop review of QUAD maps, aerial mapping, and/or the USFWS National Wetlands Inventory. A field study is required to determine actual impacts to these resources.

**A field study is required to determine impacts to Section 4(f) resources.

No-Build Alternative: Under the no-build alternative, no improvements would be made to the SR 92 corridor between SR 120 and Cedarcrest Road.			
Estimated Property Impacts:	0	Estimated Total Cost:	\$0
Estimated ROW Cost:	\$0	Estimated CST Time:	0 years
Rationale: This alternative was not selected because it does not meet the need and purpose of the project.			

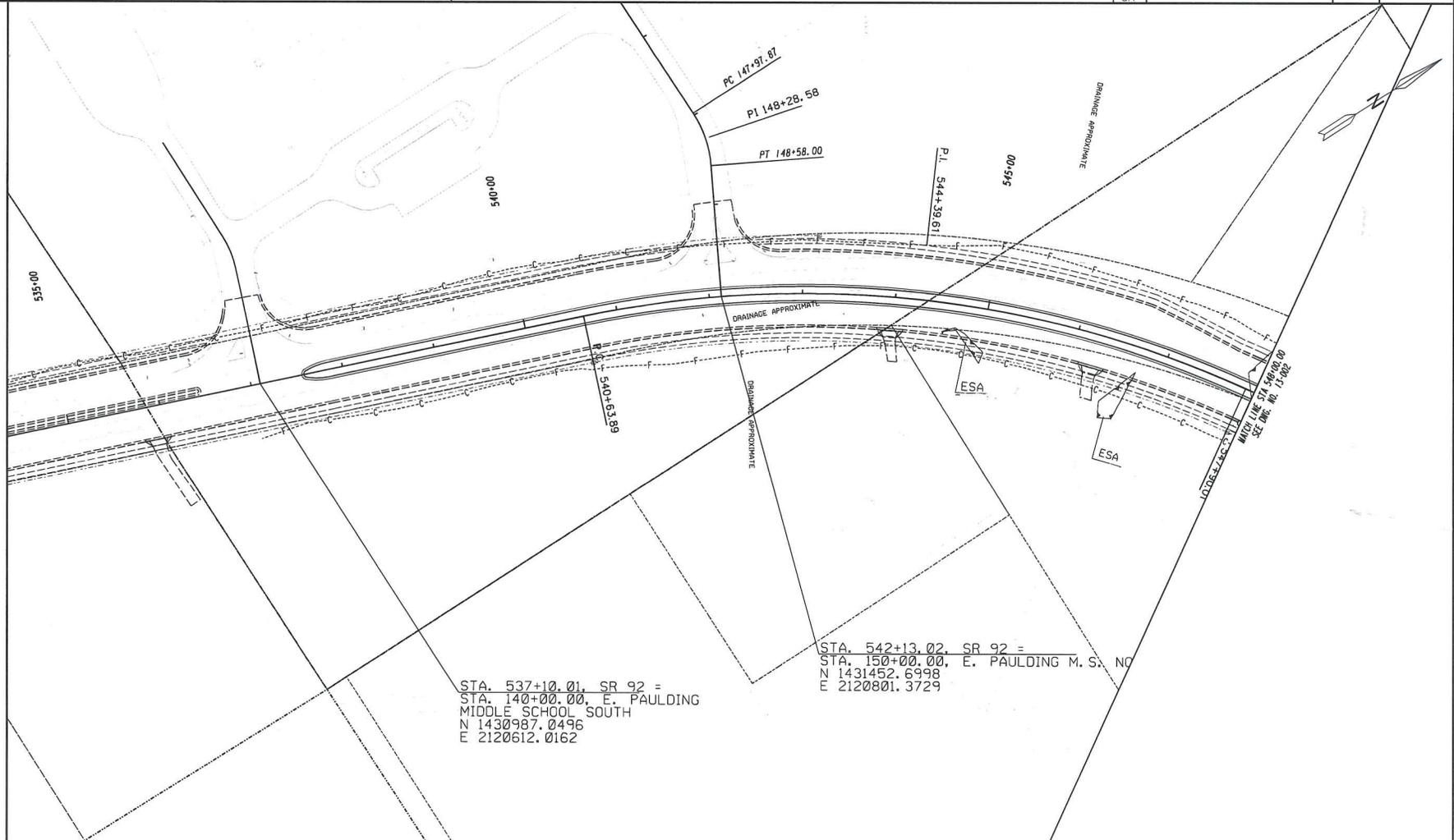
Comments: The preferred alternative (Alternative 1) proposes to strategically widen the existing roadway either symmetrically, to the east, or to the west such that resource impacts and property displacements are minimized. The total length of the preferred alternate is 5.67 miles. Alternative 1 was selected as the preferred because it causes the fewest property displacements while impacting approximately equivalent or less ecological and cultural resource area as compared to the other alternatives. The preferred alternative also causes the least impact to utilities (e.g., avoids the substation and causes least impact to transmission structures). The most significant savings provided by the preferred alternative are (1.) reduced right-of-way cost and (2.) lower impacts to Section 4(f) resources.

LIST OF ATTACHMENTS/SUPPORTING DATA

1. Concept Layout
2. Typical sections
3. Detailed Cost Estimates:
 - a. Construction including Engineering and Inspection
 - b. Completed Fuel & Asphalt Price Adjustment forms
 - c. Right-of-Way
 - d. Utilities
4. Crash Summaries
5. Traffic Diagrams
6. Capacity Analysis Summary (Tabular Format)
- * 7. Summary of TE Study and Signal Warrant Analysis
8. Roundabout Data
 - * a. Roundabout Feasibility Study
 - b. Paulding Letter of Support for Roundabouts
9. S I & A Report Bridge/Culvert Inventory
10. Hydrology Study for MS4 Permit
11. Pavement Studies
 - a. Pavement Evaluation
 - b. Pavement Type Selection
12. Conforming plan's network schematics showing thru lanes.
13. Minutes of Concept Meetings
14. Minutes of any meetings that show support or objection to the concept
15. VE Implementation Letter
16. Practical Alternatives Report

* complete reports available at
Archivestore only summaries in report

Attachment 1
Concept Layout



STA. 537+10.01, SR 92 =
 STA. 140+00.00, E. PAULDING
 MIDDLE SCHOOL SOUTH
 N 1430987.0496
 E 2120612.0162

STA. 542+13.02, SR 92 =
 STA. 150+00.00, E. PAULDING M. S. NO
 N 1431452.6998
 E 2120801.3729

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

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 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS

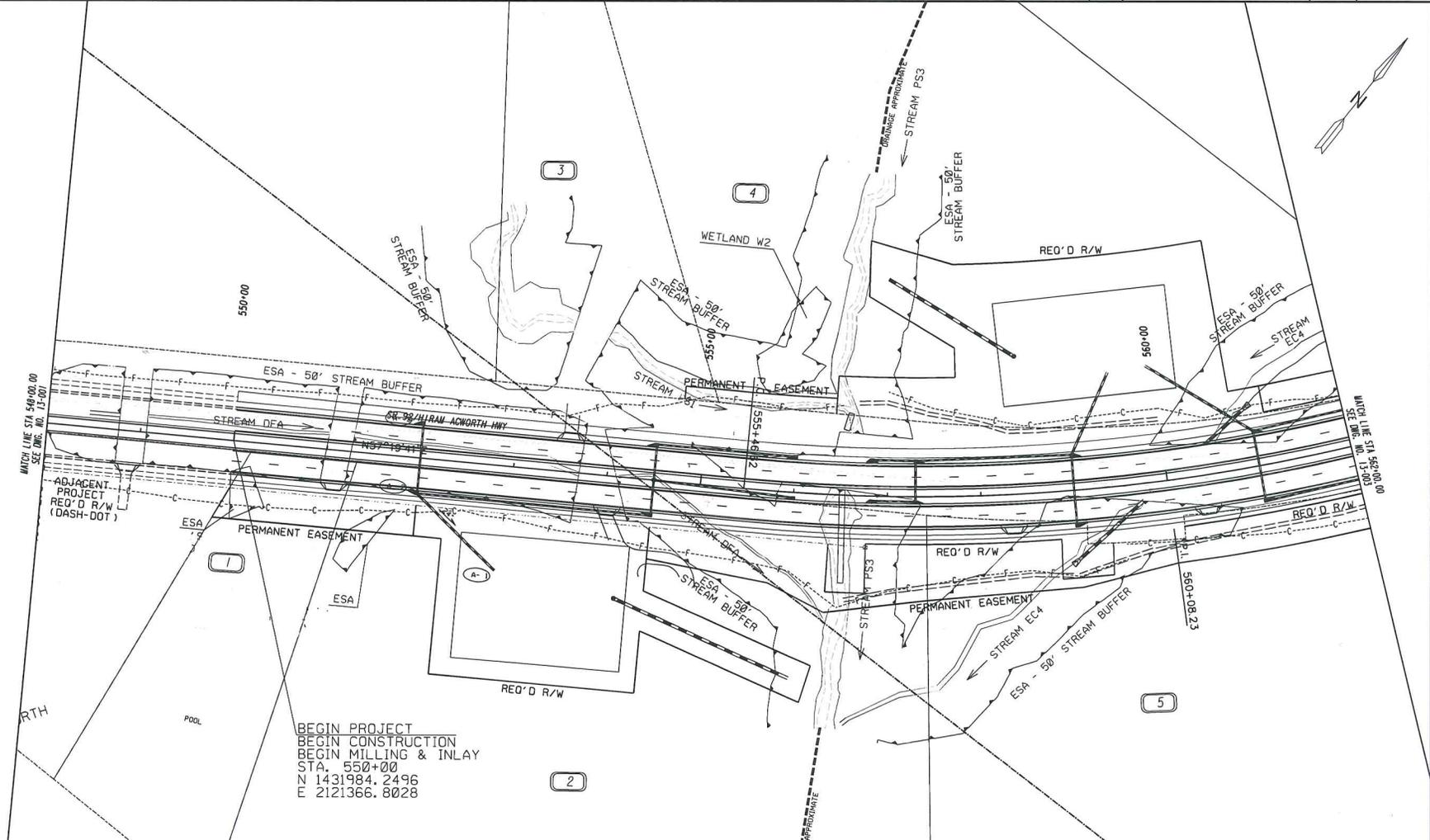
URS
 450 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E., SUITE 300
 ATLANTA, GEORGIA 30328
 TEL: (478) 808-8800 FAX: (478) 808-8400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING No.
13-001



BEGIN PROJECT
 BEGIN CONSTRUCTION
 BEGIN MILLING & INLAY
 STA. 550+00
 N 1431984.2496
 E 2121366.8028

PROPERTY AND EXISTING R/W LINE REQUIRED R/W LINE CONSTRUCTION LIMITS EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES EASEMENT FOR CONSTR OF SLOPES EASEMENT FOR CONSTR OF DRIVES	
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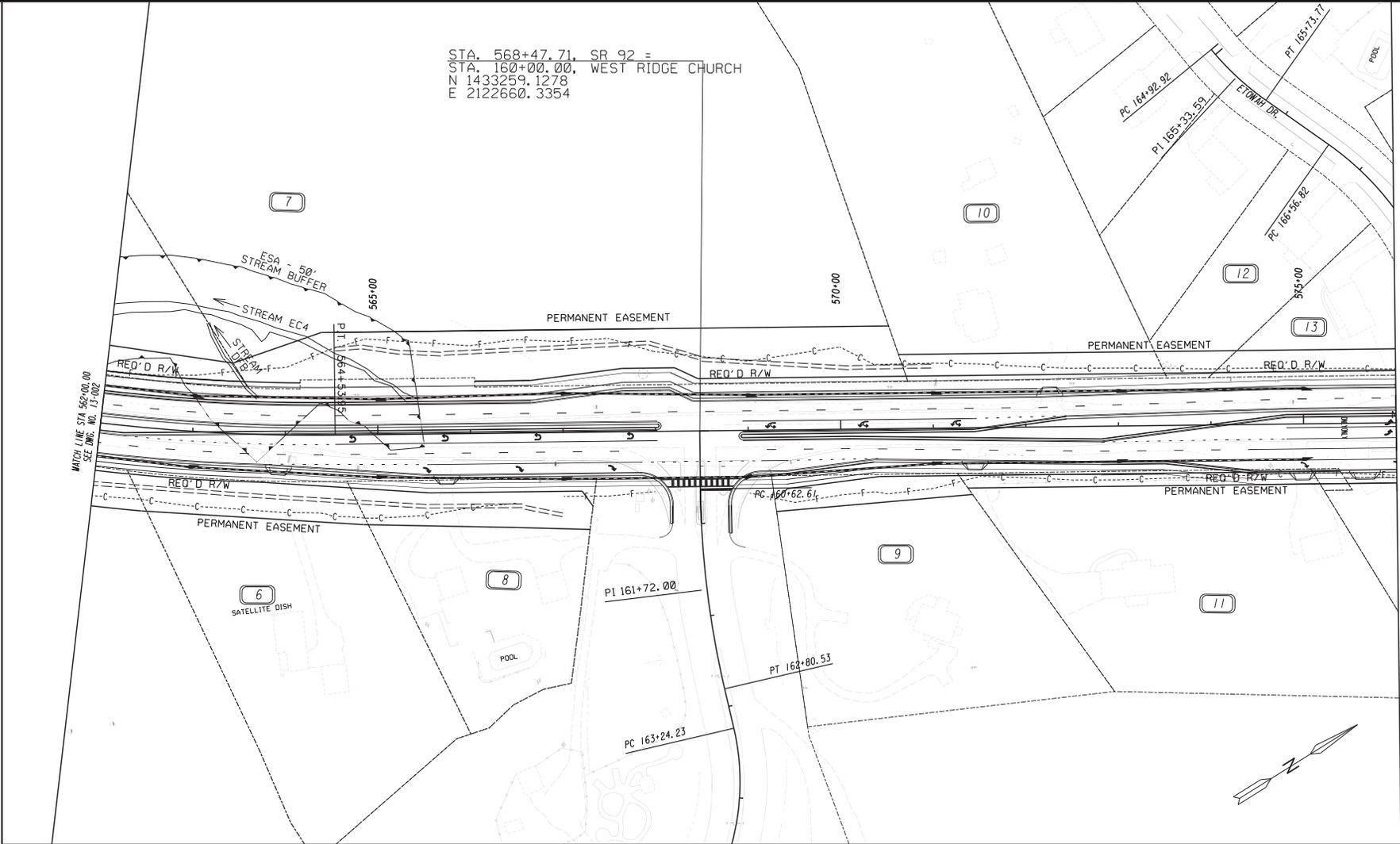
URS
 400 NORTH PARK TOWN CENTER
 1000 ASPENHURST ROAD, N.E. SUITE 900
 ATLANTA, GEORGIA 30338
 TEL: (478) 808-9800 FAX: (478) 808-8400

SCALE IN FEET
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REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD
 DRAWING NO. 13-002

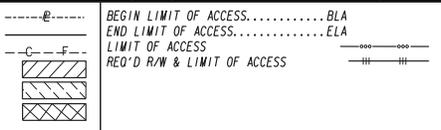
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 E 2122660.3354



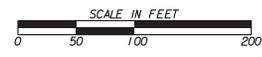
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 SEE DWG. NO. 13-002

WATCH LINE STA. 576+00.00
 SEE DWG. NO. 13-004

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES



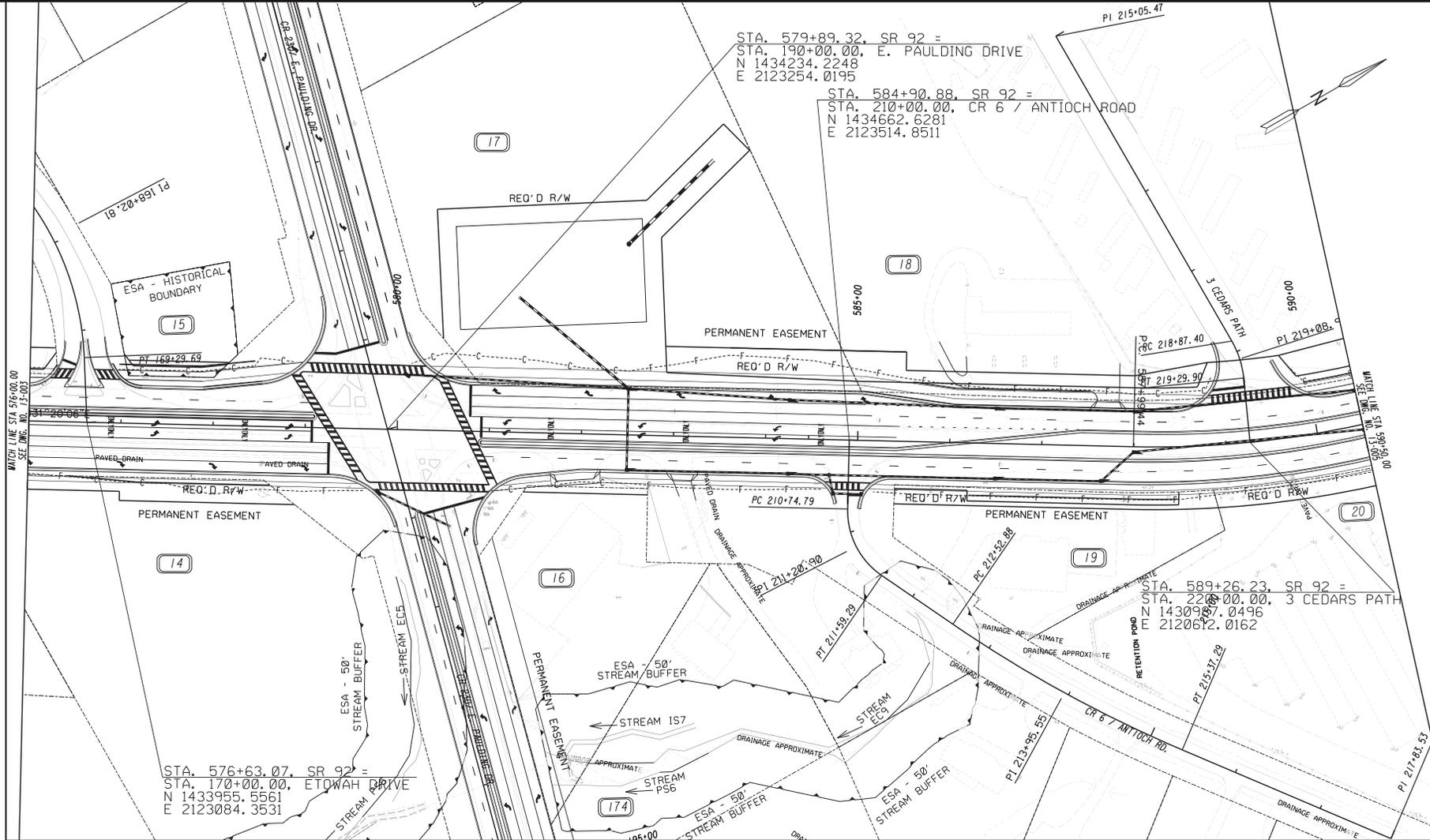
URS
 400 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 300
 ATLANTA, GEORGIA 30328
 TEL: 1678 808-9800 FAX: 1678 808-9400



REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO.
13-003



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----@----- BEGIN LIMIT OF ACCESS.....BLA
 -----@----- END LIMIT OF ACCESS.....ELA
 -C-----F- LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS

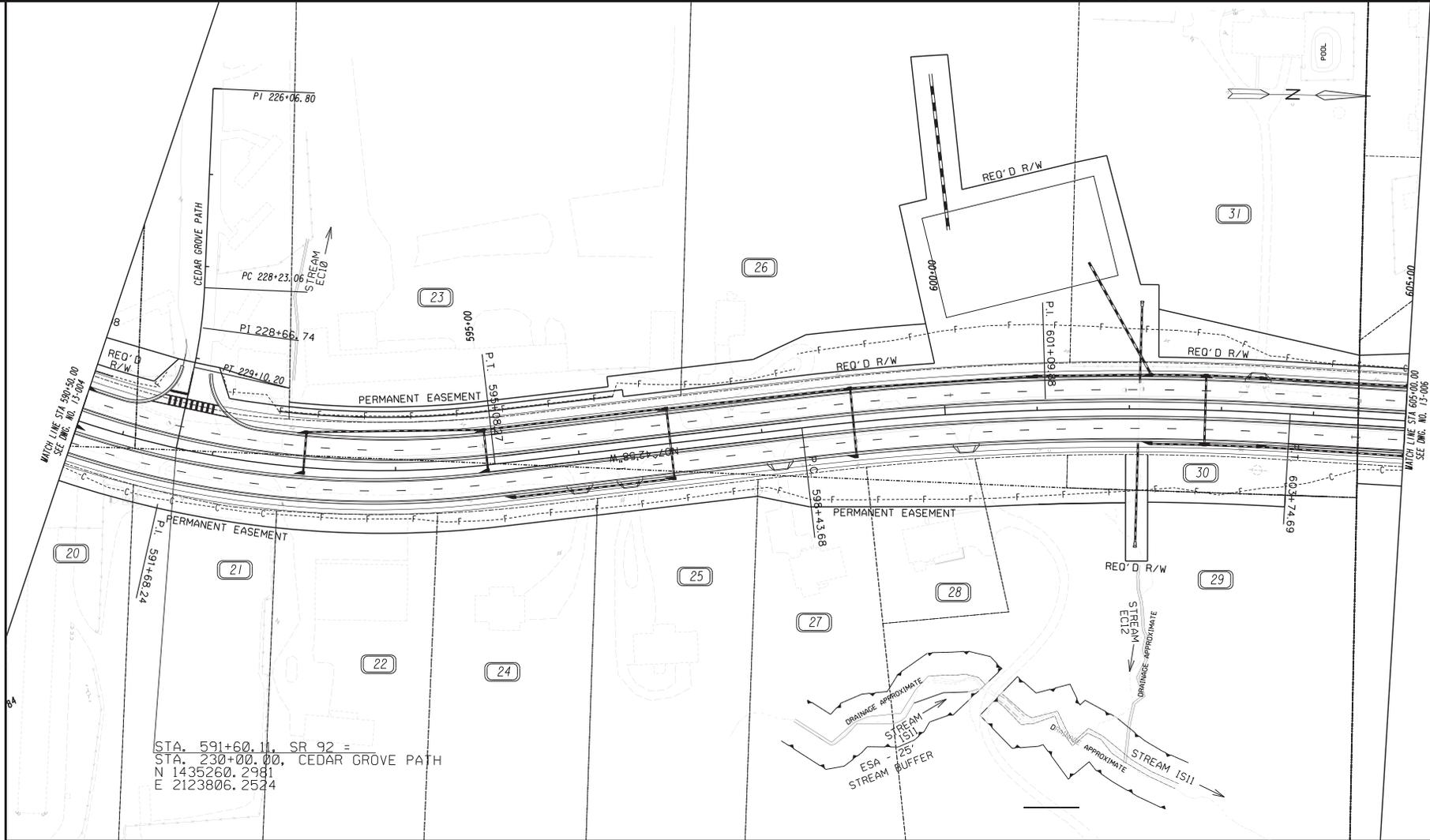
URS
 400 NORTHSPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: (478) 808-8600 FAX: (478) 808-8400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO.
13-004



STA. 591+60.11, SR 92 =
 STA. 230+00.00, CEDAR GROVE PATH
 N 1435260.2981
 E 2123806.2524

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----@----- BEGIN LIMIT OF ACCESS.....BLA
 -C-----F----- END LIMIT OF ACCESS.....ELA
 - - - - - LIMIT OF ACCESS
 - - - - - REQ'D R/W & LIMIT OF ACCESS

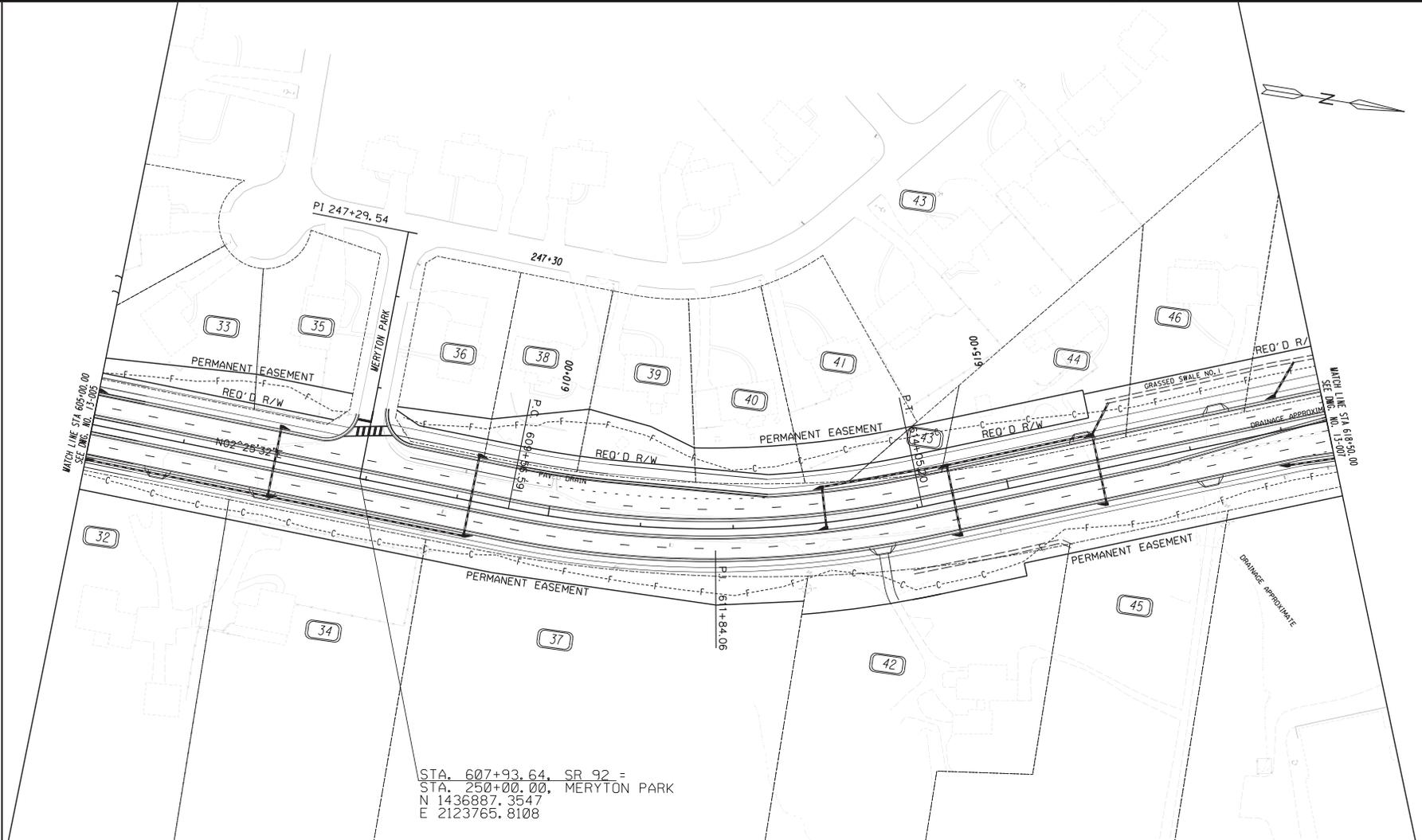
URS
 400 NORTH PARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 300
 ATLANTA, GEORGIA 30328
 TEL: 1678 808-9800 FAX: 1678 808-9400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO.
13-005



STA. 607+93.64, SR 92 =
 STA. 250+00.00, MERYTON PARK
 N 1436887.3547
 E 2123765.8108

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

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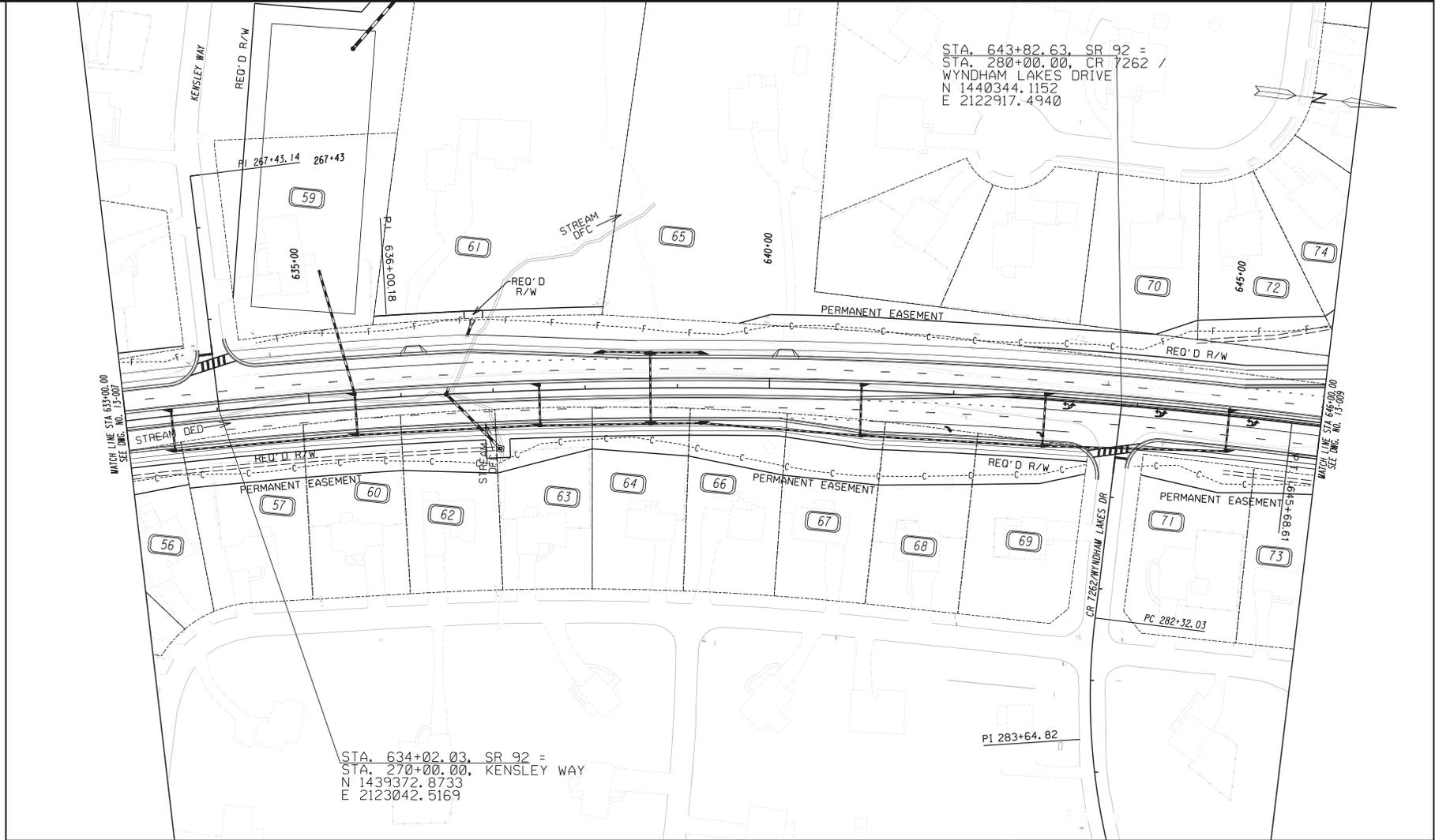
URS
 400 NORTH PARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 300
 ATLANTA, GEORGIA 30328
 TEL: (678) 808-8800 FAX: (678) 808-8400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO.
13-006



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

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 REQ'D R/W & LIMIT OF ACCESS

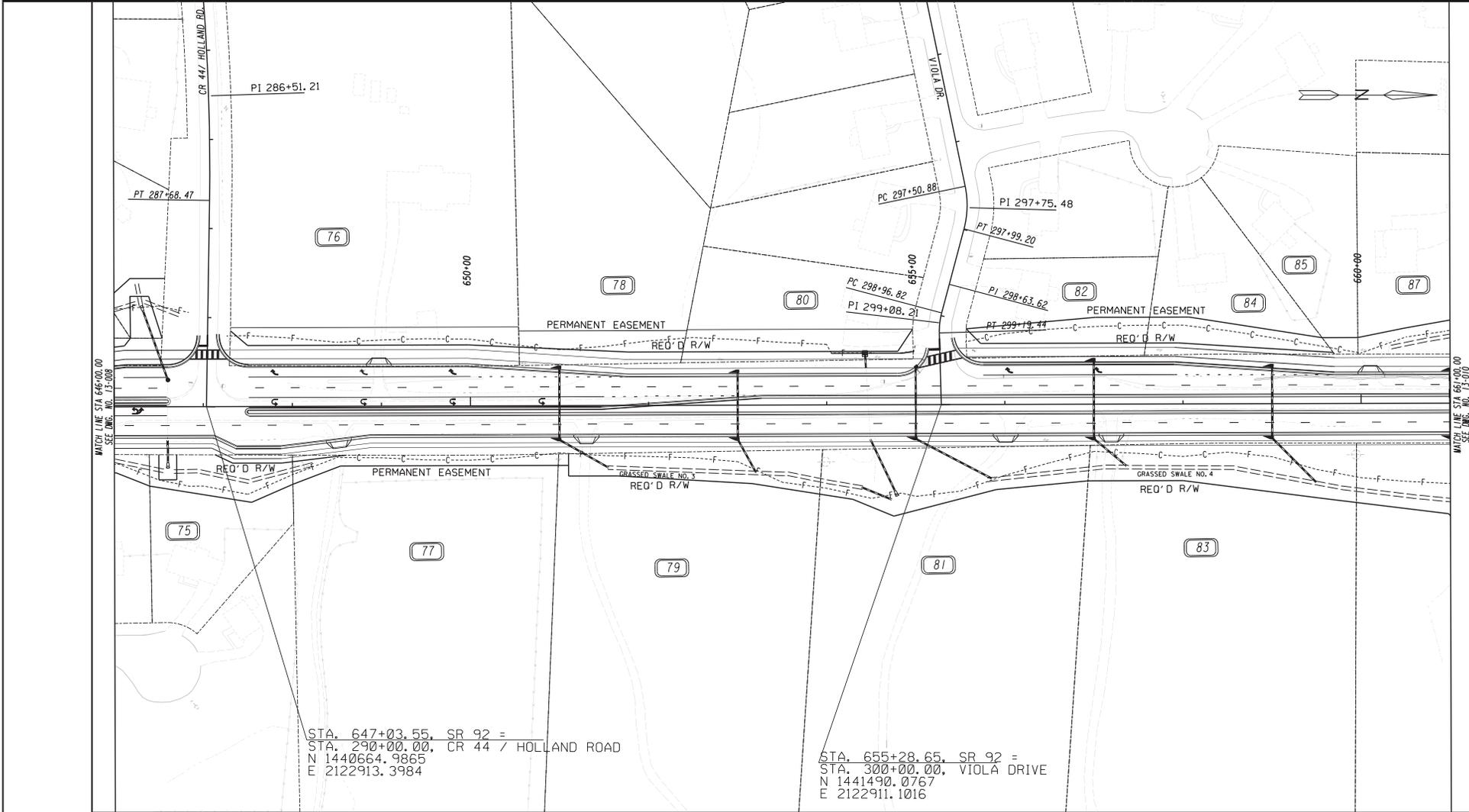
URS
 400 NORTHSPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: (478) 808-8800 FAX: (478) 808-8400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO. 13-008



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

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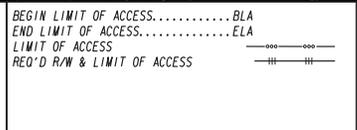
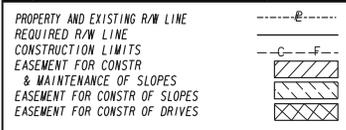
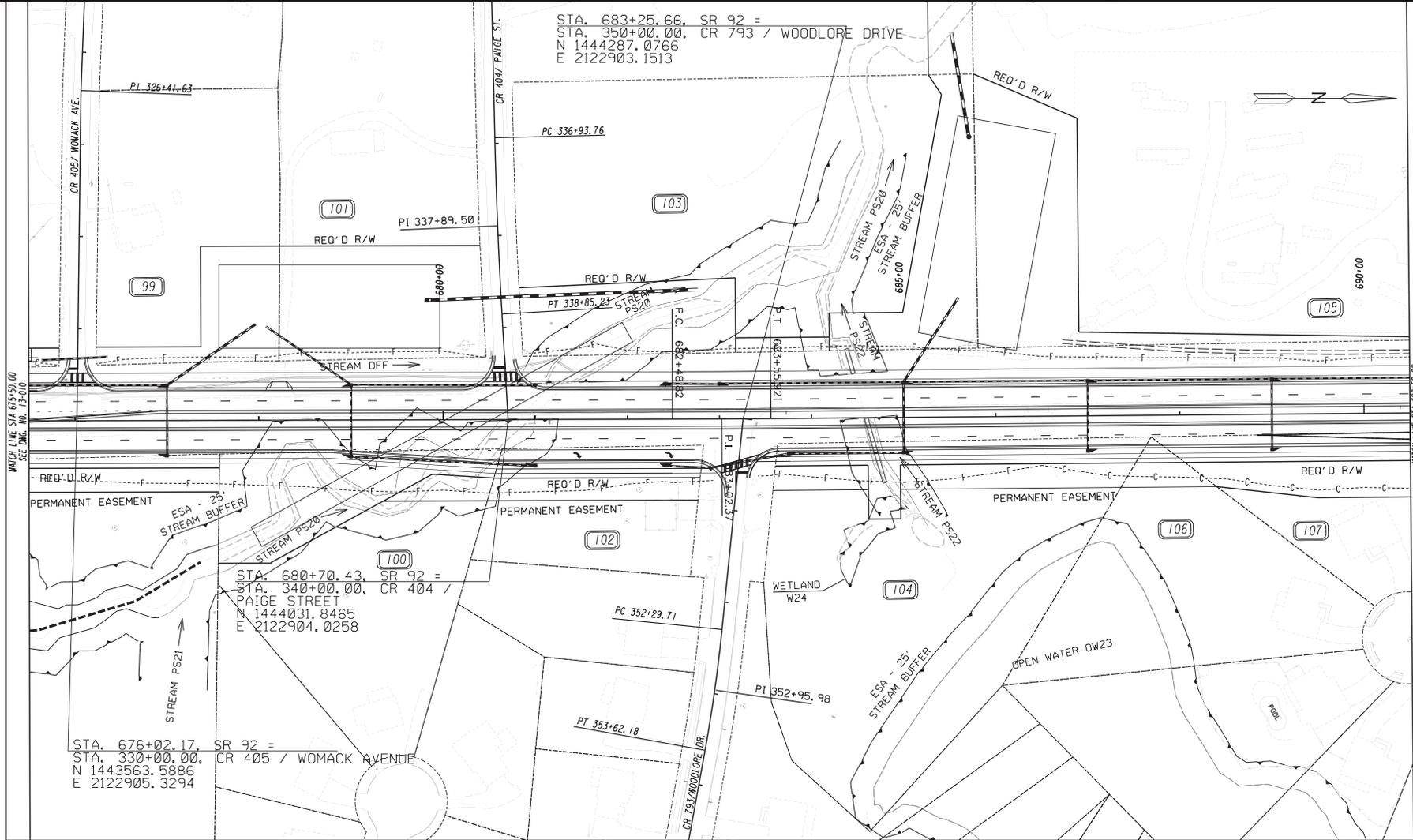
URS
 400 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: (404) 808-8800 FAX: (404) 808-8400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO.
13-009



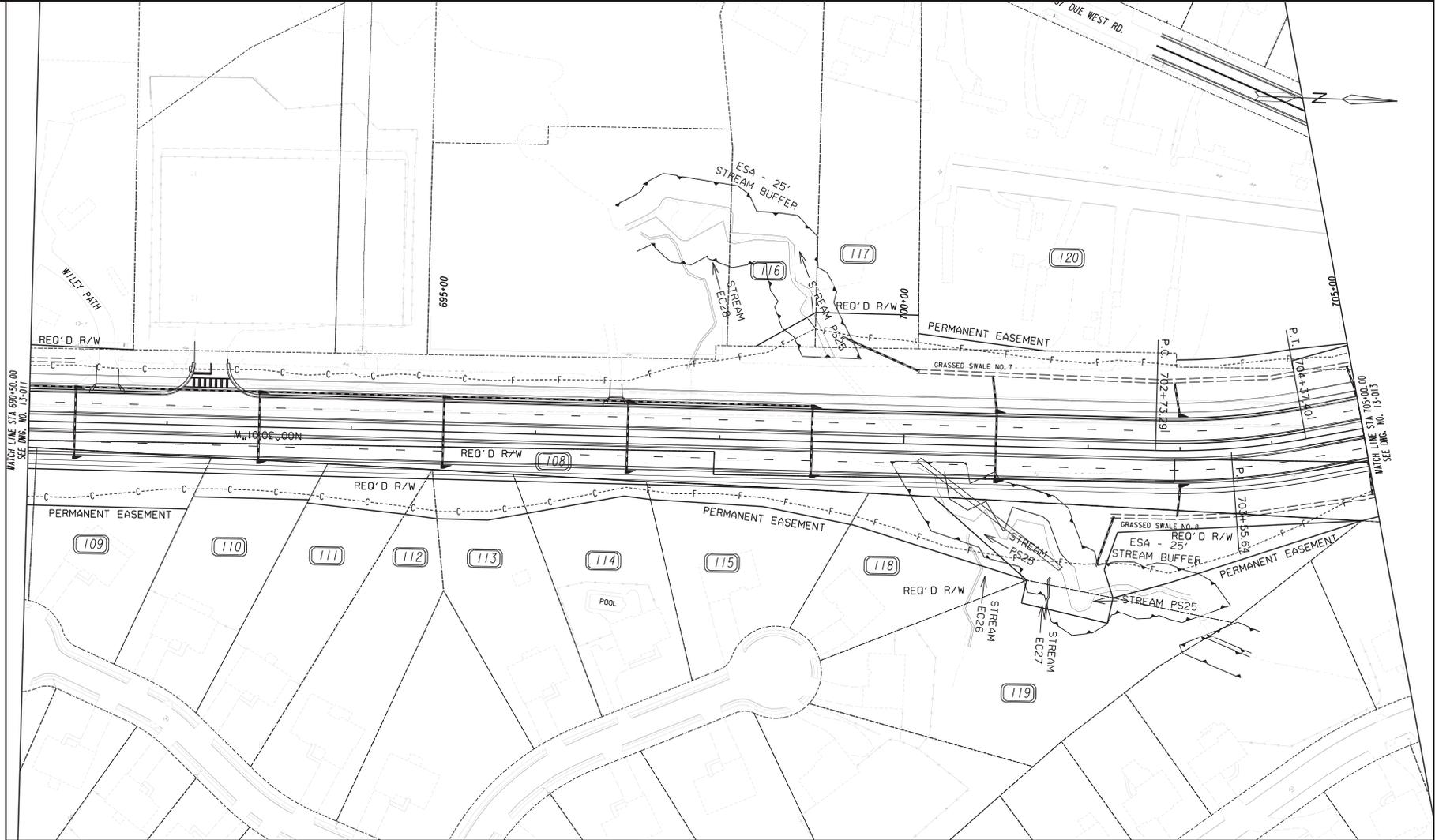
URS
 400 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: (478) 808-8600 FAX: (478) 808-8400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO.
 13-011



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

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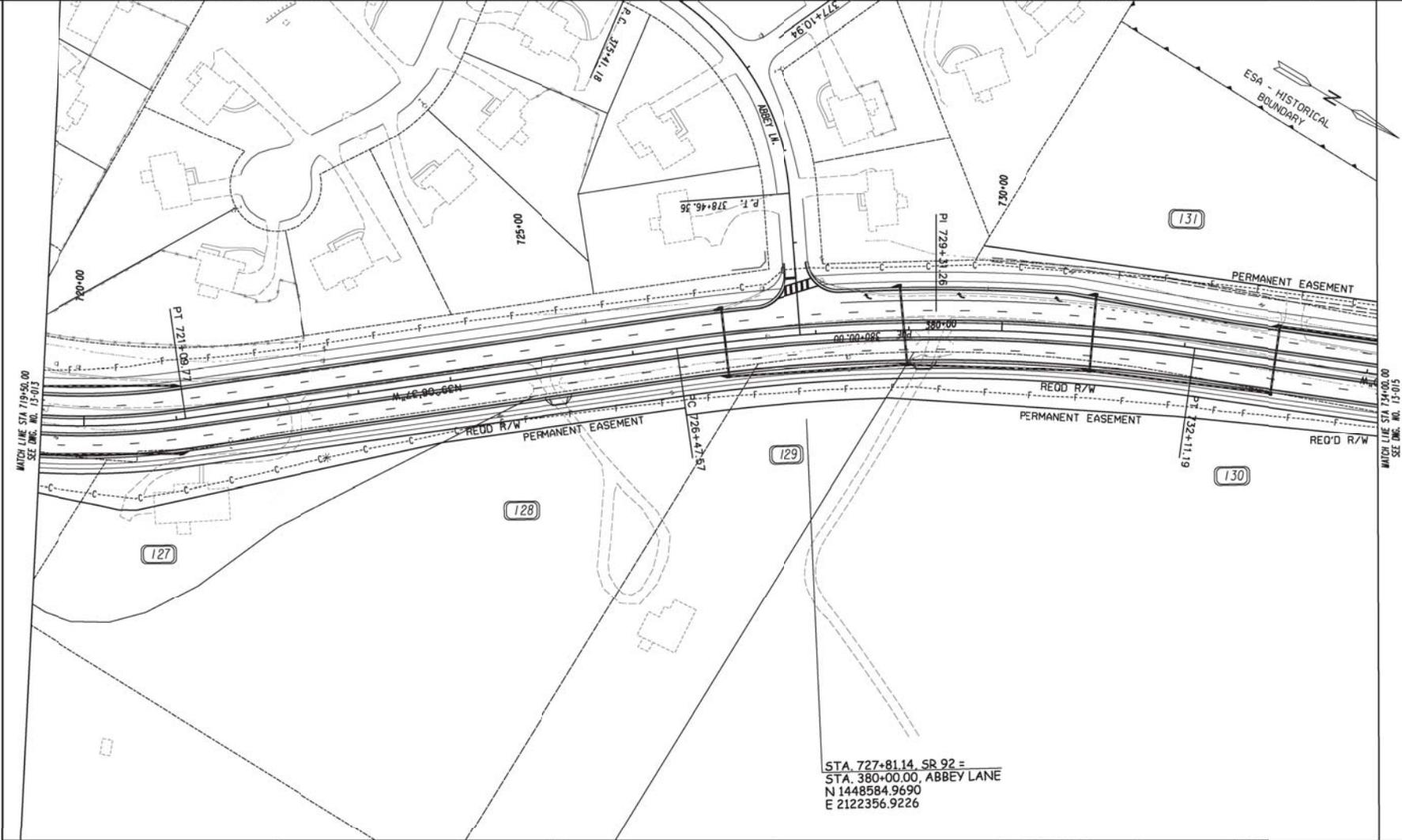
URS
 400 NORTH PARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: 1678 808-8600 FAX: 1678 808-8400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO.
13-012



STA. 727+81.14, SR 92 =
 STA. 380+00.00, ABBEY LANE
 N 1448584.9690
 E 2122356.9226

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS

URS
 400 NORTHSPARK TOWN CENTER
 1000 BERRY AVENUE, SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: (478) 808-8800 FAX: (478) 808-8400

SCALE IN FEET
 0 50 100 200

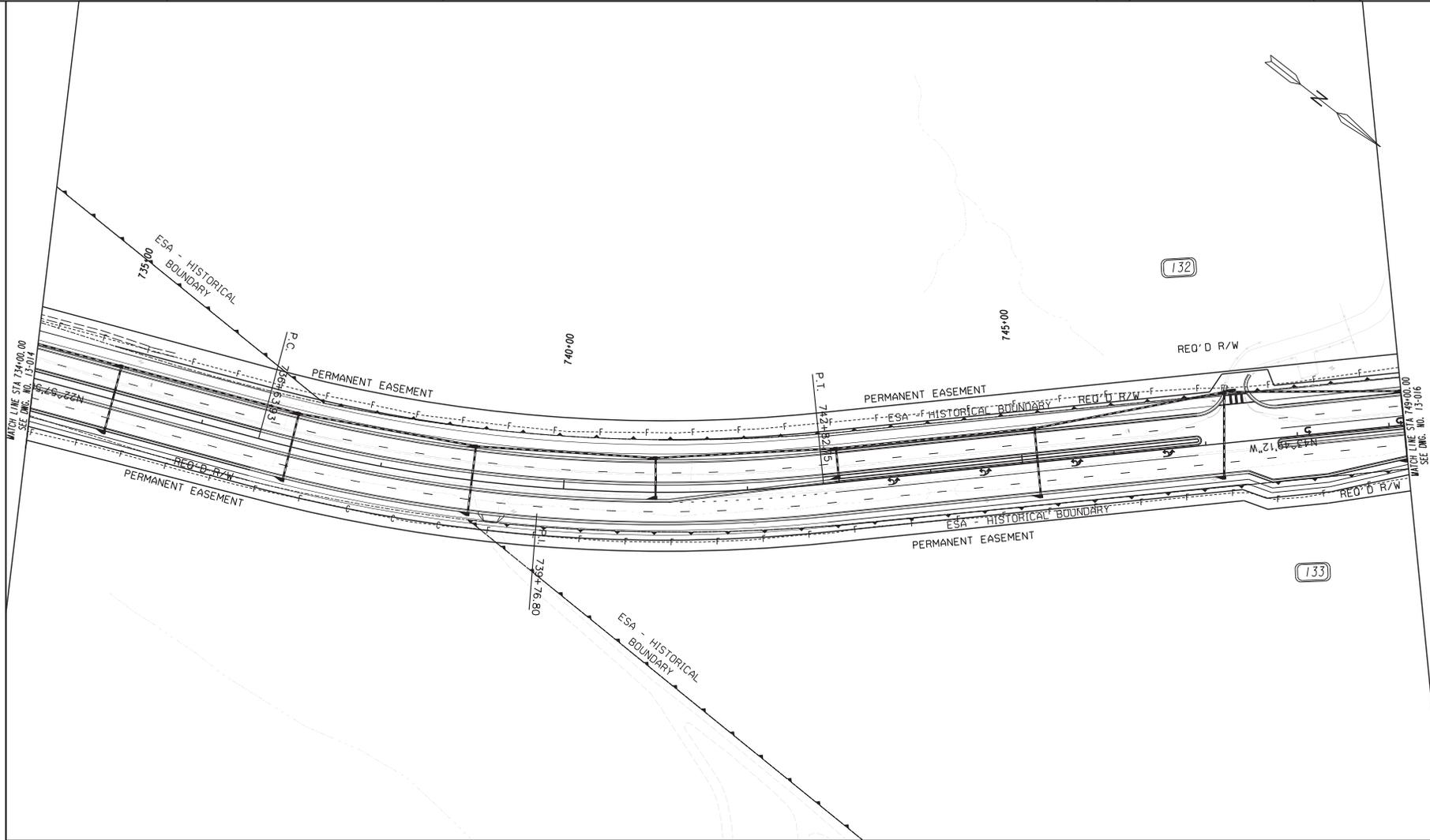
REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY

MAINLINE PLAN

SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO. 13-014



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

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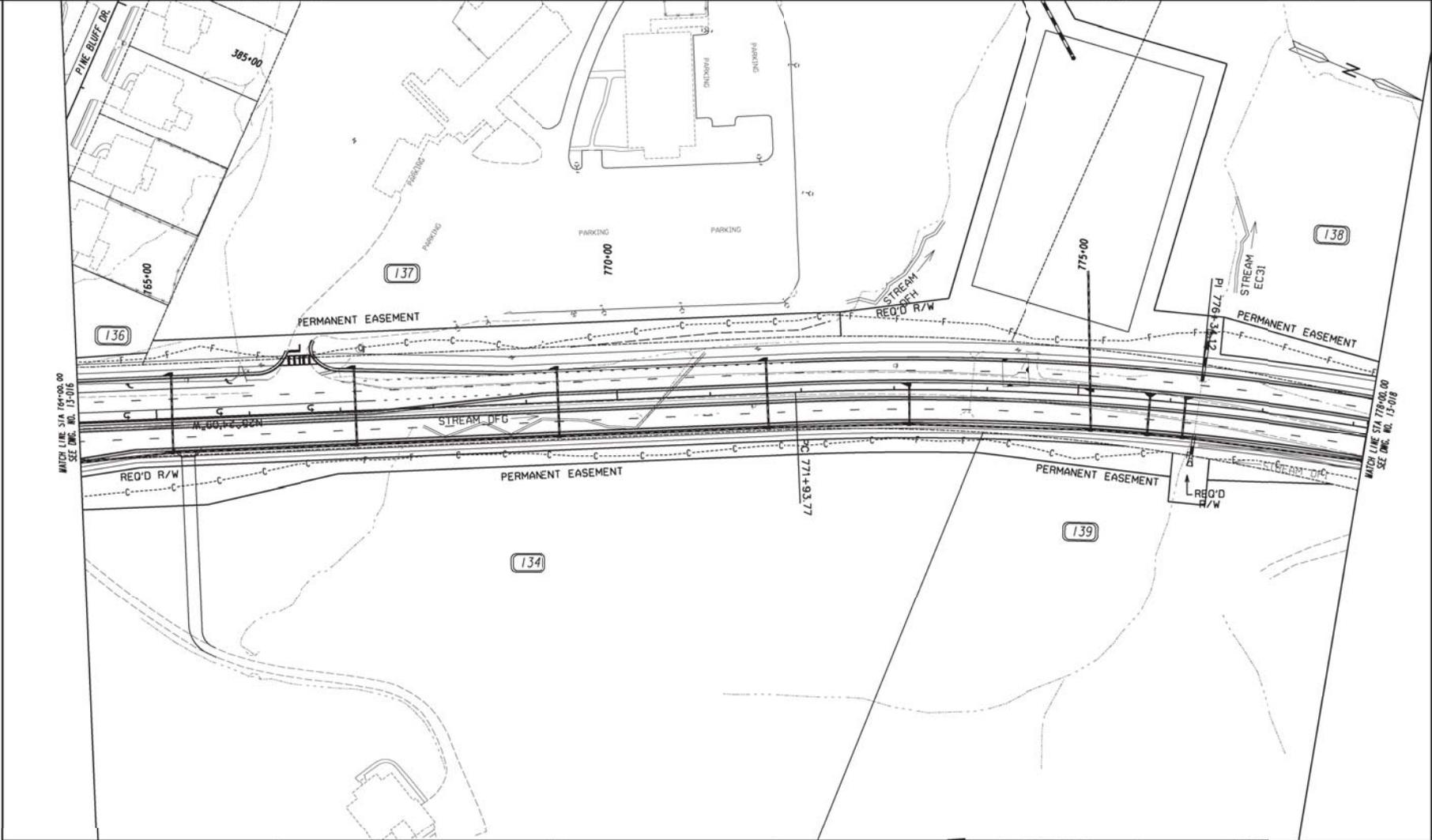
URS
 400 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 300
 ATLANTA, GEORGIA 30328
 TEL: (404) 808-8800 FAX: (404) 808-8400

SCALE IN FEET
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REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

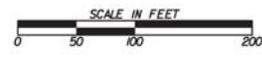
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PROPERTY AND EXISTING R/W LINE
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 & MAINTENANCE OF SLOPES
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 EASEMENT FOR CONSTR OF DRIVES

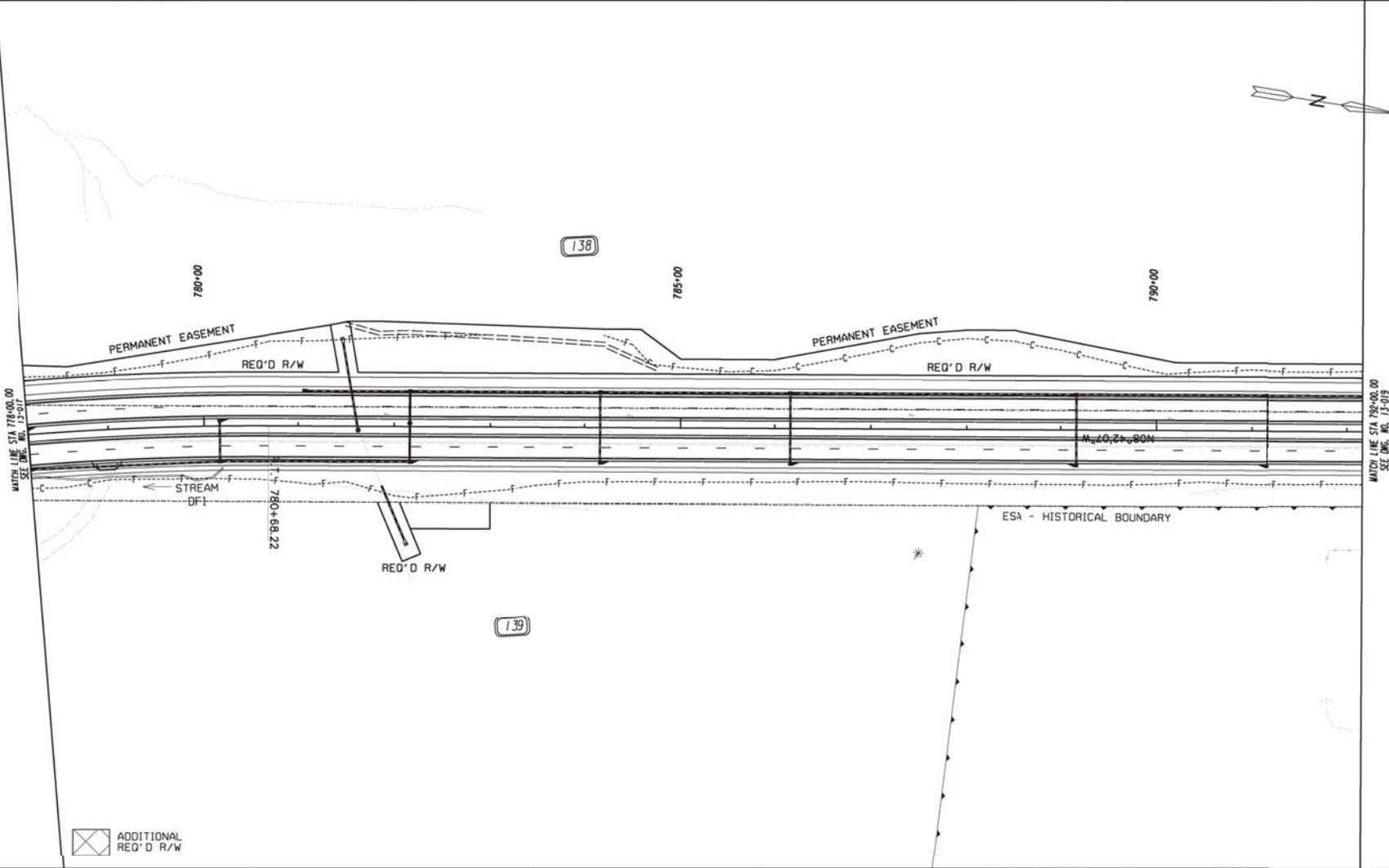
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URS
 400 NORTHPARK TOWN CENTER
 1000 BERRY AVENUE, SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: (478) 808-8800 FAX: (478) 808-8400



REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD
 DRAWING NO. 13-017

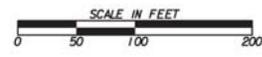


ADDITIONAL REQ'D R/W

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

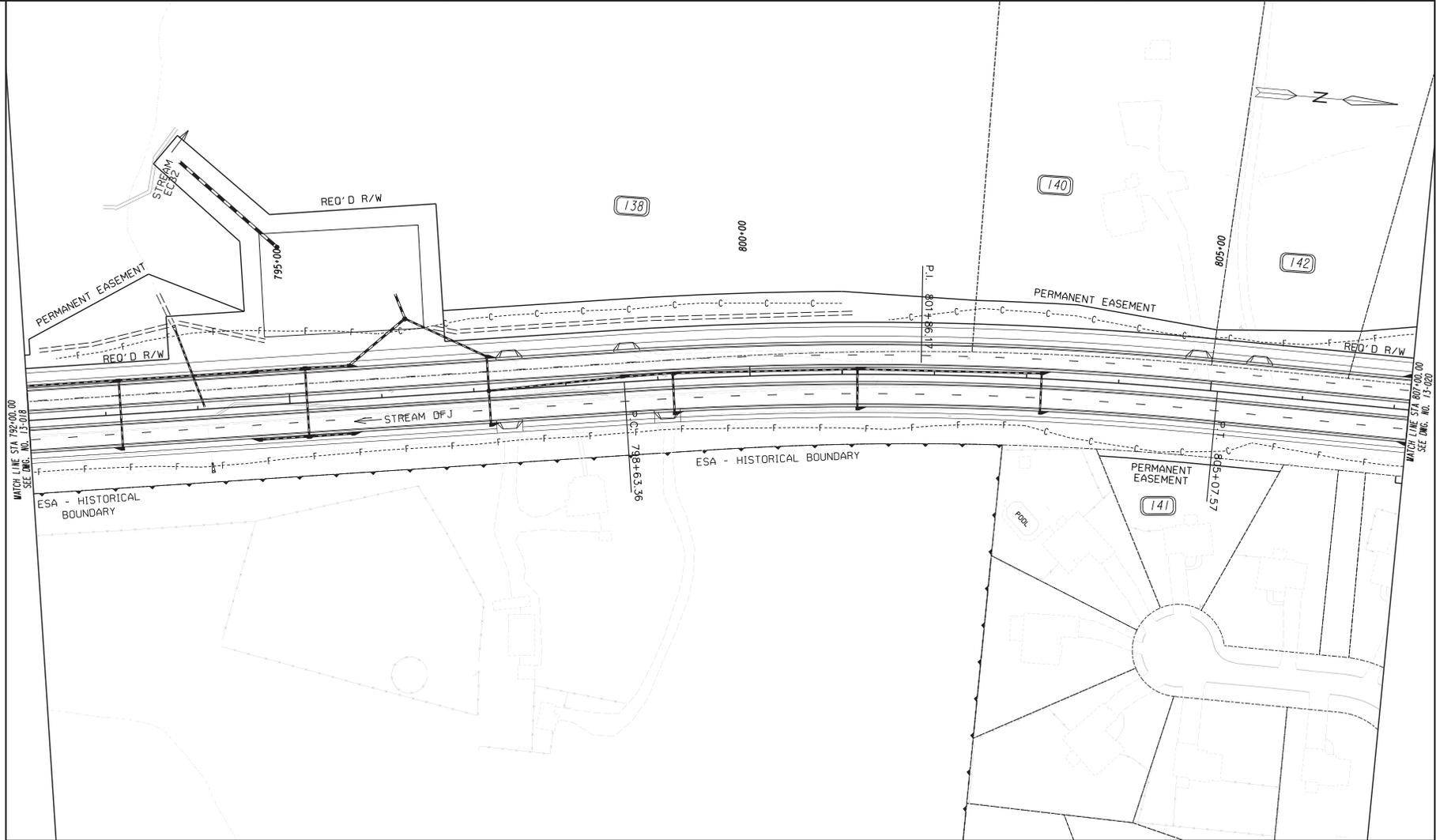
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URS
 400 NORTHPARK TOWN CENTER
 1000 BERNATY ROAD N.E. SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: 478-808-8800 FAX: 478-808-9400



REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD
 DRAWING NO. 13-018



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

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 REQ'D R/W & LIMIT OF ACCESS

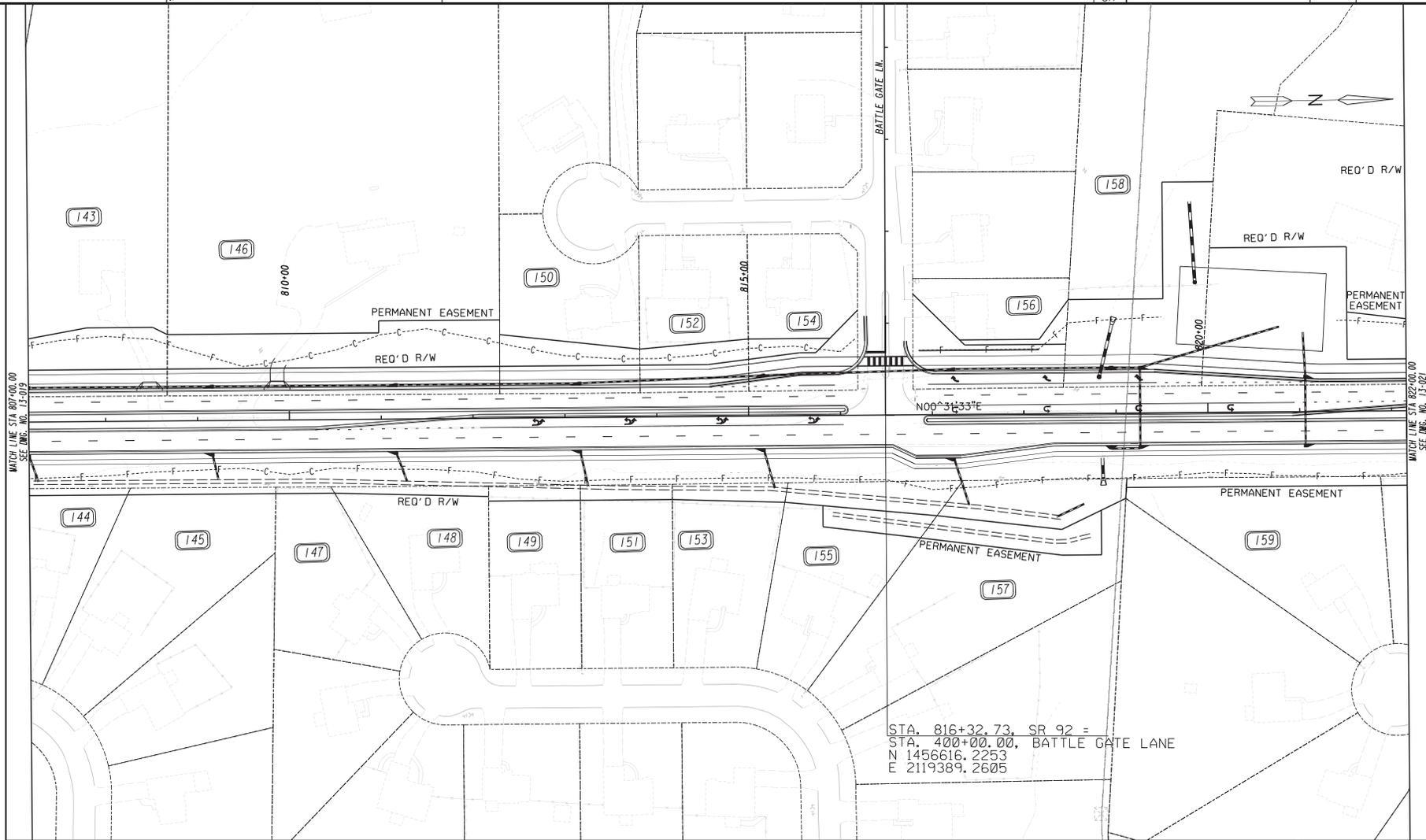
URS
 400 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: (404) 808-8800 FAX: (404) 808-8400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO.
13-019



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

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 REQ'D R/W & LIMIT OF ACCESS

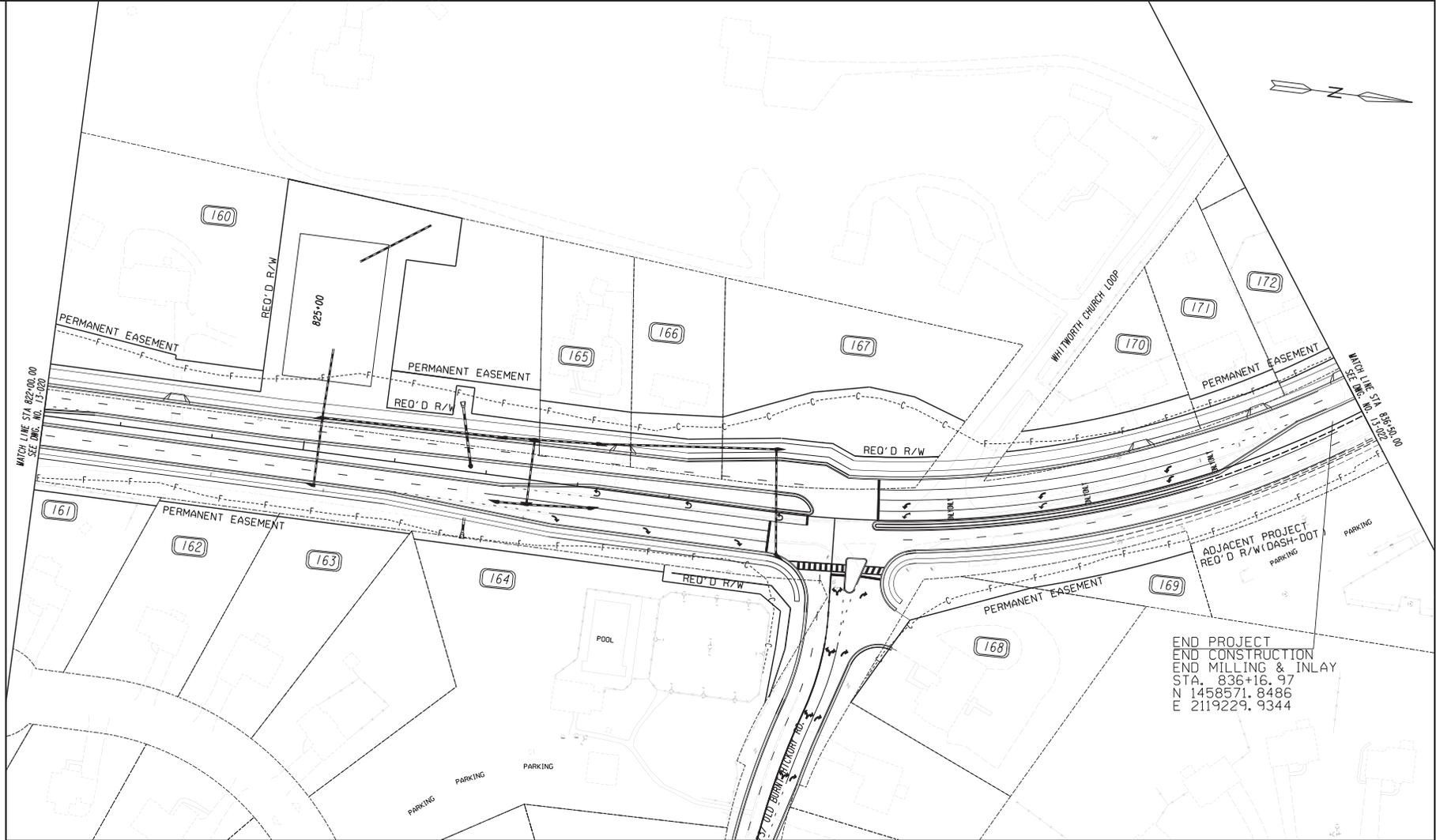
URS
 400 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 900
 ATLANTA, GEORGIA 30328
 TEL: (478) 808-8800 FAX: (478) 808-8400

SCALE IN FEET
 0 50 100 200

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

(DRAWING NO.)
 13-020



END PROJECT
 END CONSTRUCTION
 END MILLING & INLAY
 STA. 836+16.97
 N 1458571.8486
 E 2119229.9344

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

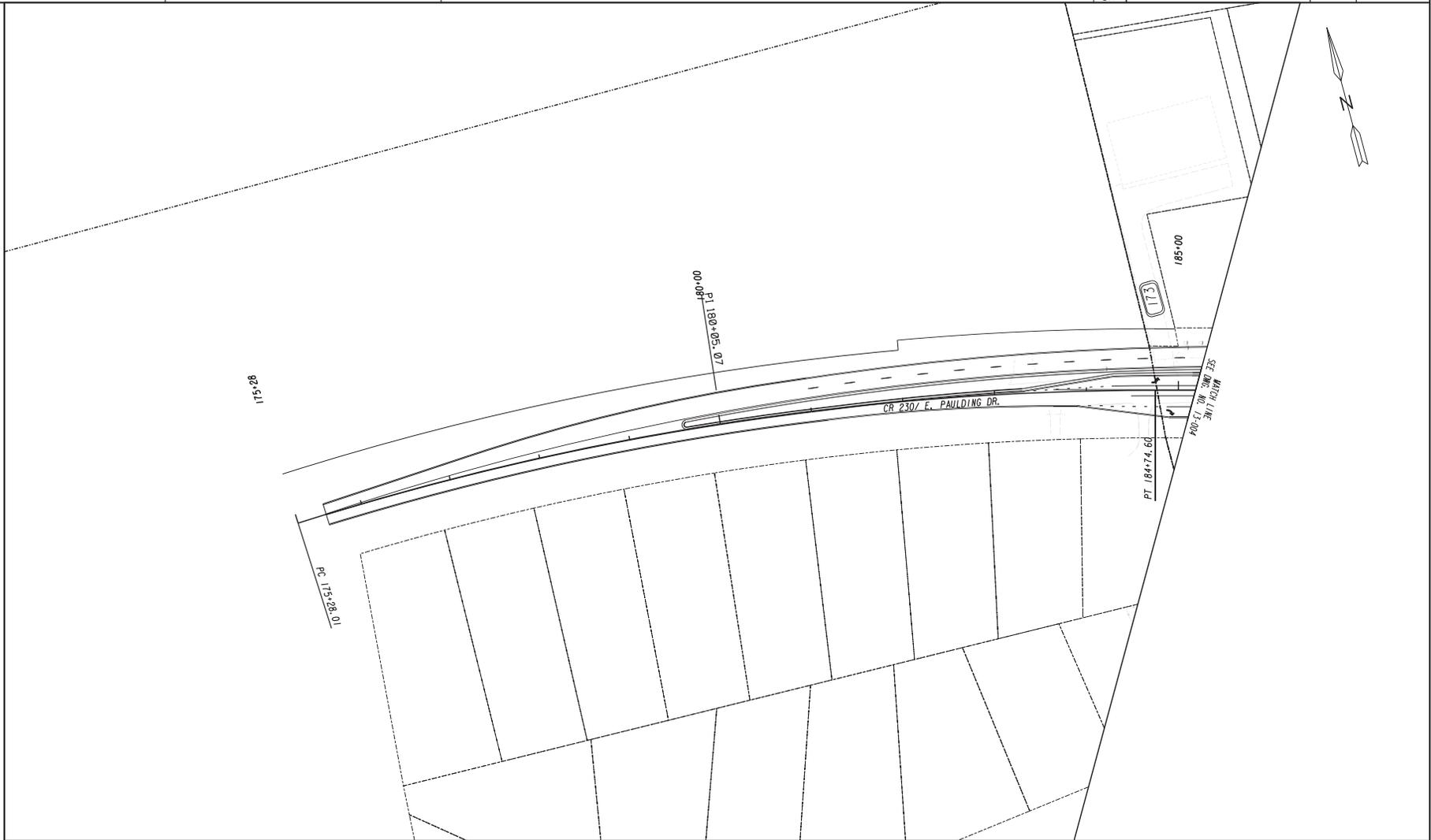
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 - C - - - F - - - LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS

URS
 400 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 300
 ATLANTA, GEORGIA 30328
 TEL: (478) 808-8600 FAX: (478) 808-8400

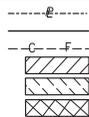
SCALE IN FEET
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REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD
 DRAWING NO. 13-021



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES



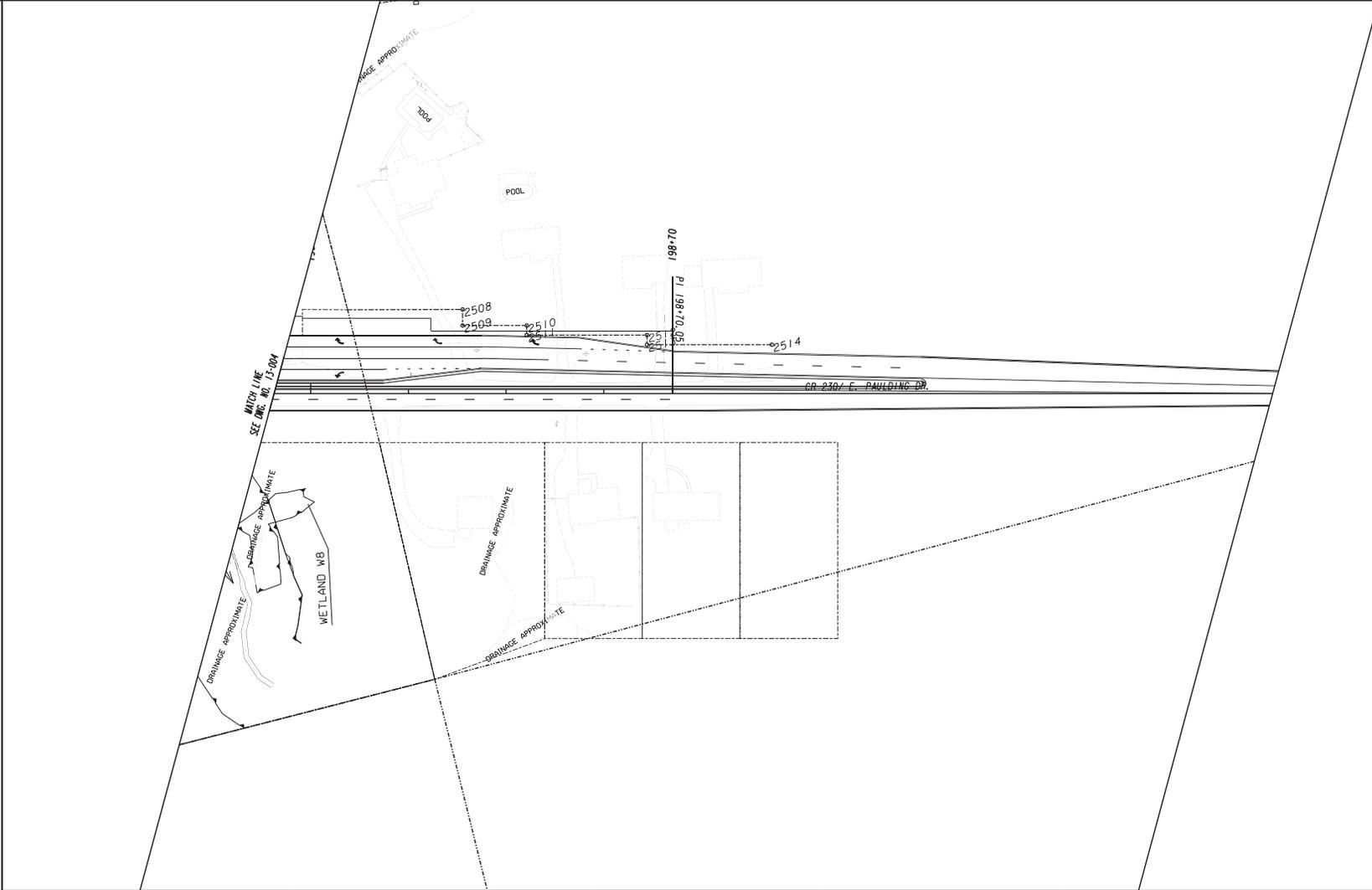
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 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS

URS
 400 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 300
 ATLANTA, GEORGIA 30328
 TEL: (404) 808-8600 FAX: (404) 808-8400



REVISION DATES	

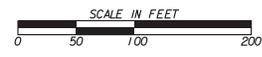
STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
CROSSROAD PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD
 DRAWING NO. 14-001



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----@----- BEGIN LIMIT OF ACCESS.....BLA
 -----C----- END LIMIT OF ACCESS.....ELA
 - - - - - F - - - - - LIMIT OF ACCESS
 REO'D R/W & LIMIT OF ACCESS

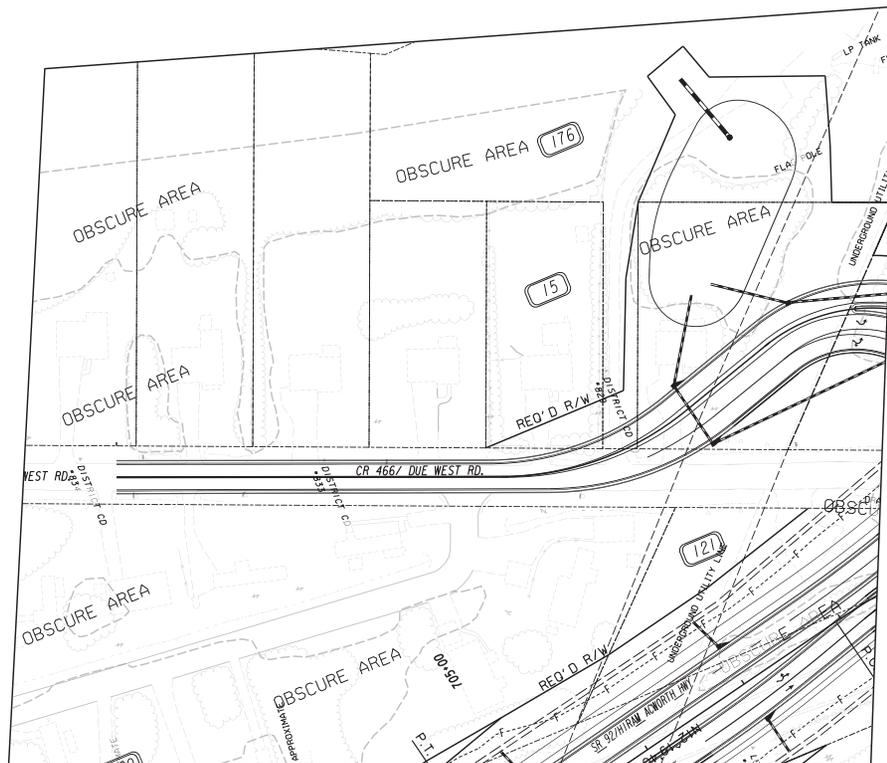
URS
 400 NORTHPARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E. SUITE 300
 ATLANTA, GEORGIA 30328
 TEL: 1678 808-8600 FAX: 1678 808-8400



REVISION DATES	

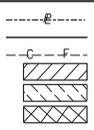
STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
CROSSROAD PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

DRAWING NO.
14-002



SEE Dwg. No. 13-013

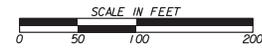
PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES



BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS



URS
 400 NORTH PARK TOWN CENTER
 1000 ABERNATHY ROAD, N.E., SUITE 900
 ATLANTA, GEORGIA 30309
 TEL: (404) 808-8800 FAX: (404) 808-8400



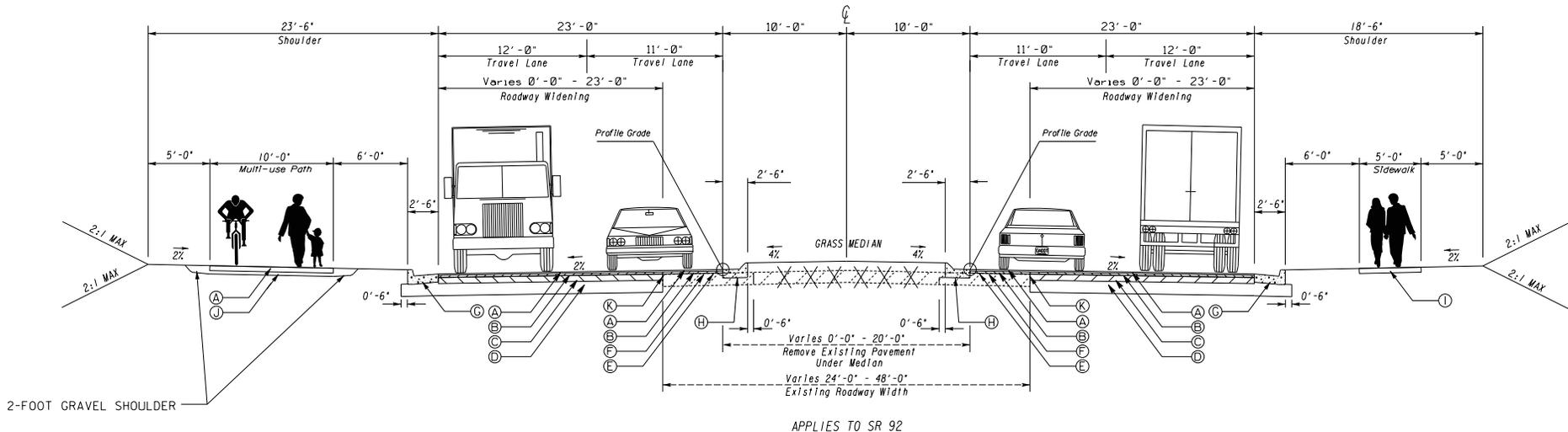
REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
MAINLINE PLAN
 SR 92 FROM SR 120
 TO CEDARCREST RD

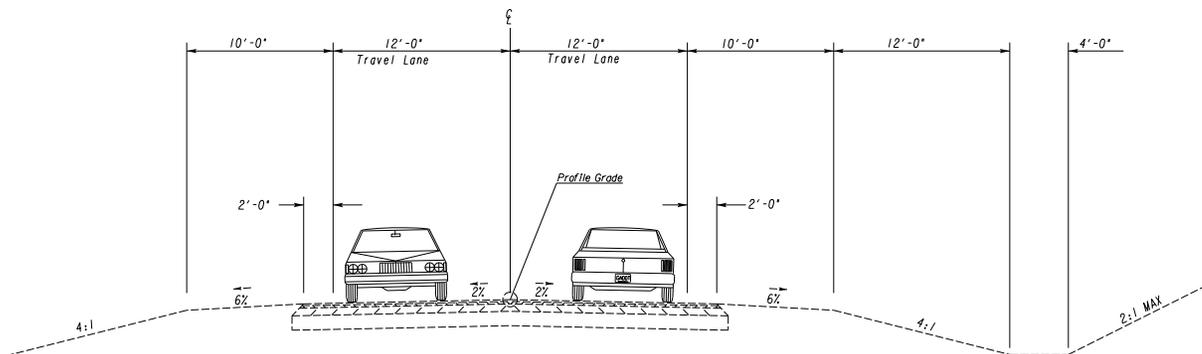
DRAWING NO.
14-003

Attachment 2
Typical Sections

Proposed Typical Section



Existing Typical Section



REQUIRED PAVEMENT

- (A) RECYCLED ASPH CONC 12.5 mm SUPERPAVE, GP 2 ONLY, INCL POLYMER-MODIFIED BITUM MATL & H LIME (165 LB/SY)
- (B) RECYCLED ASPH CONC 19 mm SUPERPAVE, GP1 OR 2, INCL BITUM MATL & H LIME (220 LB/SY)
- (C) RECYCLED ASPH CONC 25 mm SUPERPAVE, GP1 OR 2, INCL BITUM MATL & H LIME (660 LB/SY)
- (D) GRADED AGGREGATE BASE CRS, 12", INCL MATL
- (E) ASPHALTIC CONCRETE LEVELING, INCL BITUM MATL AND H LIME (AS REQ'D)
- (F) MILL ASPH CONC PVMT, 1 1/4" IN DEPTH

- (G) 8"X30" CONC. CURB & GUTTER, GA. STD. 9032 B, TYPE 2
- (H) 8"X24" CONC. CURB & GUTTER, GA. STD. 9032 B, TYPE 7
- (I) 4" CONC. SIDEWALK, GA. DETAIL A-3
- (J) GRADED AGGREGATE BASE CRS, 6", INCL MATL
- (K) PAVEMENT FABRIC MATERIAL

GEORGIA
DEPARTMENT
OF
TRANSPORTATION

URS

400 NORTH PARK TOWN CENTER
1000 ASPENHAY ROAD, N.E., SUITE 900
ATLANTA, GEORGIA 30329
TEL: (478) 808-8800 FAX: (478) 808-8400

N. T. S.

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY
TYPICAL SECTIONS

SR 92 FROM SR 120
TO CEDARCREST RD

DRAWING No.
05-001

Attachment 3
Detailed Cost Estimates

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE PROJECT No. , **OFFICE**

DATE

P.I. No.

FROM *Albert Skelby for*

TO Lisa L. Myers, Project Review Engineer

SUBJECT REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER

MNGT LET DATE

MNGT R/W DATE

PROGRAMMED COST (TPro W/OUT INFLATION)

CONSTRUCTION \$

RIGHT OF WAY \$

UTILITIES \$

LAST ESTIMATE UPDATE

DATE

DATE

DATE

REVISED COST ESTIMATES

CONSTRUCTION* \$

RIGHT OF WAY \$

UTILITIES \$

* Costs contain % Engineering and Inspection

REASON FOR COST INCREASE

Annual update based on conceptual plans and more detailed design. This estimate includes roundabout item, e.g. lighting, and retaining walls.

CONTINGENCY SUMMARY

Construction Cost Estimate:	\$ 27,669,125	(Base Estimate)
Engineering and Inspection:	\$ 1,383,456	(Base Estimate x 5 %)
Total Liquid AC Adjustment	\$ 2,271,474	(From attached worksheet)
Construction Total:	\$ 31,324,055	

REIMBURSABLE UTILITY COST

Utility Owner

Reimbursable Cost

AT&T	\$190,300
CSXT	\$220,500

Attachments

STATE HIGHWAY AGENCY

DATE : 03/17/2014
 PAGE : 1

JOB ESTIMATE REPORT

JOB NUMBER : 0007692_A SPEC YEAR: 01
 DESCRIPTION: SR92 FROM SR120 TO CR473/CEDARCREST RD.

COST GROUPS FOR JOB 0007692_A

COST GROUP	DESCRIPTION	QUANTITY	PRICE	AMOUNT	ACTIVE?
MISC	EXTEND 6' X 6' CLVT (LS) (STA.556+50)	1.000	65000.00000	65000.00	Y
MISC	EXTEND 8' X 7' CLVT (LS) (STA.680+75)	1.000	132000.00000	132000.00	Y
MISC	EXTEND 4' X 4' CLVT (LS) (STA.684+50)	1.000	31000.00000	31000.00	Y
UDEF	REINSTALL (1) TRAFFIC SIGNALS (EA)	1.000	150000.00000	150000.00	Y
LTNG	LIGHTING (~10/ROUNDAABOUT, 3 ROUNDAABOUTS)(EA)	40.000	15000.00000	600000.00	Y
UDEF	LANDSCAPING (FOR CENTER ISLAND OF ROUNDAABOUTS(3)) (LS)	1.000	175000.00000	175000.00	Y
MISC	CONSPAN ARCH CLVT 6'X24' (STA.681+75)	1.000	1350000.00000	1350000.00	Y
MISC	EXTEND 5' X 6' CLVT (LS) (STA.700+00)	1.000	62000.00000	62000.00	Y
SGNL	OVERHEAD HAWK SIGNALS (PER ROUNDAABOUT)	4.000	150000.00000	600000.00	Y
MISC	POND GRADING AND PAY ITEMS	13.000	115385.00000	1500005.00	Y
ACTIVE COST GROUP TOTAL				4665005.00	
INFLATED COST GROUP TOTAL				4665005.00	

ITEMS FOR JOB 0007692_A

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - 0007692	1.000	1000000.00	1000000.00
0009	153-1100		EA	FIELD ENGINEERS OFFICE TP 1	1.000	95000.00	95000.00
0010	163-0232		AC	TEMPORARY GRASSING	110.000	600.00	66000.00
0015	163-0240		TN	MULCH	990.000	138.99	137603.54
0019	163-0300		EA	CONSTRUCTION EXIT	4.000	1339.47	5357.90
0020	163-0503		EA	CONSTR AND REMOVE SILT CONTROL GATE, TP 3	4.000	427.36	1709.48
0024	163-0527		EA	CNST/REM RIP RAP CKDM, STN P RIPRAP/SN BG	6.000	263.78	1582.68
0029	163-0528		LF	CONSTR AND REM FAB CK DAM -TP C SLT FN	900.000	2.61	2351.42
0030	163-0529		LF	CNST/REM TEMP SED BAR OR BLD STRW CK DM	7000.000	3.34	23415.91
0034	163-0550		EA	CONS & REM INLET SEDIMENT TRAP	478.000	119.94	57331.61
0035	165-0030		LF	MAINT OF TEMP SILT FENCE, TP C	27000.000	0.62	16758.36
0039	165-0041		LF	MAINT OF CHECK DAMS - ALL TYPES	900.000	1.00	906.53
0040	165-0071		LF	MAINT OF SEDIMENT BARRIER - BALED STRAW	3500.000	0.88	3104.99
0044	165-0087		EA	MAINT OF SILT CONTROL GATE, TP 3	4.000	101.19	404.79
0045	165-0101		EA	MAINT OF CONST EXIT	4.000	413.87	1655.51

0049	165-0105	EA	MAINT OF INLET SEDIMENT TRAP	478.000	47.14	22537.31
0050	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000	236.18	472.37
0054	167-1500	MO	WATER QUALITY INSPECTIONS	24.000	384.05	9217.28
0055	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	54000.000	2.49	134861.22

STATE HIGHWAY AGENCY

DATE : 03/17/2014
PAGE : 2

JOB ESTIMATE REPORT

0075	207-0203	CY	FOUND BKFILL MATL, TP II	290.000	36.99	10729.28
0079	210-0100	LS	GRADING COMPLETE - 0007692	1.000	3714262.00	3714262.00
0080	310-1101	TN	GR AGGR BASE CRS, INCL MATL	140000.000	15.50	2170000.00
0085	318-3000	TN	AGGR SURF CRS	1300.000	16.19	21048.16
0090	402-1802	TN	RECYL AC PATCHING, INCL BM&HL	215.000	99.84	21466.14
0095	402-1812	TN	RECYL AC LEVELING, INC BM&HL	26000.000	70.12	1823120.00
0100	402-3121	TN	RECYL AC 25MM SP, GP1/2, BM&HL	62400.000	50.50	3151200.00
0105	402-3190	TN	RECYL AC 19 MM SP, GP 1 OR 2 , INC BM&HL	20800.000	61.00	1268800.00
0110	402-4510	TN	RECYL AC 12.5 MM SP, GP2ONLY, INC P-MBM&HL	23400.000	65.20	1525680.00
0115	407-0010	LF	ASPH-RUB JOINT/CRACK SEAL TP M	28600.000	1.20	34505.33
0120	413-1000	GL	BITUM TACK COAT	25740.000	2.28	58687.20
0125	430-0200	SY	PLN PC CONC PVMT/CL1C/ 10" TK	2340.000	40.00	93600.00
0130	432-0208	SY	MILL ASPH CONC PVMT/ 2" DEP	39650.000	2.53	100710.21
0135	441-0016	SY	DRIVEWAY CONCRETE, 6 IN TK	4030.000	25.40	102370.10
0140	441-0018	SY	DRIVEWAY CONCRETE, 8 IN TK	1950.000	41.98	81865.41
0145	441-0104	SY	CONC SIDEWALK, 4 IN	17160.000	32.00	549120.00
0150	441-0600	CY	CONC HEADWALLS	36.000	890.00	32040.00
0155	441-0748	SY	CONC MEDIAN, 6 IN	3100.000	35.00	108500.00
0160	441-4020	SY	CONC VALLEY GUTTER, 6 IN	4355.000	27.42	119440.80
0165	441-4030	SY	CONC VALLEY GUTTER, 8 IN	1885.000	33.11	62425.19
0170	441-5008	LF	CONC HEADER CURB, 6 IN, TP 7	2170.000	11.83	25691.91
0175	441-5025	LF	CONC HEADER CURB, 4", TP 9	2483.000	11.00	27313.00
0180	441-6222	LF	CONC CURB & GUTTER/ 8"X30"TP2	80080.000	10.50	840840.00
0185	441-6740	LF	CONC CURB & GUTTER/ 8"X30" TP7	30953.000	14.50	448818.50
0190	446-1100	LF	PVMT REF FAB STRIPS, TP2, 18 INCH WIDTH	71500.000	3.56	254540.00
0194	500-3101	CY	CLASS A CONCRETE	1144.000	372.64	426303.16
0195	511-1000	LB	BAR REINF STEEL	55000.000	0.73	40575.15
0199	500-3107	CY	CL A CONC, RET WALL	700.000	750.00	525000.00
0200	500-3201	CY	CL B CONC, RET WALL	242.000	399.97	96793.94
0205	500-9999	CY	CL B CONC, BASE OR PVMT WIDEN	1430.000	119.66	171117.27
0209	511-1000	LB	BAR REINF STEEL	50000.000	0.74	37202.50
0210	550-1180	LF	STM DR PIPE 18", H 1-10	26000.000	27.00	702000.00
0215	550-1181	LF	STM DR PIPE 18", H 10-15	2990.000	25.63	76651.91
0220	550-1240	LF	STM DR PIPE 24", H 1-10	9880.000	29.57	292191.91
0225	550-1360	LF	STM DR PIPE 36", H 1-10	7410.000	49.95	370129.65
0230	550-1480	LF	STM DR PIPE 48", H 1-10	2210.000	83.44	184413.76
0235	550-4224	EA	FLARED END SECT 24 IN, ST DR	65.000	479.82	31188.41
0240	603-2180	SY	STN DUMPED RIP RAP, TP 3, 12"	2210.000	22.24	49172.37
0245	603-2181	SY	STN DUMPED RIP RAP, TP 3, 18"	3510.000	23.78	83487.32
0250	603-7000	SY	PLASTIC FILTER FABRIC	5720.000	3.25	18599.67

0255	610-9099	LS	REM WINGWALLS/PARAPETS, STA - (3)LOCATIONS	1.000	10000.00	10000.00
0260	634-1200	EA	RIGHT OF WAY MARKERS	350.000	86.90	30417.19
0265	636-1020	SF	HWY SGN,TP1MAT,REFL SH TP3	709.000	12.28	8710.02
0270	636-1033	SF	HWY SIGNS, TP1MAT,REFL SH TP 9	2275.000	16.16	36773.76
0275	636-2070	LF	GALV STEEL POSTS, TP 7	3510.000	6.69	23500.40
0280	639-2001	LF	STEEL WIRE STRAND CABLE, 1/4"	2260.000	2.13	4819.31
0285	639-5000	EA	PRESTRESSED CONC STR POLE, TP- 3 LOCATIONS	18.000	5474.24	98536.34
0290	643-8200	LF	BARRIER FENCE (ORANGE), 4 FT	4550.000	1.27	5792.97
0295	647-1000	LS	TRAF SIGNAL INSTALLATION NO - LOCATION	1.000	60000.00	60000.00

STATE HIGHWAY AGENCY

DATE : 03/17/2014
PAGE : 3

JOB ESTIMATE REPORT

0299	647-1000	LS	1 TRAF SIGNAL INSTALLATION NO - LOCATION	1.000	60000.00	60000.00
0305	653-0120	EA	2 THERM PVMT MARK, ARROW, TP 2	338.000	65.00	21973.17
0310	653-0130	EA	THERM PVMT MARK, ARROW, TP 3	26.000	81.53	2120.01
0315	653-0210	EA	THERM PVMT MARK, WORD , TP 1	39.000	104.30	4067.99
0320	653-1501	LF	THERMO SOLID TRAF ST 5 IN, WHI	100100.000	0.34	34476.44
0325	653-1502	LF	THERMO SOLID TRAF ST, 5 IN YEL	36400.000	0.41	15096.90
0330	653-1704	LF	THERM SOLID TRAF STRIPE,24",WH	11440.000	3.59	41165.70
0335	653-1804	LF	THERM SOLID TRAF STRIPE, 8",WH	57200.000	1.72	98456.64
0340	653-3501	GLF	THERMO SKIP TRAF ST, 5 IN, WHI	74360.000	0.23	17687.27
0345	653-6004	SY	THERM TRAF STRIPING, WHITE	4784.000	2.94	14073.76
0350	653-6006	SY	THERM TRAF STRIPING, YELLOW	3003.000	2.93	8806.03
0355	654-1001	EA	RAISED PVMT MARKERS TP 1	221.000	3.45	763.72
0360	654-1003	EA	RAISED PVMT MARKERS TP 3	1287.000	3.13	4036.56
0365	668-1100	EA	CATCH BASIN, GP 1	377.000	1913.66	721451.27
0370	668-2100	EA	DROP INLET, GP 1	65.000	1847.59	120093.84
0375	668-4300	EA	STORM SEW MANHOLE, TP 1	36.000	1613.99	58103.76
0380	700-6910	AC	PERMANENT GRASSING	110.000	1000.00	110000.00
0385	700-7000	TN	AGRICULTURAL LIME	440.000	15.15	6666.36
0390	700-8000	TN	FERTILIZER MIXED GRADE	70.000	352.72	24690.46
0395	700-8100	LB	FERTILIZER NITROGEN CONTENT	5500.000	2.25	12375.00
0400	700-9300	SY	SOD	1500.000	3.83	5746.50
0405	710-9000	SY	PERM SOIL REINFORCING MAT	500.000	3.39	1698.24
0410	716-2000	SY	EROSION CONTROL MATS, SLOPES	12000.000	0.84	10148.88

ITEM TOTAL 23004119.59
INFLATED ITEM TOTAL 23004119.59

TOTALS FOR JOB 0007692_A

ESTIMATED COST: 27669124.64
CONTINGENCY PERCENT (0.0): 0.00
ESTIMATED TOTAL: 27669124.64

PROJ. NO.	CSSTP-0007-00(692)
P.I. NO.	0007692
DATE	8/27/2013

CALL NO.

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Sep-13	\$ 3.486
DIESEL		\$ 3.857
LIQUID AC		\$ 673.00

Link to Fuel and AC Index:
<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

LIQUID AC ADJUSTMENTS
 PA={((APM-APL)/APL)}xTMTxAPL
Asphalt
 Price Adjustment (PA) **2152254**
 Monthly Asphalt Cement Price month placed (APM) \$ 1,076.80
 Monthly Asphalt Cement Price month project let (APL) \$ 673.00
Total Monthly Tonnage of asphalt cement (TMT) 5330

LIQUID AC ADJUSTMENTS
 PA={((APM-APL)/APL)}xTMTxAPL
Asphalt
 Price Adjustment (PA) **2152254**
 Monthly Asphalt Cement Price month placed (APM) \$ 1,076.80
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 PA={((APM-APL)/APL)}xTMTxAPL
Asphalt
 Price Adjustment (PA) **2152254**
 Monthly Asphalt Cement Price month placed (APM) \$ 1,076.80
 Monthly Asphalt Cement Price month project let (APL) \$ 673.00
Total Monthly Tonnage of asphalt cement (TMT) 5330

ASPHALT	Tons	%AC	AC ton
Leveling	0	5.0%	0
12.5 OGFC	0	5.0%	0
12.5 mm	23400	5.0%	1170
9.5 mm SP	0	5.0%	0
25 mm SP	62400	5.0%	3120
19 mm SP	20800	5.0%	1040
	106600		5330

ASPHALT	Tons	%AC	AC ton
Leveling	0	5.0%	0
12.5 OGFC	0	5.0%	0
12.5 mm	23400	5.0%	1170
9.5 mm SP	0	5.0%	0
25 mm SP	62400	5.0%	3120
19 mm SP	20800	5.0%	1040
	106600		5330

BITUMINOUS TACK COAT
 Price Adjustment (PA) **44,642.47**
 Monthly Asphalt Cement Price month placed (APM) \$ 1,076.80
 Monthly Asphalt Cement Price month project let (APL) \$ 673.00
Total Monthly Tonnage of asphalt cement (TMT) 110.5558977

BITUMINOUS TACK COAT
 Price Adjustment (PA) **44,642.47**
 Monthly Asphalt Cement Price month placed (APM) \$ 1,076.80
 Monthly Asphalt Cement Price month project let (APL) \$ 673.00
Total Monthly Tonnage of asphalt cement (TMT) 110.5558977

Bitum Tack			
Gals	gals/ton	tons	
25740	232.8234	110.555898	

PROJ. NO.

P.I. NO.

DATE

CSSTP-0007-00(692)

0007692

8/27/2013

CALL NO.

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)	Max. Cap	60%	74577.55535	\$	74,577.56
Monthly Asphalt Cement Price month placed (APM)			\$	1,076.80	
Monthly Asphalt Cement Price month project let (APL)			\$	673.00	
Total Monthly Tonnage of asphalt cement (TMT)				184.6893396	

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.	215000	0.20	43000	232.8234	184.6893396
Double Surf.Trmt.	0	0.44	0	232.8234	0
Triple Surf. Trmt	0	0.71	0	232.8234	0
					184.6893396

TOTAL LIQUID AC ADJUSTMENT

\$ 2,271,474.03

**GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY**

Date: 10/10/2013 Project: CSSTP-0007-00(692)
 Revised: County: Paulding
 PI: 0007692

Description: SR 92 FM SR 120 to CR 473/Cedarcrest Rd segment 3 & 4
 Project Termini: SR 92 FM SR 120 to CR 473/Cedarcrest Rd segment 3 & 4

Existing ROW: Varies
 Required ROW: Varies
 Parcels: 222

Land and Improvements _____ \$12,675,000.00

Proximity Damage \$350,000.00
Consequential Damage \$0.00
Cost to Cures \$0.00
Trade Fixtures \$0.00
Improvements \$3,225,000.00

Valuation Services _____ \$417,500.00

Legal Services _____ \$1,424,850.00

Relocation _____ \$799,000.00

Demolition _____ \$25,000.00

Administrative _____ \$1,869,000.00

TOTAL ESTIMATED COSTS _____ \$17,210,350.00

TOTAL ESTIMATED COSTS (ROUNDED) _____ \$17,211,000.00

Preparation Credits	Hours	Signature

Prepared By: Dashone Alexander CG#: 286999 10/10/2013
 Approved By: Dashone Alexander CG#: 286999 10/10/2013

NOTE: No Market Appreciation is included in this Preliminary Cost Estimate

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE CSSTP-0007-00(692); Paulding Co. OFFICE Cartersville
P.I. No. 0007692
DATE October 3, 2013

FROM  Kerry D. Bonner
District Utilities Engineer

TO Genetha Rice-Singleton, State Program Delivery Engineer
ATTN: Jeremy Busby, Project Manager

SUBJECT UPDATED PRELIMINARY UTILITY COST ESTIMATE

As requested by your office, we are furnishing you with an Updated Preliminary Utility Cost estimate for each utility with facilities potentially located within the project limits.

FACILITY OWNER	NON- REIMBURSABLE	REIMBURSABLE
GreyStone Power		\$ 510,400.00
Atlanta Gas Light Company	\$ 2,959,000.00	\$ 132,000.00
AT&T - Georgia	\$ 2,750,000.00	\$ 1,750,000.00
Comcast	\$ 288,750.00	
Paulding County Water*	\$ 4,950,000.00	
Cobb County Water**	\$ 1,100,000.00	
Colonial Pipeline		\$ 2,750,000.00
Georgia Power Comp. - Trans.		\$ 220,000.00
Georgia Transmission Corp.		\$ 1,980,000.00
<hr/>		
Totals	\$ 12,047,750.00	\$ 7,297,400.00

Total cost for the above project is \$19,345,150.00.

*The reimbursable amount could increase by \$6,050,000.00 if Paulding County Water and Cobb County Water were to apply for utility assistance for the relocation of their facilities.

**Estimated cost for Cobb County Water - no response received after numerous attempts.

If you have any questions, please contact Jennifer Deems at 678-721-5323.

KDB/jd

C: Mike Bolden, State Utilities Engineer
File/Estimating Book

Attachment 4
Crash Summaries

SAFETY ANALYSIS

Existing safety performance along the corridor was evaluated to understand historic crash patterns. Descriptive crash statistics were developed to identify the existing safety performance of intersections and roadway segments within the study area. This information further assists in the development of recommendations for access management and intersection traffic control. The descriptive crash statistics were developed from four years of crash data (2006 to 2009).

CORRIDOR-LEVEL CRASH ASSESSMENT

During the four-year period, 506 reported crashes occurred along the SR 92 study corridor. Of the 506 total reported crashes, 374 were property damage only (PDO), 131 involved at least one injury, and there was one fatality. Table 2 summarizes the SR 92 crash history by year and Figure 4 displays the SR 92 corridor crash map.

Table 2. SR 92 Corridor, Crash Severity by Year

Year	Crash Severity			Total
	PDO	Injuries	Fatalities	
2006	102	46	1	149
2007	90	32	0	122
2008	91	38	0	129
2009	79	27	0	106
Total	362	143	1	506

Note: PDO = Property Damage Only

Table 3 displays the calculated corridor crash rate per 100-million vehicle miles traveled and compares the SR 92 performance against the Georgia statewide crash rate per 100-million vehicle miles for total crashes, injury crashes and fatal crashes by year.

Table 3. SR 92 Corridor Historical Crash Rates

Corridor Crash Rate (Crashes per 100 million vehicle-miles traveled) (Georgia Statewide Crash Rate in parenthesis)			
	Crashes*	Injuries*	Fatalities*
2006	455 (531)	126 (132)	4 (1.38)
2007	420 (514)	104 (126)	0 (1.34)
2008	467 (471)	137 (116)	0 (1.33)
2009	400 (463)	86 (114)	0 (1.05)

Bold text indicates crash rates that exceed the Georgia Statewide crash rate

*Statewide Average Crash rate reflects Urban Minor Arterials

Source: GDOT Statewide Mileage, Travel, and Accident Data – 2006-2009

As seen in Table 3, with the exception of injury crashes in 2008, the corridor crash rate is lower than the Georgia statewide average crash rate for total crashes and injury crashes in all four years analyzed. The fatal crash rate exceeds the Georgia fatal crash rate in 2006, when there was one recorded fatality on the corridor, and is less than the Georgia fatal crash rate from 2007 to 2009 when no fatalities were recorded.

To assist in identifying clear trends, the crash data were further disaggregated to consider where, when, and how these crashes occurred based on a segment and intersection level. The information gained from this analysis is summarized in the following discussion.

SEGMENT-LEVEL CRASH ASSESSMENT

In order to better isolate the location of crashes within the study area, the corridor was divided into four segments (not including major signalized intersections) based on roadway characteristics such as horizontal alignment, grades, and access density. The four sections are listed below, and the crash severity by segment is shown in Table 4 and visually in Figure 2.

Table 4. SR 92, Crash Severity by Segment, Years 2006 to 2009

Crash Severity by Segment					
Section	Section Length (miles)	Severity			Total
		Sum of PDO ¹	Sum of Injuries	Sum of Fatalities	
A. SR 120 to Paulding Drive	1.3	47	17	1	65
B. Paulding Road to Viola Drive	1.33	47	17	0	64
C. Viola Drive to Due West Road	1.03	10	8	0	18
D. Due West Road to Old Burnt Hickory Road	1.97	25	4	0	29

¹ Property Damage Only
 Does not include crashes at signalized intersections

As indicated in Table 4, the majority of the crashes occur within the southern portion of SR 92 between SR 120 and Viola Drive (Segment A and Segment B). The majority of these crashes were rear end collisions with 43 in Segment A and 34 in Segment B. In addition, a large number of single-vehicle crashes (“Not a Collision with Another Motor Vehicle”) occurred on these segments with nine crashes of this type in Segment A and 15 in Segment B. Because of the variation in lengths of the segments, the data was converted into a crash density value (number of crashes per mile per year) to allow for easier comparison of relative safety performance along the corridor. This information is presented in Table 5.

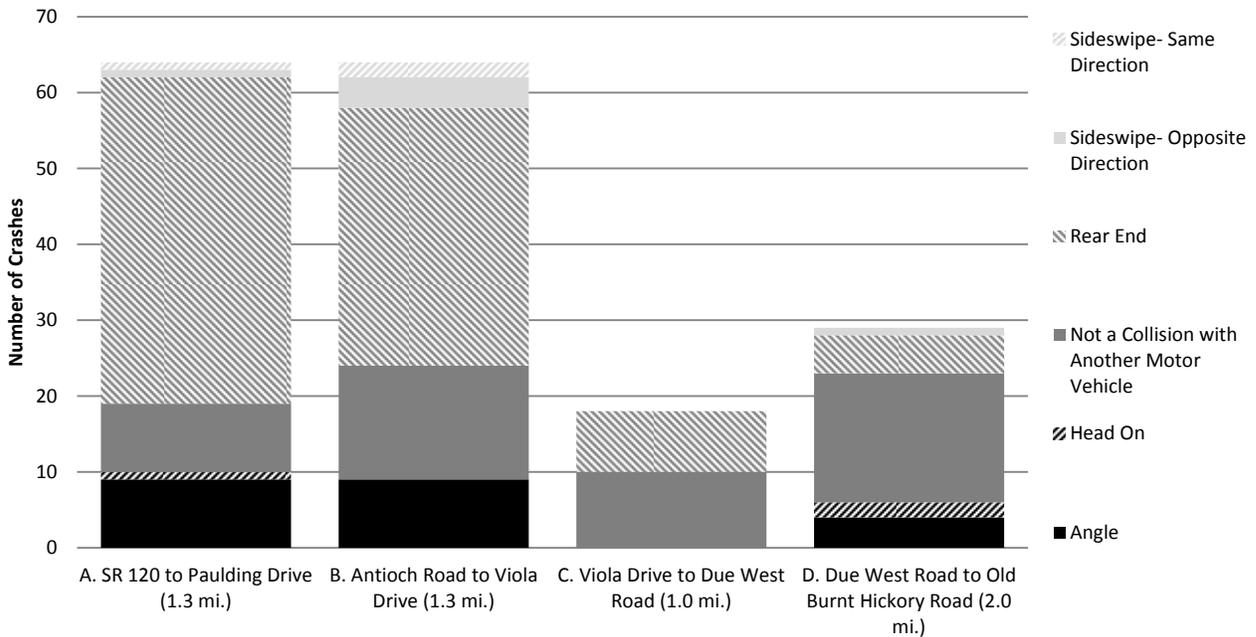


Figure 2. SR 92 Collision Type by Segment, Years 2006 to 2009

Table 5. SR 92, Crash Density by Segment and Severity, Years 2006 to 2009

Section	Severity (crashes per mile per year)			Total
	Density of PDO ¹	Density of Injuries	Density of Fatalities	
A. SR 120 to Paulding Drive	11.5	4.9	0.3	16.7
B. Paulding Drive to Viola Drive	11.8	4.3	0.0	16.0
C. Viola Drive to Due West Road	3.2	2.6	0.0	5.8
D. Due West Road to Old Burnt Hickory Road	4.1	0.8	0.0	4.9

¹ Property Damage Only
Does not include crashes at signalized intersections

As indicated in Table 5, SR 92 between SR 120 and Viola Drive has a crash density that is approximately three times higher than the northern portion of the corridor between Viola Drive and Old Burnt Hickory Road. A higher concentration of driveways and access points as well as the proximity to the East Paulding Middle School and East Paulding High School likely influences this difference in crash density in the southern half of the corridor.

The Middle and High School presence appears to play a role in the safety performance of the study corridor. When crashes are evaluated by time of day, the period from 2:00 p.m. and 4:00 p.m. produces the highest number of crashes, as illustrated in Figure 3. This time period roughly corresponds to the end of the school day. Over half of the crashes occurring during the 2:00 p.m. to 4:00 p.m. time period are located between SR 120 and East Paulding Drive and could be attributed to the increased traffic volumes at the end of the school day coming from East Paulding Middle School and East Paulding High

School. Similar trends were also noted when analyzing the crash data by month of the year and day of the week. Crash rates generally were lower during the summer and months with significant holidays when school was not in session. The disproportionate number of young drivers near the high school could be a contributing factor to the greater density of crashes in this location.

Additional crash summaries by month of the year, day of the week, and light level is presented in Appendix A.

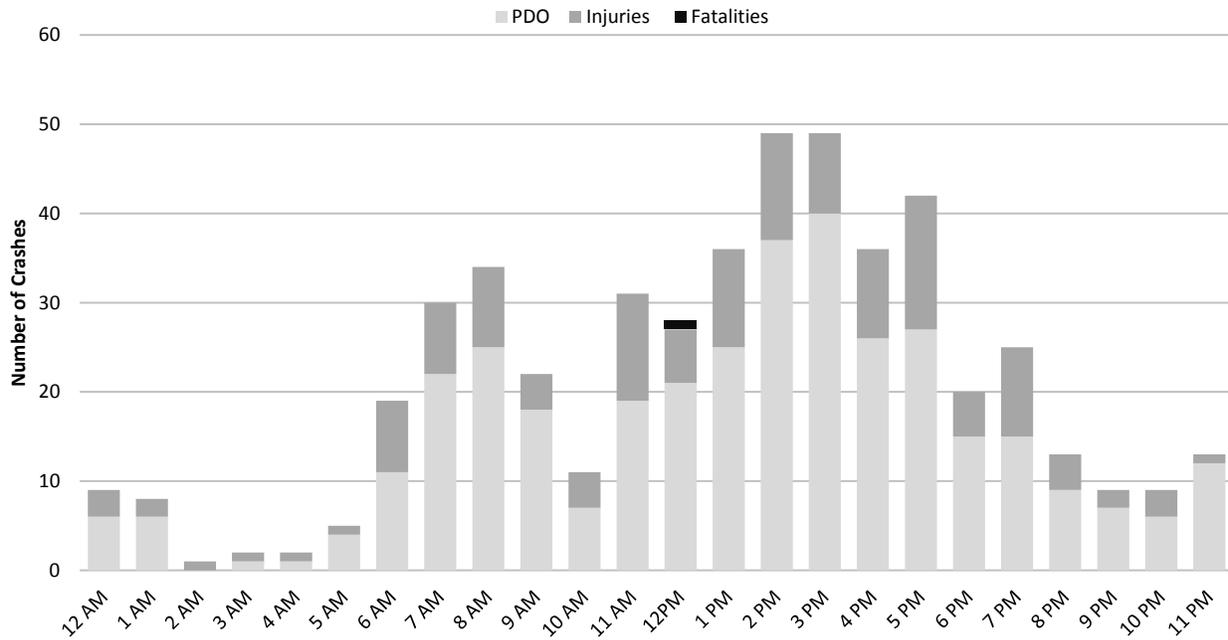


Figure 3. SR 92 Corridor, Reported Crash Severity by Time of Day, Years 2006 to 2009

INTERSECTION-LEVEL CRASH ASSESSMENT

In order to more clearly define the safety context along the SR 92 corridor, a crash density map was developed to show the locations with the highest number of crashes, and is displayed in Figure 4. Additionally, the number of crashes by crash type and severity for specific locations along the corridor were tabulated and are displayed in Table 6. Figure 5 and Figure 6 are a breakdown of the specific corridor locations by collision type and severity, respectively.

As illustrated in Figure 5 and Figure 6, the intersections with the greatest number of crashes along the corridor are SR 92/SR 120, SR 92/East Paulding Drive, and SR 92/Due West Road (South). A high number (112) of crashes occurred at driveway or non-intersection locations distributed throughout the SR 92 corridor. Forty-six of these crashes were rear-end collisions, 32 were collisions with off-road objects, and 24 were angle collisions. Crash reports attributed many of the contributing factors to these crashes as vehicles going too fast around horizontal curves, and the interaction of vehicles at driveway locations. Additionally, the lack of a recoverable shoulder along the length of the corridor could be contributing to the number of collisions with off-road objects.

Figure 4 SR 92 Crash Density and Problem Areas

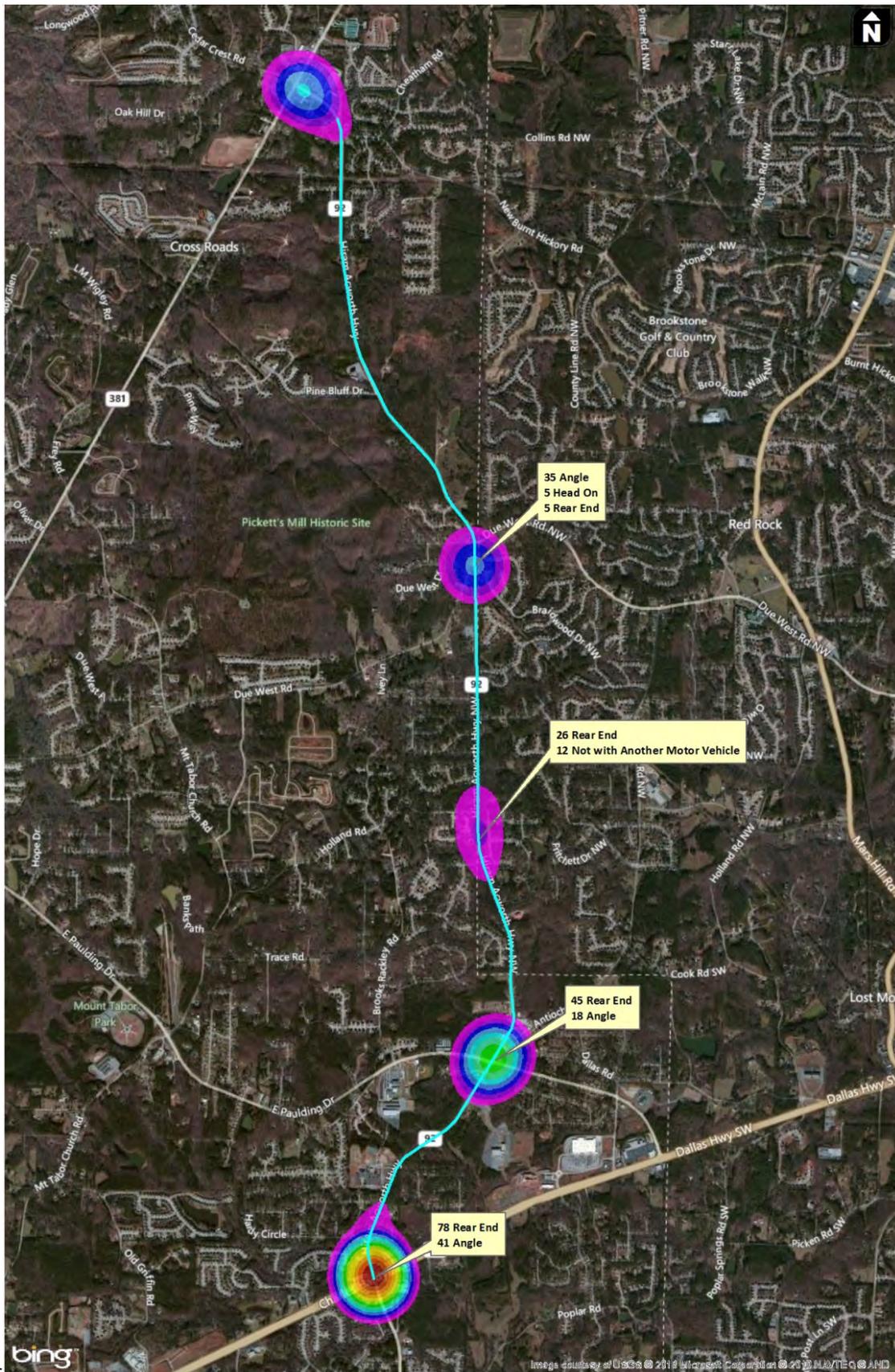


Table 6. SR 92 Corridor Intersections and Special Segment Crash Summary, Years 2006 to 2009

Intersecting Street or Segment	Angle	Head On	Not a Collision with Another Motor Vehicle	Rear End	Sideswipe-Opposite Direction	Sideswipe-Same Direction	PDO	Injury	Fatalities	Total Crashes
SR 120	41	5	1	78	1	2	84	44	0	128
Brenda Lane	2	0	0	7	0	0	8	1	0	9
Diane Court	1	0	1	5	0	0	6	1	0	7
East Paulding Middle School	3	1	3	6	0	0	8	5	0	13
Etowah Drive	0	0	0	1	0	0	1	0	0	1
East Paulding Drive	18	3	2	45	0	2	61	9	0	70
Antioch Road	4	0	1	4	0	0	7	2	0	9
Horizontal Curve (North of Antioch Road)	1	0	3	3	1	0	4	4	0	8
Sayre Drive	2	0	1	0	0	2	3	2	0	5
Kensley Way	0	0	7	9	2	0	14	4	0	18
Wyndham Lakes Drive	1	0	1	6	0	0	7	1	0	8
Holland Road	5	0	0	8	0	0	9	4	0	13
Viola Drive	0	0	0	3	0	0	3	0	0	3
Wiscasset Parkway	0	0	4	0	0	0	4	0	0	4
Due West Road (South)	34	4	2	2	1	1	31	13	0	44
Due West Road (North)	1	0	2	3	0	0	5	1	0	6
Abbey Lane	1	0	0	1	0	0	2	0	0	2
Pine Bluff Drive	0	0	1	1	0	0	2	0	0	2
Battle Gate Lane	0	0	0	3	0	0	3	0	0	3
Old Burnt Hickory Road	4	1	0	4	0	0	4	5	0	9
Kroger Shopping Center Entrance	0	0	0	1	0	0	1	0	0	1
SR 381	11	1	1	18	0	0	26	5	0	31
Non-Intersection	24	3	32	46	3	3	81	30	1	112

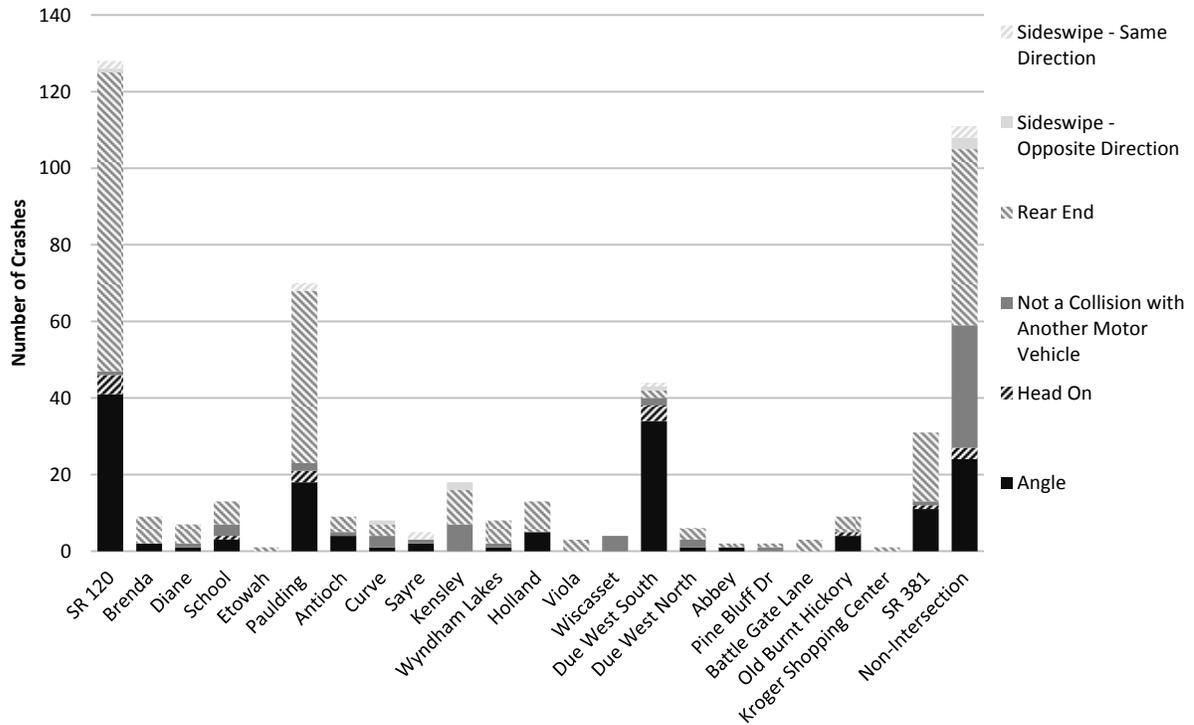


Figure 5. SR 92 Corridor Collision Type by Intersection, Years 2006 to 2009

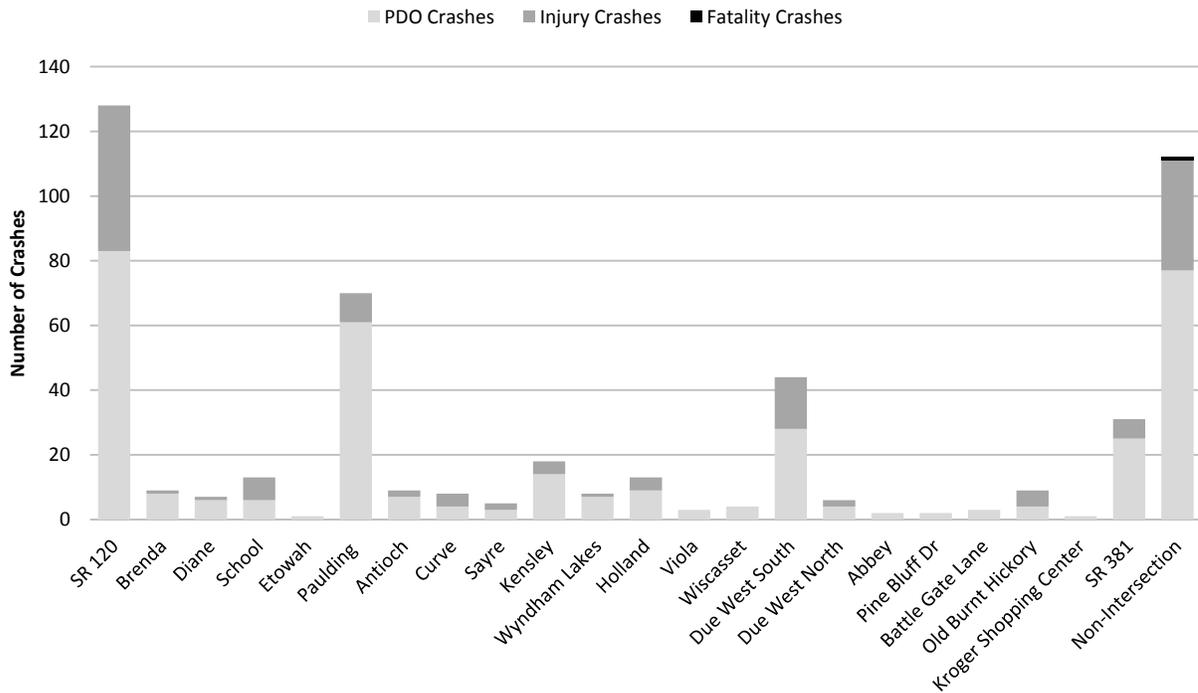


Figure 6. SR 92 Corridor, Crash Severity by Intersection, Years 2006 to 2009

SAFETY ANALYSIS RESULTS

The widening of SR 92 from a two-lane undivided to a four-lane divided cross-section is expected to provide safety benefits due to improved access management. In particular, safety improvements are expected in the southern section where the difference in crash density in the southern half of the corridor compared to the northern half is likely influenced by a higher concentration of driveways and access points, the disproportionate number of young drivers near the high school, and the horizontal curves in the section. Additional safety benefits are expected through the following measures:

- The addition of left-and right-turn lanes at driveway and cross-street locations throughout the corridor to reduce conflicts as vehicles turn to or from a minor street or driveway;
- Increasing the radii of horizontal curves throughout the corridor and in particular in the southern section; and,
- Providing a curb and gutter treatment along the length of the corridor to reduce the number of collisions with off-road objects.

Additionally, to improve the safety performance at key intersections within the study area, roundabouts were considered at the intersections of SR 92/Due West Road (South), SR 92/Due West Road (North), SR 92/Old Burnt Hickory, and SR 92/Entrance to East Paulding Middle School (South). Because of the identified crash trends, a roundabout was also considered as a potential safety improvement at the intersection of SR 92/East Paulding Drive, but was dropped from consideration because a two-lane roundabout is not expected to provide adequate capacity to serve the projected design year 2040 traffic volumes. Additional discussion on design year intersection operational analysis is provided in Section 5 of this report.

Accident No	Date	Time	County	Route Type	Route	Milelog	Intersecting Rt Type	Intersecting Rt	Injuries	Fatalities	Harmful Event	Collision	Location of Impact	Light	Surface	DirVeh1	DirVeh2	MnvVeh1	MnvVeh2
'60040122	1/1/2006	5:05 PM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight
'60040337	1/22/2006	11:30 AM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Straight	Stopped
'60280713	1/31/2006	6:56 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'60310580	2/1/2006	7:23 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Stopped
'60540312	3/7/2006	6:57 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'60810175	3/17/2006	11:22 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Lighted	Dry	W	E	Turning Left	Straight
'61040458	3/24/2006	11:20 AM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Straight	Turning Left
'61040179	3/26/2006	3:37 PM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'61260247	4/13/2006	11:19 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	S	E	Straight	Stopped
'61260098	4/17/2006	5:55 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	N	N	Turning Right	Stopped
'61630633	5/9/2006	4:55 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'61630634	5/9/2006	5:11 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Guardrail Face	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Dry	E		Turning Left	
'62160134	6/3/2006	9:39 PM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Head On	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'62060925	6/10/2006	8:23 AM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'62340016	6/21/2006	3:37 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	W	Turning Left	Straight
'62340418	6/25/2006	7:44 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Stopped
'62340031	6/25/2006	8:45 PM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Lighted	Dry	W		Straight	Turning Left
'62590380	7/12/2006	5:32 PM	Paulding	State Route	'009200	10.08	1	'012000	6	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	W	Turning Left	Straight
'62940136	7/21/2006	11:12 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Turning Right	Turning Right
'62770514	7/22/2006	6:42 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	E	W	Turning Left	Straight
'62840593	7/31/2006	9:18 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	E	E	Straight	Stopped
'62840701	8/2/2006	12:31 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'62950470	8/10/2006	10:09 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	E	E	Straight	Stopped
'63580684	9/13/2006	10:00 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	S	S	Straight	Stopped
'63480415	9/15/2006	4:34 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	S	Backing	Stopped
'63940415	10/7/2006	2:02 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Stopped
'64060475	10/13/2006	2:45 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Stopped	Straight
'64100032	10/17/2006	8:19 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Negotiating a Curve	Stopped
'64100039	10/17/2006	3:14 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Negotiating a Curve	Stopped
'64240008	10/27/2006	8:25 AM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	W	E	Turning Left	Straight
'64740115	11/26/2006	11:06 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	N	Straight	Straight
'64880251	12/6/2006	5:52 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	N	N	Negotiating a Curve	Stopped
'65320119	12/13/2006	7:19 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Straight	Stopped
'65250337	12/26/2006	8:08 PM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	W	E	Turning Left	Straight
'70310527	1/5/2007	5:58 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Wet	W	W	Straight	Stopped
'70080199	1/16/2007	9:49 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Stopped
'70130403	1/24/2007	6:02 AM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	S	N	Turning Left	Straight
'70130405	1/24/2007	9:24 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'70190047	2/4/2007	1:09 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	S	N	Backing	Stopped
'70420459	2/15/2007	3:48 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'70680595	2/17/2007	2:06 PM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'70680626	2/27/2007	4:25 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Stopped
'71130495	3/12/2007	9:19 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Turning Right
'70900559	3/18/2007	2:38 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Head On	On Roadway	Daylight	Dry	W	W	Backing	Stopped
'70900558	3/18/2007	2:43 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'71380039	4/18/2007	6:36 PM	Paulding	State Route	'009200	10.08	1	'012000	6	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Straight	Turning Left
'71550639	4/25/2007	8:15 AM	Paulding	State Route	'009200	10.08	1	'012000	3	0	Motor Vehicle in Motion	Head On	On Roadway	Daylight	Dry	N	S	Turning Left	Straight
'71760526	5/7/2007	2:39 PM	Paulding	State Route	'009200	10.08	1	'012000	4	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	S	Straight	Turning Left
'71930632	5/8/2007	2:06 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Turning Right	Turning Right
'71890494	5/14/2007	8:21 PM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'72060362	5/17/2007	7:00 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Parked Motor Vehicle	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'72090122	6/1/2007	11:57 AM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'72410495	6/8/2007	9:44 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Wet	W	W	Straight	Stopped
'72970003	6/19/2007	5:22 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Straight	Straight
'72670328	6/28/2007	6:47 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'73060339	7/20/2007	9:39 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	S	S	Straight	Stopped
'73480055	8/21/2007	3:50 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'73590394	8/23/2007	1:24 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	S	Straight	Stopped
'73590421	8/28/2007	6:53 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Turning Right
'73830447	9/8/2007	1:29 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'73830443	9/8/2007	4:18 PM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Turning Right
'74250290	9/20/2007	7:40 AM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'74250310	9/25/2007	8:18 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	E	W	Turning Left	Straight
'74880385	11/18/2007	4:28 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Stopped
'75180433	11/17/2007	3:30 PM																	

Accident No	Date	Time	County	Route Type	Route	Milelog	Intersecting Rt Type	Intersecting Rt	Injuries	Fatalities	Harmful Event	Collision	Location of Impact	Light	Surface	DirVeh1	DirVeh2	MnvVeh1	MnvVeh2
'80590595	2/23/2008	1:22 PM	Paulding	State Route	'009200	10.38		'	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Straight
'92530362	5/18/2009	3:55 PM	Paulding	State Route	'009200	10.38		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'80820008	2/28/2008	5:28 PM	Paulding	State Route	'009200	10.38		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'73660235	9/3/2007	4:00 PM	Paulding	State Route	'009200	10.39		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'63480754	9/6/2006	4:39 PM	Paulding	State Route	'009200	10.41	2	'055100		0	Jackknife	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Dry	S		Straight	
'81330230	4/13/2008	11:39 AM	Paulding	State Route	'009200	10.42		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Straight
'74360104	10/4/2007	11:59 AM	Paulding	State Route	'009200	10.44		'		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	N	S	Turning Left	Curve
'63340288	8/28/2006	8:15 AM	Paulding	State Route	'009200	10.45		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'90110297	1/5/2009	7:30 AM	Paulding	State Route	'009200	10.48		'		0	Other Post	Not A Collision With A Motor Vehicle	On Shoulder	Dark-Lighted	Wet	N		Turning Left	
'61930124	5/23/2006	2:38 PM	Paulding	State Route	'009200	10.54		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Turning Right	Stopped
'60290177	2/17/2006	5:08 PM	Paulding	State Route	'009200	10.56		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'74590645	10/17/2007	3:02 PM	Paulding	State Route	'009200	10.56		'	4	0	Motor Vehicle in Motion	Angle	Off Roadway	Daylight	Dry	E	S	Driveway	Straight
'61930148	5/28/2006	1:06 PM	Paulding	State Route	'009200	10.58		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'92530258	5/7/2009	4:55 PM	Paulding	State Route	'009200	10.58		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'73460526	8/5/2007	9:10 PM	Paulding	State Route	'009200	10.65		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	N	N	Straight	Straight
'60360422	2/21/2006	11:04 PM	Paulding	State Route	'009200	10.66		'	4	0	Motor Vehicle in Motion	Head On	On Roadway	Dark-Lighted	Dry	N	S	Negotiating a Curve	Curve
'72530260	6/17/2007	4:39 PM	Paulding	State Route	'009200	10.66		'	3	0	Mailbox	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	N		Straight	
'90320220	1/9/2009	2:43 PM	Paulding	State Route	'009200	10.66		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'91910003	4/1/2009	8:54 AM	Paulding	State Route	'009200	10.66		'	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	N	Entering/Leaving Driveway	Turning Left
'94000015	8/6/2009	10:21 AM	Paulding	State Route	'009200	10.66		'	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	S	Turning Left	Straight
'80820004	3/4/2008	1:37 AM	Paulding	State Route	'009200	10.69		'		0	Mailbox	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Lighted	Dry	S		Straight	
'93060563	6/14/2009	12:48 PM	Paulding	State Route	'009200	10.76		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'80930255	3/9/2008	1:04 PM	Paulding	State Route	'009200	10.8		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Straight
'81650840	5/3/2008	1:29 PM	Paulding	State Route	'009200	10.86		'		0	Motor Vehicle in Motion	Rear End	Off Roadway	Daylight	Wet	S	S	Straight	Stopped
'85040353	11/19/2008	12:11 PM	Paulding	State Route	'009200	10.86		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Curve
'60360442	2/24/2006	8:01 AM	Paulding	State Route	'009200	10.88		'		0	Mailbox	Not A Collision With A Motor Vehicle	On Shoulder	Daylight	Dry	S		Straight	
'70680276	3/1/2007	3:51 PM	Paulding	State Route	'009200	10.88		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	S	S	Straight	Stopped
'60290139	2/13/2006	1:07 PM	Paulding	State Route	'009200	10.9		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'70010108	1/8/2007	5:20 PM	Paulding	State Route	'009200	10.90		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Straight
'81810012	5/23/2008	5:44 PM	Paulding	State Route	'009200	10.96		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Straight	Stopped
'93990560	8/9/2009	12:39 PM	Paulding	State Route	'009200	10.96		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Straight	Stopped
'64420115	10/15/2006	1:36 PM	Paulding	State Route	'009200	11.06		'	1	1	Overturn	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	N		Straight	
'91910072	4/7/2009	12:35 PM	Paulding	State Route	'009200	11.06		'	0	0	Other Object (Not Fixed)	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Dry	N		Negotiating a Curve	
'81490867	4/27/2008	6:47 AM	Paulding	State Route	'009200	11.08		'	1	0	Deer	Not A Collision With A Motor Vehicle	Off Roadway	Dawn	Wet	N		Straight	
'60040120	1/1/2006	1:43 PM	Paulding	State Route	'009200	11.1		'		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	S	Driveway	Straight
'84300315	10/19/2008	2:11 PM	Paulding	State Route	'009200	11.1		'	2	0	Motor Vehicle in Motion	Sideswipe - Opposite Direction	On Roadway	Daylight	Dry	S	N	Negotiating a Curve	Curve
'90850245	2/10/2009	2:01 PM	Paulding	State Route	'009200	11.1		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'83490175	8/3/2008	10:48 AM	Paulding	State Route	'009200	11.16		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'83660381	9/5/2008	3:46 PM	Paulding	State Route	'009200	11.16		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Straight
'61150567	4/9/2006	12:57 PM	Paulding	State Route	'009200	11.26		'		0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'90850301	2/15/2009	10:30 AM	Paulding	State Route	'009200	11.26		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'72950177	7/15/2007	5:05 PM	Paulding	State Route	'009200	11.30	2	'113200		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Straight	Stopped
'65320120	12/14/2006	3:50 PM	Paulding	State Route	'009200	11.32		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Turning Left	Turning Left
'64740071	11/21/2006	8:38 PM	Paulding	State Route	'009200	11.33		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	N	N	Straight	Stopped
'70130413	1/26/2007	3:34 PM	Paulding	State Route	'009200	11.33		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Straight
'92530348	5/17/2009	12:42 PM	Paulding	State Route	'009200	11.34		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	S	S	Straight	Stopped
'75270263	12/5/2007	9:40 AM	Paulding	State Route	'009200	11.35		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'60120225	1/31/2006	8:18 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Turning Right	Stopped
'60420258	2/17/2006	8:15 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	W	W	Straight	Stopped
'60420271	2/25/2006	4:50 AM	Paulding	State Route	'009200	11.36	2	'023000	3	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Lighted	Dry	E	S	Straight	Straight
'62330280	5/18/2006	9:42 AM	Paulding	State Route	'009200	11.36	2	'023000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'61930157	5/29/2006	4:03 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Daylight	Dry	W	W	Changing Lanes	Straight
'63580678	9/12/2006	5:55 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	S	S	Straight	Stopped
'64240554	10/26/2006	11:55 AM	Paulding	State Route	'009200	11.36	2	'023000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'64330582	10/28/2006	9:32 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Straight
'64430272	10/29/2006	11:24 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Turning Right	Stopped
'64610255	11/9/2006	4:55 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	E	Turning Right	Turning Right
'64550299	11/11/2006	3:46 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	E	E	Straight	Straight
'64610257	11/14/2006	6:38 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Dusk	Dry	E	E	Straight	Stopped
'64740041	11/17/2006	7:40 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	S	S	Straight	Stopped
'64740142	11/30/2006	3:31 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight

Accident No	Date	Time	County	Route Type	Route	Milelog	Intersecting Rt Type	Intersecting Rt	Injuries	Fatalities	Harmful Event	Collision	Location of Impact	Light	Surface	DirVeh1	DirVeh2	MnvVeh1	MnvVeh2
'70010093	1/6/2007	7:15 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Head On	On Roadway	Dark-Lighted	Dry	E	W	Turning Left	Straight
'70190646	1/31/2007	7:48 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'70420618	2/12/2007	6:13 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	S	S	Turning Left	Turning Left
'70420634	2/15/2007	9:31 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'70940326	2/21/2007	6:40 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Wet	S	S	Straight	Straight
'71890513	5/17/2007	4:14 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'73420492	8/5/2007	11:14 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	W	W	Negotiating a Curve	Stopped
'74250345	10/1/2007	7:57 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	E	E	Turning Right	Stopped
'74590578	10/16/2007	4:03 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Turning Right	Stopped
'74730537	10/31/2007	4:28 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	W	Turning Left	Straight
'75030134	11/13/2007	4:40 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	W	Turning Left	Straight
'75030152	11/15/2007	8:04 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	N	N	Turning Right	Stopped
'75590398	12/13/2007	3:39 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	E	E	Turning Right	Stopped
'81330033	4/17/2008	7:45 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	S	Turning Left	Straight
'82210338	6/9/2008	11:07 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Turning Right	Turning Right
'82930102	7/15/2008	5:04 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	S	Turning Left	Straight
'83000135	7/20/2008	12:43 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Immersion	Rear End	Gore	Daylight	Dry	N	N	Turning Right	Turning Right
'83490350	8/25/2008	7:10 AM	Paulding	State Route	'009200	11.36	2	'023000	1	0	Motor Vehicle in Motion	Head On	On Roadway	Dark-Lighted	Wet	W	E	Turning Left	Straight
'83660434	9/13/2008	7:13 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	W	Straight	Straight
'84300192	10/17/2008	1:23 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	S	Turning Left	Straight
'84300231	10/17/2008	11:44 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Straight	Stopped
'85040363	11/20/2008	1:02 PM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'84950038	11/25/2008	12:22 PM	Paulding	State Route	'009200	11.36	2	'023000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Straight	Stopped
'85040466	11/30/2008	11:23 AM	Paulding	State Route	'009200	11.36	2	'023000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	E	E	Straight	Stopped
'85630379	12/19/2008	7:30 PM	Paulding	State Route	'009200	11.36	2	'023000	1	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	W	E	Turning Left	Straight
'90760156	2/21/2009	6:11 PM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Angle	Off Roadway	Daylight	Dry	W	W	Straight	Stopped
'90640189	2/28/2009	5:50 PM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'91910028	4/2/2009	7:48 PM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Straight	Stopped
'93060441	6/25/2009	6:09 PM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Entering/Leaving Driveway	Changing Lanes
'94000110	8/20/2009	6:57 PM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	E	S	Turning Left	Stopped
'93640382	8/27/2009	5:54 PM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	W	W	Straight	Straight
'94060178	9/10/2009	5:44 AM	Paulding	State Route	'009200	11.36	2	'023000	1	0	Motor Vehicle in Motion	Head On	On Roadway	Dark-Not Lighted	Dry	N	S	Turning Left	Straight
'94510435	9/15/2009	11:24 AM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	S	N	Turning Left	Straight
'94060171	9/23/2009	12:32 AM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	W		Straight	
'95060113	10/2/2009	5:56 AM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	S	N	Turning Left	Straight
'94210090	10/2/2009	5:51 PM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'95060191	10/8/2009	8:36 PM	Paulding	State Route	'009200	11.36	2	'023000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	E	E	Turning Right	Turning Right
'63340051	8/25/2006	5:21 PM	Paulding	State Route	'009200	11.37		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Stopped	Straight
'94510369	9/6/2009	10:53 AM	Paulding	State Route	'009200	11.37		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'62160518	6/16/2006	6:42 PM	Paulding	State Route	'009200	11.38		'		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Driveway	Straight
'83490242	8/11/2008	2:12 PM	Paulding	State Route	'009200	11.38		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'95460203	11/18/2009	9:27 AM	Paulding	State Route	'009200	11.39		'	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	S	Changing Lanes	Turning Left
'70010109	1/8/2007	6:33 PM	Paulding	State Route	'009200	11.40		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	S	S	Straight	Stopped
'75030148	11/15/2007	11:58 AM	Paulding	State Route	'009200	11.40		'		0	Other Non-Collision	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Straight
'90190346	1/20/2009	8:25 PM	Paulding	State Route	'009200	11.4		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	S	S	Straight	Turning Left
'93590425	7/28/2009	11:43 AM	Paulding	State Route	'009200	11.4		'	0	0	Other Non-Collision	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Dry	N		Negotiating a Curve	
'60420510	3/4/2006	2:20 PM	Paulding	State Route	'009200	11.41		'		0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Daylight	Dry	S	S	Changing Lanes	Changing Lanes
'63680041	9/27/2006	10:08 AM	Paulding	State Route	'009200	11.41		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'74360118	10/9/2007	3:46 PM	Paulding	State Route	'009200	11.41		'		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	E	S	Turning Left	Stopped
'71040202	3/22/2007	2:25 PM	Paulding	State Route	'009200	11.42		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Changing Lanes	Stopped
'91240380	3/23/2009	8:34 AM	Paulding	State Route	'009200	11.43		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'80350518	2/8/2008	4:41 PM	Paulding	State Route	'009200	11.44		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'62840697	8/1/2006	8:16 PM	Paulding	State Route	'009200	11.45	2	'000600		0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Wet	W	N	Turning Left	Straight
'63140084	8/23/2006	8:00 AM	Paulding	State Route	'009200	11.45	2	'000600	3	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Turning Left	Straight
'73830414	8/30/2007	4:00 PM	Paulding	State Route	'009200	11.45	2	'000600		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	W	N	Turning Left	Straight
'91040392	3/23/2009	7:57 AM	Paulding	State Route	'009200	11.45	2	'000600	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Straight
'93590360	7/14/2009	7:52 AM	Paulding	State Route	'009200	11.45	2	'000600	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'62440710	7/6/2006	1:26 AM	Paulding	State Route	'009200	11.46		'		0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Wet	S		Straight	
'83660422	9/10/2008	8:19 PM	Paulding	State Route	'009200	11.46		'		0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	S	N	Turning Left	Straight
'90320235	1/11/2009	9:24 AM	Paulding	State Route	'009200	11.46		'	0	0	Ditch	Rear End	Off Roadway	Dark-Not Lighted	Wet	S	S	Straight	Parked
'61260155	4/23/2006	11:54 AM	Paulding	State Route	'009200	11.49		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'82490132	7/4/2008	2:55 PM	Paulding	State Route	'009200	11.54		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'91510349	4/7/2009	12:01 AM	Paulding	State Route	'009200	11.54		'	0	0	Motor Vehicle in Motion	Angle	Off Roadway	Dark-Not Lighted	Dry	W	W	Turning Right	Straight
'61490293	4/28/2006	5:23 PM	Paulding	State Route	'009200	11.55		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'62840190	7/31/2006	1:00 AM	Paulding	State Route	'009200	11.55		'	1	0	Overturn	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	N		Negotiating a Curve	
'84300157	10/2/2008	2:20 PM	Paulding	State Route	'009200														

Accident No	Date	Time	County	Route Type	Route	Milelog	Intersecting Rt Type	Intersecting Rt	Injuries	Fatalities	Harmful Event	Collision	Location of Impact	Light	Surface	DirVeh1	DirVeh2	MnvVeh1	MnvVeh2
'84930043	12/2/2008	2:45 PM	Cobb	State Route	'009200	0.06		'	2	0	Motor Vehicle in Motion	Sideswipe - Opposite Direction	On Roadway	Daylight	Dry	N	S	Negotiating a Curve	Curve
'63080308	8/16/2006	8:10 AM	Cobb	State Route	'009200	0.06		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'63530617	8/28/2006	2:33 PM	Cobb	State Route	'009200	0.06		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Turning Left
'74870379	11/7/2007	11:00 AM	Cobb	State Route	'009200	0.16		'	0	0	Highway Traffic Sign Post	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	S	N	Negotiating a Curve	Negotiating a Curve
'74870379	11/7/2007	11:00 AM	Cobb	State Route	'009200	0.16		'		0	Highway Traffic Sign Post	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	S	N	Negotiating a Curve	Curve
'60910176	3/14/2006	7:00 PM	Cobb	State Route	'009200	0.19		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	N	N	Straight	Straight
'91190160	3/27/2009	8:05 PM	Cobb	State Route	'009200	0.34		'	0	0	Mailbox	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Wet	S	N	Straight	
'72920605	7/16/2007	6:37 PM	Cobb	State Route	'009200	0.35	2	'731200	1	0	Motor Vehicle in Motion	Angle	On Roadway	Dusk	Dry	S	N	Turning Left	Straight
'80120380	1/18/2008	7:55 AM	Cobb	State Route	'009200	0.35	2	'731200	0	0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Daylight	Dry	N	N	Straight	Turning Right
'72920605	7/16/2007	6:37 PM	Cobb	State Route	'009200	0.35	2	'731200	1	0	Motor Vehicle in Motion	Angle	On Roadway	Dusk	Dry	S	N	Turning Left	Straight
'80120380	1/18/2008	7:55 AM	Cobb	State Route	'009200	0.35	2	'731200	0	0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Daylight	Dry	N	N	Straight	Turning Right
'64140549	10/27/2006	3:10 PM	Cobb	State Route	'009200	0.54		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	E	E	Straight	Stopped
'72350375	6/4/2007	3:05 PM	Cobb	State Route	'009200	0.55	2	'820300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'74540308	10/22/2007	5:40 PM	Cobb	State Route	'009200	0.55	2	'820300	1	0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Wet	N	N	Negotiating a Curve	
'75970407	8/21/2007	3:40 PM	Cobb	State Route	'009200	0.55		'	0	0	Culvert	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	N	N	Straight	
'71050049	3/12/2007	2:00 PM	Cobb	State Route	'009200	0.55		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'90580136	2/21/2009	11:08 AM	Cobb	State Route	'009200	0.55		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Straight
'93030336	7/26/2009	12:36 PM	Cobb	State Route	'009200	0.55		'	0	0	Ditch	Not A Collision With A Motor Vehicle	On Shoulder	Daylight	Dry	N	N	Straight	
'93520299	8/20/2009	8:15 PM	Cobb	State Route	'009200	0.55		'	3	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Wet	N	N	Straight	Stopped
'60270114	1/26/2006	8:30 PM	Cobb	State Route	'009200	0.55	2	'820300		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	N	N	Straight	Straight
'60470186	2/15/2006	6:43 PM	Cobb	State Route	'009200	0.55	2	'820300		0	Motor Vehicle in Motion	Sideswipe - Opposite Direction	On Roadway	Dark-Not Lighted	Dry	E	W	Straight	Straight
'61260483	4/14/2006	5:48 PM	Cobb	State Route	'009200	0.55	2	'820300		0	Motor Vehicle in Motion	Sideswipe - Opposite Direction	On Roadway	Daylight	Dry	N	S	Negotiating a Curve	Curve
'63440503	9/13/2006	12:50 PM	Cobb	State Route	'009200	0.55	2	'820300		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Straight	Stopped
'71050049	3/12/2007	2:00 PM	Cobb	State Route	'009200	0.55		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'75970407	8/21/2007	3:40 PM	Cobb	State Route	'009200	0.55		'		0	Culvert	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	N	N	Straight	
'72350375	6/4/2007	3:05 PM	Cobb	State Route	'009200	0.55	2	'820300		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'74540308	10/22/2007	5:40 PM	Cobb	State Route	'009200	0.55	2	'820300	1	0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Wet	N	N	Negotiating a Curve	
'82500214	7/1/2008	3:00 PM	Cobb	State Route	'009200	0.59		'	0	0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	S	N	Straight	
'82500214	7/1/2008	3:00 PM	Cobb	State Route	'009200	0.59		'		0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	S	N	Straight	
'70050306	1/5/2007	12:20 PM	Cobb	State Route	'009200	0.74	2	'726200	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	S	S	Straight	Stopped
'82290080	6/18/2008	6:15 PM	Cobb	State Route	'009200	0.74		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'90080311	1/9/2009	3:56 PM	Cobb	State Route	'009200	0.74	2	'726200	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Passing	Straight
'61090475	1/4/2006	3:00 AM	Cobb	State Route	'009200	0.74	2	'726200		0	Highway Traffic Sign Post	Not A Collision With A Motor Vehicle	On Shoulder	Dark-Lighted	Dry	E	N	Turning Left	
'61410481	4/12/2006	6:14 PM	Cobb	State Route	'009200	0.74	2	'726200	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'70050306	1/5/2007	12:20 PM	Cobb	State Route	'009200	0.74	2	'726200		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	S	S	Straight	Stopped
'82290080	6/18/2008	6:15 PM	Cobb	State Route	'009200	0.74		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'63290004	8/31/2006	2:45 PM	Cobb	State Route	'009200	0.75		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Negotiating a Curve	Curve
'72350355	6/11/2007	3:15 PM	Cobb	State Route	'009200	0.81		'	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Straight
'70340373	2/4/2007	4:02 PM	Cobb	State Route	'009200	0.81		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'80650573	2/26/2008	9:06 AM	Cobb	State Route	'009200	0.81		'	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	E	N	Turning Left	Straight
'80820125	3/6/2008	8:21 AM	Cobb	State Route	'009200	0.81		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'84950276	12/4/2008	1:00 PM	Cobb	State Route	'009200	0.81		'	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	N	E	Turning Left	Stopped
'92120074	5/18/2009	4:52 PM	Cobb	State Route	'009200	0.81		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'61660135	5/5/2006	4:58 PM	Cobb	State Route	'009200	0.81		'	4	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	N	Turning Left	Straight
'64710036	12/1/2006	6:43 PM	Cobb	State Route	'009200	0.81		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	N	N	Straight	Stopped
'70340373	2/4/2007	4:02 PM	Cobb	State Route	'009200	0.81		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'72350355	6/11/2007	3:15 PM	Cobb	State Route	'009200	0.81		'	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Straight
'80650573	2/26/2008	9:06 AM	Cobb	State Route	'009200	0.81		'		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	E	N	Turning Left	Straight
'80820125	3/6/2008	8:21 AM	Cobb	State Route	'009200	0.81		'		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped

Accident No	Date	Time	County	Route Type	Route	Milelog	Intersecting Rt Type	Intersecting Rt	Injuries	Fatalities	Harmful Event	Collision	Location of Impact	Light	Surface	DirVeh1	DirVeh2	MnvVeh1	MnvVeh2	
'84950276	12/4/2008	1:00 PM	Cobb	State Route	'009200	0.81				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	N	E	Turning Left	Stopped	
'71150117	3/23/2007	8:15 PM	Cobb	State Route	'009200	0.83			0	0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	S		Straight		
'71150117	3/23/2007	8:15 PM	Cobb	State Route	'009200	0.83				0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	S		Straight		
'60250653	1/23/2006	6:50 PM	Cobb	State Route	'009200	0.84			1	0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	N		Straight		
'84050177	10/7/2008	3:10 PM	Cobb	State Route	'009200	0.96			0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'84050177	10/7/2008	3:10 PM	Cobb	State Route	'009200	0.96				0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'61470372	4/21/2006	4:35 PM	Cobb	State Route	'009200	0.96	2	'820400		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Straight	Straight	
'62360780	6/27/2006	1:15 PM	Cobb	State Route	'009200	0.96	2	'820400		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'65050281	12/19/2006	7:45 AM	Cobb	State Route	'009200	0.96	2	'820400		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'82420407	6/29/2008	7:00 PM	Cobb	State Route	'009200	1.12			0	0	Other Non-Collision	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Wet	S	N	Straight	Straight	
'82420407	6/29/2008	7:00 PM	Cobb	State Route	'009200	1.12				0	Other Non-Collision	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Wet	S	N	Straight	Straight	
'80460377	2/14/2008	12:59 PM	Cobb	State Route	'009200	1.18			2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'84050093	10/10/2008	6:30 PM	Cobb	State Route	'009200	1.18			1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Turning Left	
'92350138	6/8/2009	6:33 AM	Cobb	State Route	'009200	1.18			0	0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Dry	S		Straight		
'80460377	2/14/2008	12:59 PM	Cobb	State Route	'009200	1.18			2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'84050093	10/10/2008	6:30 PM	Cobb	State Route	'009200	1.18			1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Turning Left	
'84360255	10/30/2008	11:20 PM	Cobb	State Route	'009200	1.25	2	'731400		0	0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	S		Straight	
'81850044	1/29/2008	6:34 PM	Cobb	State Route	'009200	1.25	2	'731400		0	0	Other Object (Not Fixed)	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	N	N	Straight	Straight
'81850044	1/29/2008	6:34 PM	Cobb	State Route	'009200	1.25	2	'731400		0	0	Other Object (Not Fixed)	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	N	N	Straight	Straight
'84360255	10/30/2008	11:20 PM	Cobb	State Route	'009200	1.25	2	'731400		0	0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	S		Straight	
'83300299	8/2/2008	12:05 AM	Cobb	State Route	'009200	1.35			1	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	N	N	Passing	Turning Left	
'83300299	8/2/2008	12:05 AM	Cobb	State Route	'009200	1.35			1	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	N	N	Passing	Turning Left	
'90890445	2/22/2009	3:54 PM	Cobb	State Route	'009200	1.36			0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'64310012	10/31/2006	7:24 AM	Cobb	State Route	'009200	1.44			1	0	Highway Traffic Sign Post	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	N		Straight		
'91910265	4/28/2009	4:17 PM	Paulding	State Route	'009200	13.29			0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Straight	
'80350501	2/6/2008	2:18 AM	Paulding	State Route	'009200	13.62			2	0	Tree	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	S		Straight		
'70010136	1/13/2007	4:22 PM	Paulding	State Route	'009200	13.78				0	Embankment	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	S		Straight		
'80860644	3/3/2008	6:24 AM	Paulding	State Route	'009200	13.81			1	0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	N		Straight		
'60040271	1/16/2006	6:59 AM	Paulding	State Route	'009200	13.82	2	'046600		1	0	Motor Vehicle in Motion	Head On	On Roadway	Dark-Not Lighted	Dry	S	N	Turning Left	Straight
'60270147	1/17/2006	7:01 PM	Paulding	State Route	'009200	13.82	2	'046600		1	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Wet	S	N	Turning Left	Straight
'60190439	2/4/2006	3:55 PM	Paulding	State Route	'009200	13.82	2	'046600		1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	S	Straight	Straight
'61630632	5/8/2006	5:22 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight
'61930156	5/29/2006	3:10 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Daylight	Dry	S	S	Straight	Turning Right
'62260183	6/15/2006	7:20 AM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight
'63060548	8/15/2006	5:40 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Curve
'63140089	8/24/2006	5:50 AM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Lighted	Wet	S	N	Straight	Straight
'63680045	9/28/2006	7:10 AM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Turning Left	Straight
'64100049	10/18/2006	9:45 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	W	W	Straight	Stopped
'64310005	10/28/2006	2:22 PM	Paulding	State Route	'009200	13.82	2	'046600		1	0	Motor Vehicle in Motion	Head On	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'64550326	11/18/2006	11:07 AM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	N	Turning Left	Turning Left
'64670596	11/20/2006	3:19 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	S	Turning Left	Straight
'64950719	12/3/2006	10:32 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	W	S	Straight	Straight
'65320117	12/13/2006	6:26 PM	Paulding	State Route	'009200	13.82	2	'046600		1	0	Motor Vehicle in Motion	Angle	On Shoulder	Dark-Lighted	Dry	W	E	Turning Left	Straight
'70310534	1/8/2007	8:18 AM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	S	Straight	Straight
'70960157	3/23/2007	10:13 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	S	N	Turning Left	Straight
'71470264	4/24/2007	6:33 AM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Dawn	Dry	S	N	Turning Left	Straight
'71820324	5/6/2007	4:21 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	S	Straight	Straight
'73060337	7/20/2007	5:17 PM	Paulding	State Route	'009200	13.82	2	'046600		1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight
'74590667	10/19/2007	8:48 PM	Paulding	State Route	'009200	13.82	2	'046600		4	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	W	N	Turning Left	Straight
'74570134	10/25/2007	6:05 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Head On	On Roadway	Dusk	Dry	W	E	Turning Left	Straight
'75270566	11/27/2007	7:59 AM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Turning Left	Straight
'75270577	11/28/2007	8:58 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Lighted	Dry	S	N	Turning Left	Straight
'80400370	2/10/2008	1:49 PM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Turning Left	Straight
'80530723	2/22/2008	10:46 AM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	W	S	Turning Left	Curve
'80860062	3/17/2008	7:45 AM	Paulding	State Route	'009200	13.82	2	'046600		0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	E	Turning Left	Straight

Accident No	Date	Time	County	Route Type	Route	Milelog	Intersecting Rt Type	Intersecting Rt	Injuries	Fatalities	Harmful Event	Collision	Location of Impact	Light	Surface	DirVeh1	DirVeh2	MnvrVeh1	MnvrVeh2
'81580225	4/3/2008	6:42 AM	Paulding	State Route	'009200	13.82	2	'046600	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight
'81330612	4/7/2008	9:46 AM	Paulding	State Route	'009200	13.82	2	'046600	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	E	Turning Right	Stopped
'81580253	5/3/2008	2:09 PM	Paulding	State Route	'009200	13.82	2	'046600	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	S	N	Turning Left	Curve
'81580257	5/3/2008	10:33 PM	Paulding	State Route	'009200	13.82	2	'046600	2	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	W	N	Turning Left	Straight
'81650174	5/15/2008	7:10 AM	Paulding	State Route	'009200	13.82	2	'046600	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Curve
'83660392	9/7/2008	12:00 PM	Paulding	State Route	'009200	13.82	2	'046600	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'83660455	9/15/2008	6:19 PM	Paulding	State Route	'009200	13.82	2	'046600	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Turning Left	Straight
'84120377	10/8/2008	2:48 PM	Paulding	State Route	'009200	13.82	2	'046600		0	Motor Vehicle in Motion	Sideswipe - Opposite Direction	On Roadway	Daylight	Wet	W	N	Turning Right	Straight
'85630213	12/5/2008	3:11 PM	Paulding	State Route	'009200	13.82	2	'046600		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Turning Left	Curve
'90320306	1/22/2009	6:59 AM	Paulding	State Route	'009200	13.82	2	'046600	0	0	Motor Vehicle in Motion	Head On	On Roadway	Dark-Not Lighted	Dry	W	E	Turning Left	Turning Left
'91240230	3/5/2009	8:01 AM	Paulding	State Route	'009200	13.82	2	'046600	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Turning Left
'91910114	4/13/2009	8:51 AM	Paulding	State Route	'009200	13.82	2	'046600	1	0	Other Object (Not Fixed)	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Wet	E		Stopped	
'92530483	5/29/2009	3:56 PM	Paulding	State Route	'009200	13.82	2	'046600	3	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	S	Turning Left	Straight
'93060433	6/25/2009	8:30 AM	Paulding	State Route	'009200	13.82	2	'046600	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	S	Turning Left	Turning Left
'95060184	10/7/2009	11:10 PM	Paulding	State Route	'009200	13.82	2	'046600	0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Lighted	Dry	N	W	Turning Right	Straight
'95460206	11/18/2009	6:37 PM	Paulding	State Route	'009200	13.82	2	'046600	0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	E	S	Turning Left	Straight
'92530252	5/6/2009	4:23 PM	Paulding	State Route	'009200	13.92			0	0	Other Fixed Object	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	N		Negotiating a Curve	
'91240231	3/5/2009	11:23 AM	Paulding	State Route	'009200	13.93			1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Turning Right
'64370481	11/7/2006	4:35 PM	Paulding	State Route	'009200	13.94	2	0650LJ	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	E	S	Straight	Straight
'61420342	4/14/2006	10:31 PM	Paulding	State Route	'009200	13.95				0	Fence	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	E		Straight	
'95460073	11/6/2009	1:41 PM	Paulding	State Route	'009200	13.98			0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'91910276	4/29/2009	3:53 PM	Paulding	State Route	'009200	14.04			0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Negotiating a Curve	Stopped
'73060344	7/21/2007	2:54 PM	Paulding	State Route	'009200	14.15	2	'117700		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'83490187	8/5/2008	3:33 PM	Paulding	State Route	'009200	14.15	2	'117700		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'74360141	10/11/2007	8:00 PM	Paulding	State Route	'009200	14.16			1	0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	S		Negotiating a Curve	
'83850037	9/18/2008	5:19 PM	Paulding	State Route	'009200	14.18				0	Motor Vehicle in Motion	Sideswipe - Opposite Direction	On Roadway	Daylight	Dry	N	S	Turning Left	Turning Left
'61490324	4/29/2006	12:36 AM	Paulding	State Route	'009200	14.24				0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	N		Negotiating a Curve	
'91960521	5/19/2009	6:23 AM	Paulding	State Route	'009200	14.4			0	0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Dusk	Dry	N		Straight	
'93590233	7/6/2009	9:03 PM	Paulding	State Route	'009200	14.44			3	0	Overturn	Head On	On Roadway	Dawn	Dry	N	S	Straight	Straight
'71550087	4/28/2007	3:33 AM	Paulding	State Route	'009200	14.65			1	0	Highway Traffic Sign Post	Not A Collision With A Motor Vehicle	On Shoulder	Dark-Not Lighted	Dry	N		Straight	
'95060324	10/22/2009	1:27 AM	Paulding	State Route	'009200	14.75			0	0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	S		Straight	
'75480258	12/21/2007	12:14 AM	Paulding	State Route	'009200	14.81	2	'189900		0	Other Fixed Object	Not A Collision With A Motor Vehicle	On Shoulder	Dark-Lighted	Wet	S		Negotiating a Curve	
'81000852	3/22/2008	9:48 AM	Paulding	State Route	'009200	14.81	2	'189900		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'62770560	7/25/2006	5:55 PM	Paulding	State Route	'009200	14.83				0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	S		Straight	
'84130108	9/28/2008	4:30 AM	Paulding	State Route	'009200	14.91				0	Overturn	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	N		Straight	
'74590102	10/29/2007	8:02 PM	Paulding	State Route	'009200	15.01				0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	N		Negotiating a Curve	
'81650189	5/16/2008	2:21 PM	Paulding	State Route	'009200	15.11			1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	S	Straight	Turning Left
'63210408	8/27/2006	1:59 PM	Paulding	State Route	'009200	15.33				0	Embankment	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	S		Negotiating a Curve	
'73660114	9/4/2007	1:48 PM	Paulding	State Route	'009200	15.41				0	Overturn	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Dry	N		Straight	
'80530720	2/18/2008	4:30 PM	Paulding	State Route	'009200	15.51			2	0	Motor Vehicle in Motion	Head On	On Roadway	Daylight	Dry	N	S	Straight	Straight
'70190052	1/31/2007	5:26 AM	Paulding	State Route	'009200	15.53				0	Embankment	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	S		Negotiating a Curve	
'71550093	4/29/2007	8:22 AM	Paulding	State Route	'009200	15.63				0	Overturn	Not A Collision With A Motor Vehicle	On Shoulder	Daylight	Dry	S		Straight	
'64310017	11/1/2006	6:11 AM	Paulding	State Route	'009200	15.82				0	Deer	Not A Collision With A Motor Vehicle	On Roadway	Dark-Not Lighted	Dry	N		Straight	
'84670241	11/14/2008	5:10 PM	Paulding	State Route	'009200	15.83	2	'127600		0	Motor Vehicle in Motion	Rear End	On Roadway	Dusk	Wet	N	N	Straight	Turning Left

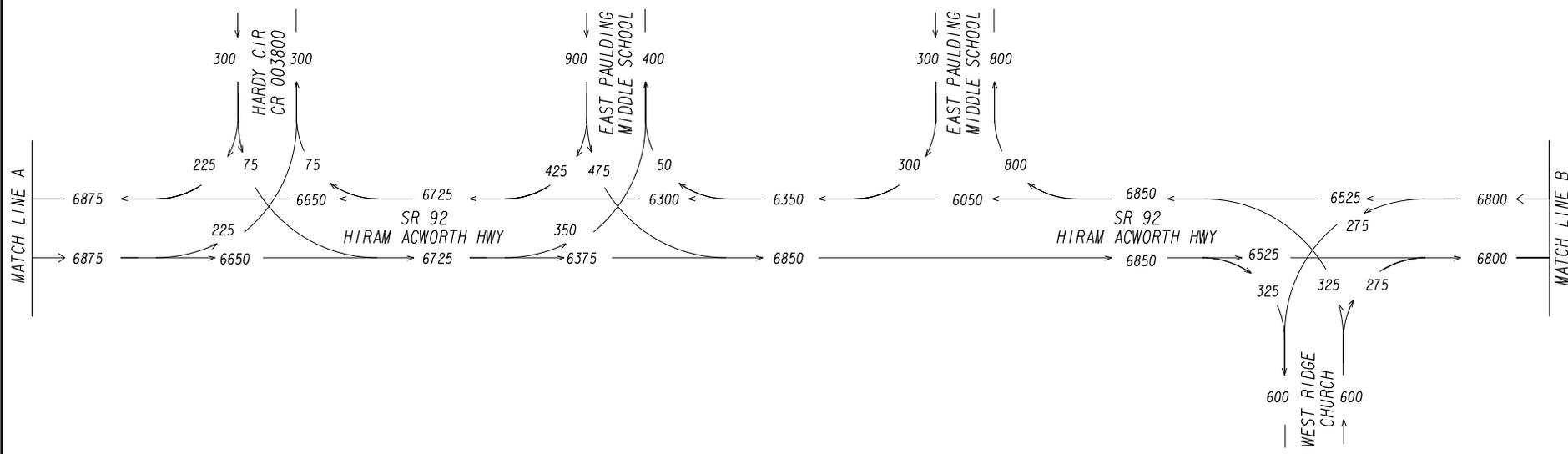
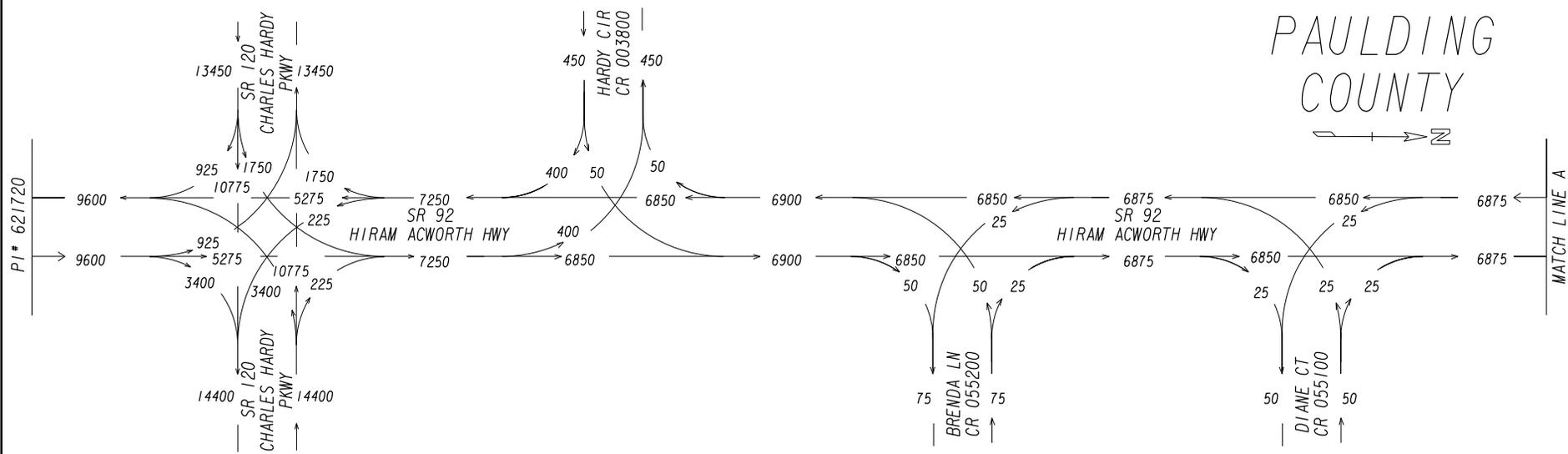
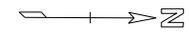
Accident No	Date	Time	County	Route Type	Route	Milelog	Intersecting Rt Type	Intersecting Rt	Injuries	Fatalities	Harmful Event	Collision	Location of Impact	Light	Surface	DirVeh1	DirVeh2	MnvVeh1	MnvVeh2	
'85630223	12/6/2008	9:19 PM	Paulding	State Route	'009200	15.83		2		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	S	S	Straight	Stopped	
'90320340	1/26/2009	4:22 PM	Paulding	State Route	'009200	15.83	2	'127600	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	N	Straight	Stopped	
'72410216	6/18/2007	6:58 PM	Paulding	State Route	'009200	16.02				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	W	Driveway	Straight	
'74500398	10/19/2007	1:09 AM	Paulding	State Route	'009200	16.03				0	Overturn	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	S		Straight		
'73830479	9/14/2007	4:17 PM	Paulding	State Route	'009200	16.06				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	N	N	Turning Right	Straight	
'84300244	10/11/2008	6:33 PM	Paulding	State Route	'009200	16.09				0	Mailbox	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	S		Negotiating a Curve		
'93590250	7/1/2009	9:18 PM	Paulding	State Route	'009200	16.09			0	0	Ditch	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	S		Turning Left		
'60040241	1/12/2006	7:48 PM	Paulding	State Route	'009200	16.12	2	'007300	1	0	Motor Vehicle in Motion	Head On	On Roadway	Dark-Lighted	Dry	S	N	Driveway	Straight	
'64740116	11/27/2006	7:18 AM	Paulding	State Route	'009200	16.12	2	'007300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Negotiating a Curve	Stopped	
'65110732	12/7/2006	8:34 AM	Paulding	State Route	'009200	16.12	2	'007300	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight	
'65110850	12/27/2006	10:17 AM	Paulding	State Route	'009200	16.12	2	'007300	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Turning Left	Curve	
'70960179	3/22/2007	4:14 PM	Paulding	State Route	'009200	16.12	2	'007300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped	
'73830411	9/2/2007	6:19 PM	Paulding	State Route	'009200	16.12	2	'007300	4	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Curve	
'81000863	3/24/2008	4:22 PM	Paulding	State Route	'009200	16.12	2	'007300	4	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	S	Straight	Straight	
'82130851	6/15/2008	3:42 PM	Paulding	State Route	'009200	16.12	2	'007300	3	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped	
'93990572	8/10/2009	5:58 PM	Paulding	State Route	'009200	16.12	2	'007300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped	
'61760415	5/19/2006	7:50 AM	Paulding	State Route	'009200	16.22				0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'63140071	8/21/2006	6:50 PM	Paulding	State Route	'009200	16.22				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	N	W	Passing	Driveway	
'64100009	10/13/2006	4:57 PM	Paulding	State Route	'009200	16.22				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	N	Driveway	Driveway	
'64370453	11/4/2006	2:28 PM	Paulding	State Route	'009200	16.22				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Driveway	Straight	
'72750350	7/2/2007	6:48 AM	Paulding	State Route	'009200	16.22			1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped	
'81650564	5/12/2008	7:48 AM	Paulding	State Route	'009200	16.23				0	Motor Vehicle in Motion	Head On	On Roadway	Daylight	Dry	W	N	Driveway	Straight	
'71890610	5/4/2007	5:38 PM	Paulding	State Route	'009200	16.31			1	0	Embankment	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	N		Straight		
'63340054	8/31/2006	6:14 PM	Paulding	State Route	'009200	16.32				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight	
'64310030	11/1/2006	6:33 PM	Paulding	State Route	'009200	16.32				0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Lighted	Dry	S	N	Turning Left	Straight	
'64880511	12/1/2006	10:30 AM	Paulding	State Route	'009200	16.32			1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Driveway	Curve	
'73480051	8/20/2007	3:38 PM	Paulding	State Route	'009200	16.32				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight	
'75030166	11/16/2007	6:15 PM	Paulding	State Route	'009200	16.32				0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Dark-Lighted	Dry	N	N	Parking	Stopped	
'81000281	3/25/2008	8:52 PM	Paulding	State Route	'009200	16.32				0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	N	N	Straight	Stopped	
'92530460	5/27/2009	5:25 PM	Paulding	State Route	'009200	16.33	2	'235900	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Turning Left	Straight	
'92530380	5/20/2009	6:53 AM	Paulding	State Route	'009200	16.34			1	0	Tree	Not A Collision With A Motor Vehicle	Off Roadway	Daylight	Dry	W		Straight		
'64880493	11/27/2006	4:25 PM	Paulding	State Route	'009200	16.35				0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'74070488	9/15/2007	11:20 AM	Paulding	State Route	'009200	16.40				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	W	Passing	Turning Left	
'81200513	4/8/2008	1:27 PM	Paulding	State Route	'009200	16.4				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	S	Passing	Turning Right	
'61150552	4/7/2006	6:08 PM	Paulding	State Route	'009200	16.41	2	'007300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'95060221	10/12/2009	8:07 AM	Paulding	State Route	'009200	16.41			0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	E	E	Straight	Stopped	
'60660668	3/14/2006	8:37 AM	Paulding	State Route	'009200	16.42				0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Daylight	Dry	N	N	Changing Lanes	Straight	
'63060531	8/14/2006	1:05 PM	Paulding	State Route	'009200	16.42			1	0	Parked Motor Vehicle	Angle	Off Roadway	Daylight	Dry	S	E	Straight	Parked	
'64740046	11/18/2006	3:04 PM	Paulding	State Route	'009200	16.42			1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Driveway	Straight	
'81000556	3/29/2008	1:17 PM	Paulding	State Route	'009200	16.42				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	W	Turning Left	Turning Left	
'60420291	2/28/2006	6:07 PM	Paulding	State Route	'009200	16.43				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	S	Driveway	Straight	
'63940408	10/6/2006	4:18 PM	Paulding	State Route	'009200	16.43				0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	N	N	Stopped	Straight	
'63940407	10/6/2006	7:32 PM	Paulding	State Route	'009200	16.43				0	Motor Vehicle in Motion	Angle	On Roadway	Dusk	Dry	S	N	Turning Left	Turning Right	
'70960283	3/22/2007	8:00 AM	Paulding	State Route	'009200	16.43				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Driveway	Straight	
'91240428	3/26/2009	4:41 PM	Paulding	State Route	'009200	16.43			1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	S	W	Entering/Leaving Driveway	Straight	
'60660664	3/12/2006	4:15 PM	Paulding	State Route	'009200	16.44				2	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Straight
'60970563	3/14/2006	7:37 AM	Paulding	State Route	'009200	16.44				0	Motor Vehicle in Motion	Angle	On Shoulder	Daylight	Dry	S	N	Turning Left	Straight	
'60950397	3/27/2006	8:46 AM	Paulding	State Route	'009200	16.44				0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	S	Driveway	Straight	
'84530137	10/27/2008	7:57 AM	Paulding	State Route	'009200	16.44				0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped	
'60660334	3/12/2006	11:25 AM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	S	Straight	Straight	
'60810172	3/16/2006	7:23 PM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Lighted	Dry	S	N	Straight	Turning Left	
'61390148	4/11/2006	8:20 AM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Highway Traffic Sign Post	Not A Collision With A Motor Vehicle	On Roadway	Daylight	Dry	E	W	Straight	Turning Left	
'62060749	6/3/2006	9:07 AM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	S	Straight	Straight	
'62160137	6/7/2006	9:40 AM	Paulding	State Route	'009200	16.45	2	'047300	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Straight	
'62590190	6/30/2006	12:40 PM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'62970281	7/28/2006	11:12 AM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Backing	Stopped	
'64430283	11/10/2006	6:42 AM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dawn	Dry	E	E	Backing	Stopped	
'64430019	11/14/2006	8:22 AM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Backing	Stopped	
'75420298	12/14/2007	7:07 PM	Paulding	State Route	'009200	16.45				0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	N	N	Straight	Stopped	
'72160399	5/29/2007	5:50 PM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Head On	On Roadway	Daylight	Dry	W	N	Turning Left	Passing	
'73420506	8/10/2007	6:35 PM	Paulding	State Route	'009200	16.45	2	'047300	3	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Straight	Stopped	
'74250308	9/26/2007	7:27 AM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped	
'72240387	5/31/2007	3:01 PM	Paulding	State Route	'009200	16.45	2	'071000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	N	Straight	Turning Left	
'80100256	1/26/2008	4:42 PM	Paulding	State Route	'009200	16.45	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	S	Backing	Stopped	
'82130843	6/14/2008	2:01 PM	Paulding	State Route	'009200	16.45	2	'071000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	W	Straight	Straight	
'95060156	10/5/2009	8:56 PM	Paulding	State Route	'009200	16.45	2	'071000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Wet	W	W	Straight	Stopped	
'80530731	2/25/2008	7:19 AM	Paulding	State Route	'009															

Accident No	Date	Time	County	Route Type	Route	Milelog	Intersecting Rt Type	Intersecting Rt	Injuries	Fatalities	Harmful Event	Collision	Location of Impact	Light	Surface	DirVeh1	DirVeh2	MnvVeh1	MnvVeh2
'81000850	3/21/2008	8:59 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Head On	On Roadway	Dark-Lighted	Dry	N	S	Changing Lanes	Turning Left
'81490219	4/26/2008	11:34 PM	Paulding	State Route	'009200	10.08	1	'012000	4	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Wet	N	W	Straight	Turning Left
'81650835	5/3/2008	1:12 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Daylight	Wet	S	S	Changing Lanes	Straight
'81650555	5/9/2008	6:21 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	S	Making U-Turn	Curve
'82030046	5/23/2008	4:06 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Straight	Stopped
'82020343	6/12/2008	8:11 AM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Turning Right
'82310576	6/16/2008	1:40 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Making U-Turn	Straight
'82480248	6/26/2008	8:33 PM	Paulding	State Route	'009200	10.08	1	'012000	6	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'82490144	7/7/2008	12:30 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'83000139	7/31/2008	10:20 PM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Wet	N	N	Straight	Stopped
'83000132	8/14/2008	9:30 AM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Straight	Stopped
'83850031	9/7/2008	11:41 AM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	W	W	Backing	Stopped
'83660462	9/17/2008	9:20 AM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Straight	Stopped
'85620249	10/1/2008	8:00 AM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Sideswipe - Same Direction	On Roadway	Daylight	Dry	E	E	Straight	Turning Right
'84300346	10/22/2008	1:58 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Turning Left	Stopped
'84530140	10/29/2008	10:06 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Lighted	Dry	E	W	Straight	Turning Left
'84530158	10/31/2008	5:26 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Turning Right	Stopped
'85040351	11/19/2008	6:13 AM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	W	E	Turning Left	Straight
'85040464	11/30/2008	9:19 AM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	E	E	Straight	Stopped
'90850262	2/11/2009	7:38 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Wet	E	S	Turning Right	Straight
'90760154	2/28/2009	5:00 PM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	W	W	Straight	Straight
'91240279	3/11/2009	7:28 AM	Paulding	State Route	'009200	10.08	1	'012000		0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	N	N	Turning Right	Stopped
'91240445	3/27/2009	7:52 AM	Paulding	State Route	'009200	10.08	1	'012000	3	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	E	W	Turning Left	Straight
'91910268	4/28/2009	9:04 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	W	Turning Left	Straight
'92530336	5/16/2009	2:23 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	W	W	Straight	Straight
'91960520	5/18/2009	7:09 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'92710232	6/21/2009	3:44 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion - In Other Roadway	Sideswipe - Opposite Direction	On Roadway	Daylight	Dry	E	W	Turning Left	Straight
'93590276	7/4/2009	2:41 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	E	Turning Right	Stopped
'93590297	7/22/2009	1:44 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Turning Right
'93590434	7/27/2009	3:22 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Turning Right
'93590498	7/31/2009	10:41 AM	Paulding	State Route	'009200	10.08	1	'012000	5	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	E	W	Straight	Turning Left
'94000119	8/21/2009	5:28 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	W	Straight	Stopped
'94000146	8/25/2009	3:22 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'94000150	8/25/2009	7:10 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Turning Right	Stopped
'94510328	9/1/2009	6:33 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	S	S	Turning Right	Stopped
'94510335	9/1/2009	9:37 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	W	E	Turning Left	Straight
'94510376	9/7/2009	8:28 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	W	E	Turning Left	Straight
'94510387	9/8/2009	6:06 PM	Paulding	State Route	'009200	10.08	1	'012000	4	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'94510587	9/29/2009	11:12 AM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	E	Straight	Straight
'94510596	9/30/2009	11:34 AM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Head On	On Roadway	Daylight	Dry	W	E	Turning Left	Straight
'95060250	10/14/2009	3:50 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Straight	Stopped
'95070040	10/26/2009	2:12 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'95060380	10/31/2009	1:07 AM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Wet	S	S	Straight	Stopped
'95060390	10/31/2009	4:35 PM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Wet	N	N	Turning Right	Stopped
'95460092	11/8/2009	1:11 AM	Paulding	State Route	'009200	10.08	1	'012000	0	0	Motor Vehicle in Motion	Angle	On Roadway	Dark-Not Lighted	Dry	S	N	Turning Left	Straight
'95460207	11/18/2009	7:34 PM	Paulding	State Route	'009200	10.08	1	'012000	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	N	N	Turning Right	Turning Right
'95460222	11/20/2009	11:21 AM	Paulding	State Route	'009200	10.08	1	'012000	2	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	W	N	Straight	Straight
'80860061	3/17/2008	6:23 AM	Paulding	State Route	'009200	10.09		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dawn	Dry	N	S	Backing	Stopped
'94510362	9/4/2009	6:05 PM	Paulding	State Route	'009200	10.09		'	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight
'94510388	9/8/2009	6:40 PM	Paulding	State Route	'009200	10.09		'	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	S	Turning Left	Straight
'60570161	2/19/2006	2:16 PM	Paulding	State Route	'009200	10.1		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Stopped	Stopped
'80390044	1/22/2008	9:45 AM	Paulding	State Route	'009200	10.12		'	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	N	S	Turning Left	Straight
'81000858	3/22/2008	12:22 PM	Paulding	State Route	'009200	10.12		'	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	N	Making U-Turn	Straight
'94210088	10/5/2009	8:18 AM	Paulding	State Route	'009200	10.12		'	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	N	S	Turning Right	Straight
'81650534	5/6/2008	2:03 PM	Paulding	State Route	'009200	10.14		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'82770126	6/11/2008	5:40 PM	Paulding	State Route	'009200	10.15		'	1	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	N	Turning Left	Straight
'60290372	2/10/2006	9:50 AM	Paulding	State Route	'009200	10.17		'	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	S	Changing Lanes	Curve
'60120230	1/31/2006	7:35 PM	Paulding	State Route	'009200	10.18		'	2	0	Tree	Not A Collision With A Motor Vehicle	Off Roadway	Dark-Not Lighted	Dry	N		Negotiating a Curve	
'72410230	6/19/2007	9:35 PM	Paulding	State Route	'009200	10.18		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Not Lighted	Dry	S	S	Stopped	Stopped
'75420339	12/18/2007	8:05 AM	Paulding	State Route	'009200	10.18		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'83490222	8/9/2008	9:55 AM	Paulding	State Route	'009200	10.18		'	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'93590230	7/7/2009	9:27 AM	Paulding	State Route	'009200	10.22		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'72010263	5/24/2007	11:50 AM	Paulding	State Route	'009200	10.23		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'64610256	11/10/2006	3:56 PM	Paulding	State Route	'009200	10.26		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'90320388	1/31/2009	10:50 PM	Paulding	State Route	'009200	10.26		'	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Dark-Lighted	Dry	N	N	Straight	Straight

Accident No	Date	Time	County	Route Type	Route	Milelog	Intersecting Rt Type	Intersecting Rt	Injuries	Fatalities	Harmful Event	Collision	Location of Impact	Light	Surface	DirVeh1	DirVeh2	MnvrVeh1	MnvrVeh2
'80860704	3/13/2008	4:14 PM	Paulding	State Route	'009200	16.46	2	'047300		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	S	W	Turning Right	Straight
'83530414	6/13/2008	3:33 PM	Paulding	State Route	'009200	16.46	2	'047300		0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	N	W	Straight	Straight
'82130855	6/16/2008	11:39 AM	Paulding	State Route	'009200	16.46	2	'047300	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'83530415	6/25/2008	5:43 PM	Paulding	State Route	'009200	16.46	2	'047300		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Straight	Stopped
'83490410	8/28/2008	3:55 PM	Paulding	State Route	'009200	16.46	2	'047300	1	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	N	N	Negotiating a Curve	Stopped
'83660420	9/10/2008	4:15 PM	Paulding	State Route	'009200	16.46	2	'047300		0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	W	W	Straight	Stopped
'90320336	1/26/2009	7:15 AM	Paulding	State Route	'009200	16.46	2	'047300	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	W	W	Turning Right	Turning Left
'90530071	2/8/2009	4:09 PM	Paulding	State Route	'009200	16.46	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Straight
'91040394	3/17/2009	4:11 PM	Paulding	State Route	'009200	16.46	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Stopped	Straight
'91910186	4/20/2009	6:00 PM	Paulding	State Route	'009200	16.46	2	'047300	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Dry	E	S	Straight	Straight
'92530361	5/18/2009	2:22 PM	Paulding	State Route	'009200	16.46	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	S	S	Straight	Stopped
'94510347	9/3/2009	8:55 AM	Paulding	State Route	'009200	16.46	2	'047300	0	0	Motor Vehicle in Motion	Angle	On Roadway	Daylight	Wet	N	S	Straight	Turning Left
'95060340	10/23/2009	10:29 AM	Paulding	State Route	'009200	16.46	2	'047300	0	0	Motor Vehicle in Motion	Rear End	On Roadway	Daylight	Dry	E	E	Straight	Stopped

Attachment 5
Traffic Diagrams

PAULDING COUNTY



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

2013 ADT
 EXISTING

24 HOUR T= 5%
 SU= 4%
 COMB= 1%

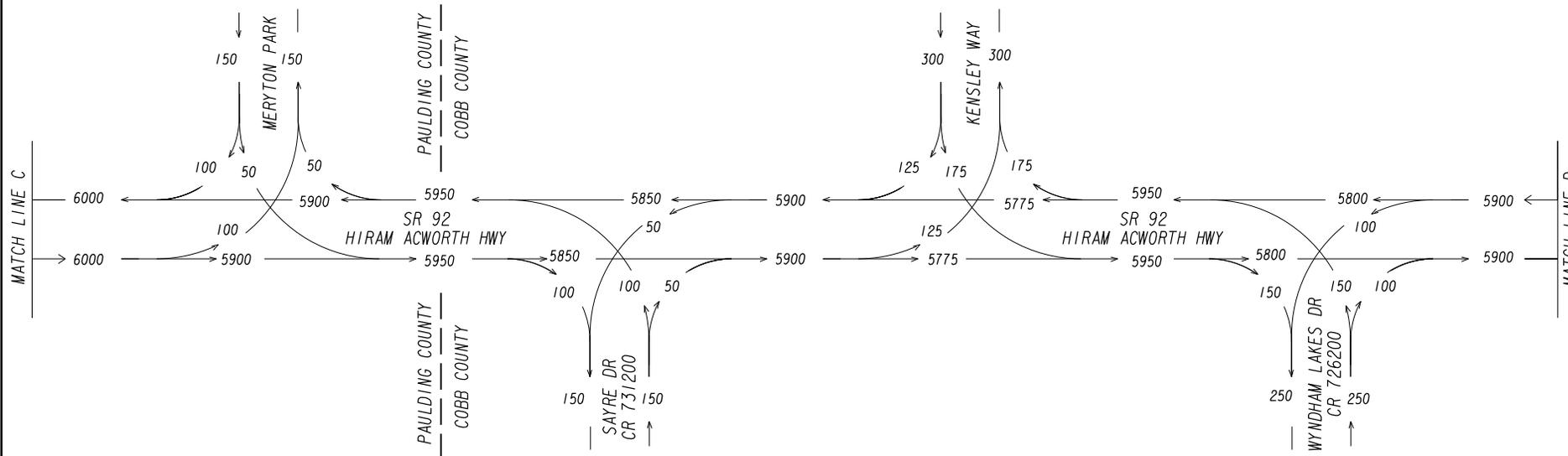
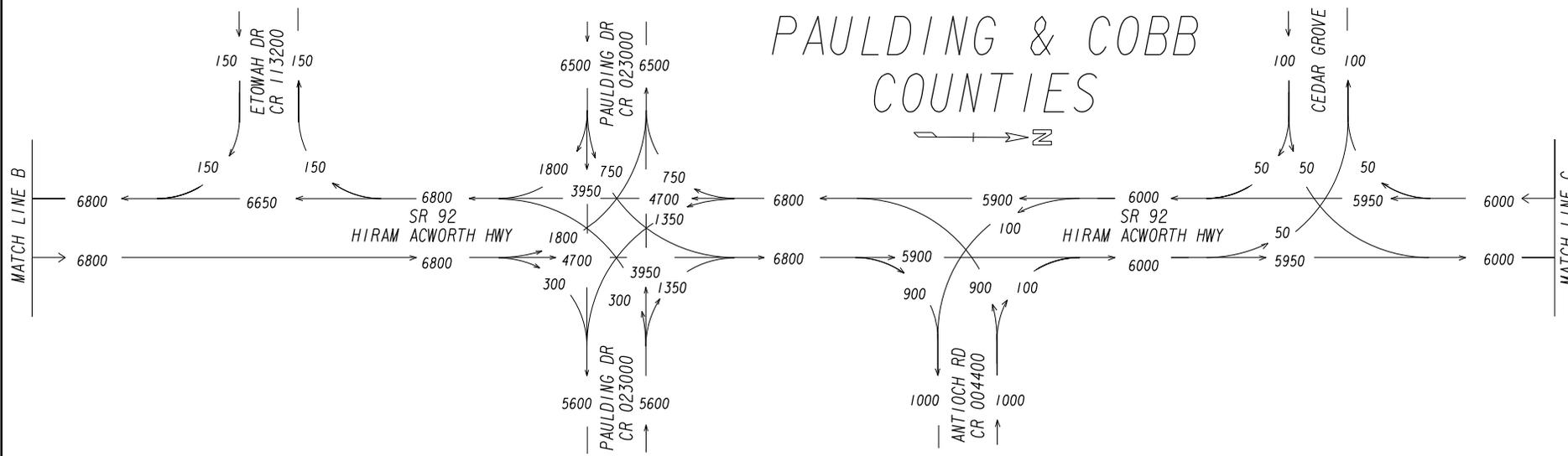
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 SU= 3.5%
 COMB= 1%

REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-1

PAULDING & COBB COUNTIES



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

2013 ADT
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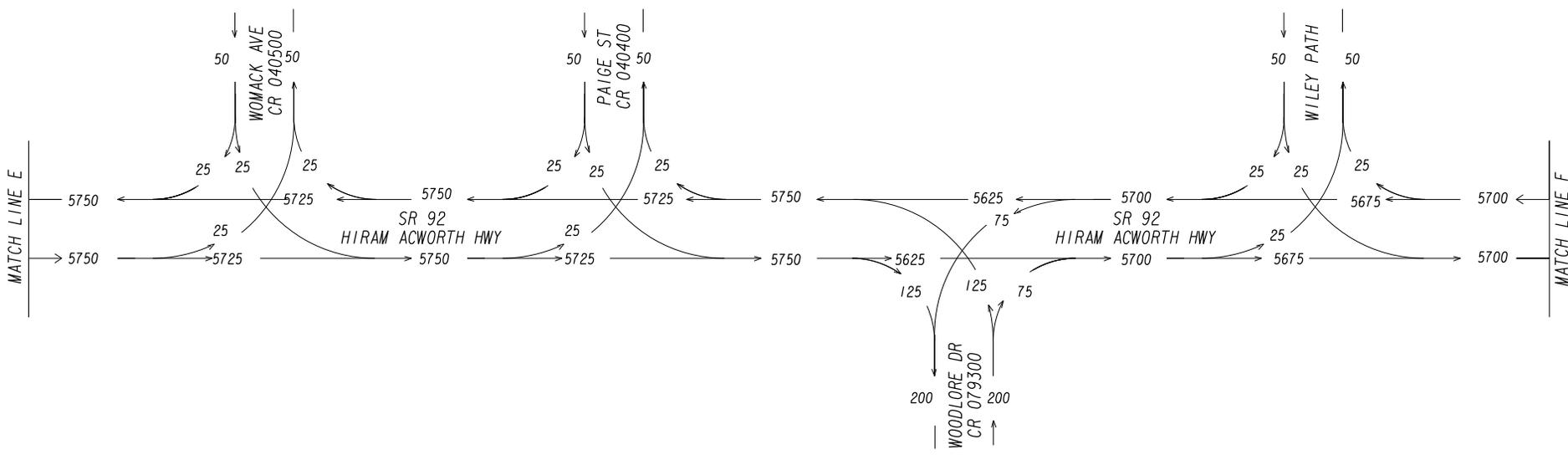
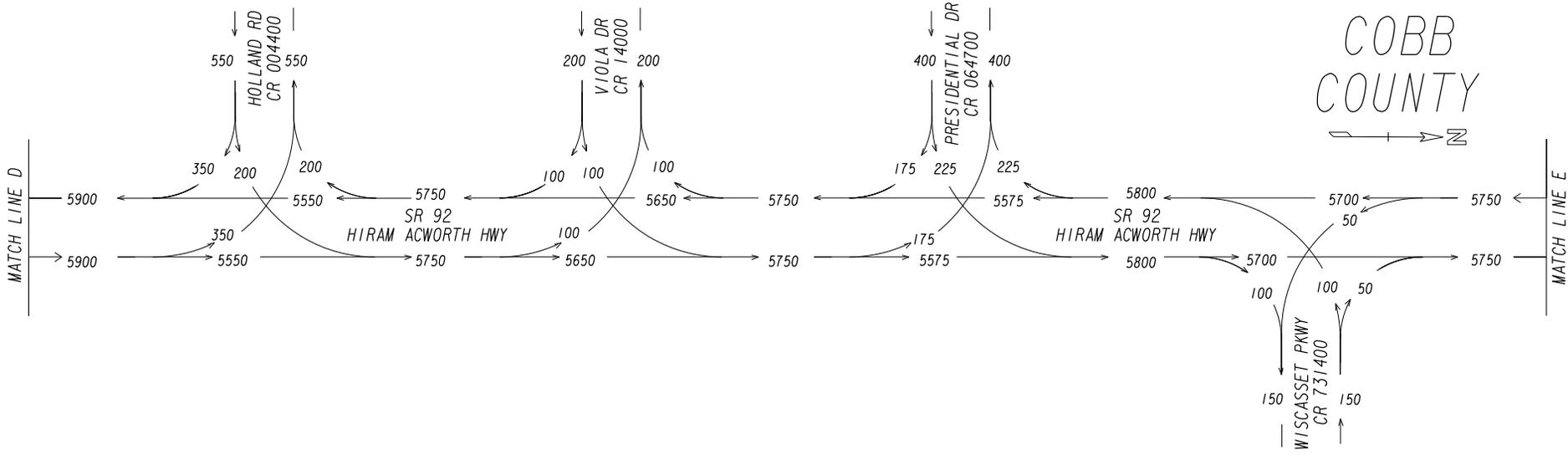
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T= 4.5%
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REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No.
10-2



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

2013 ADT
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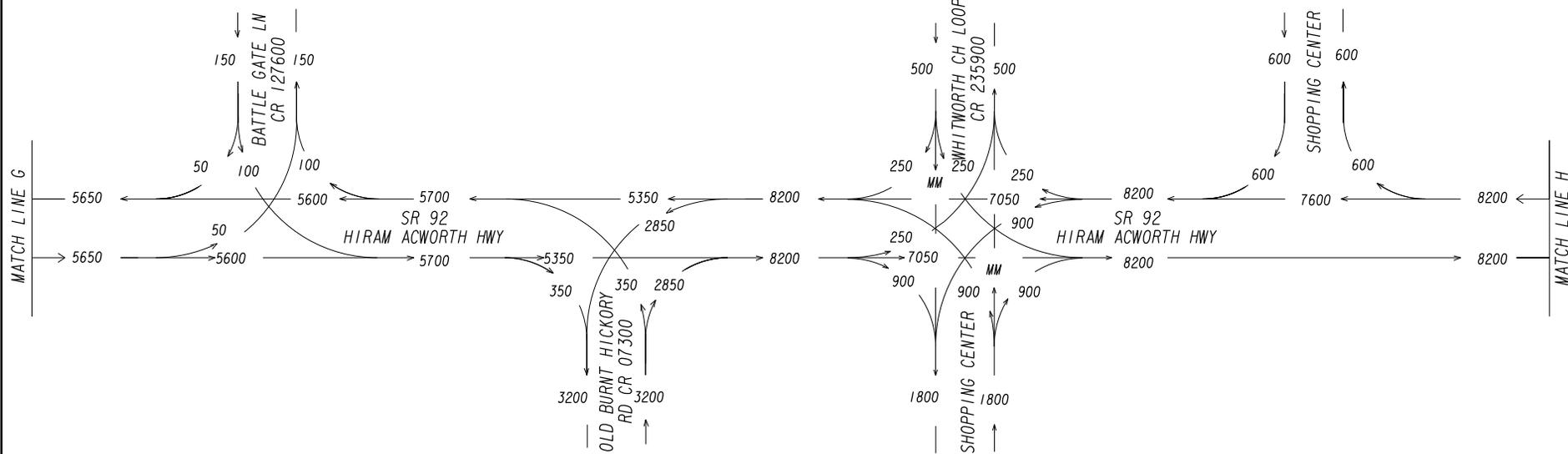
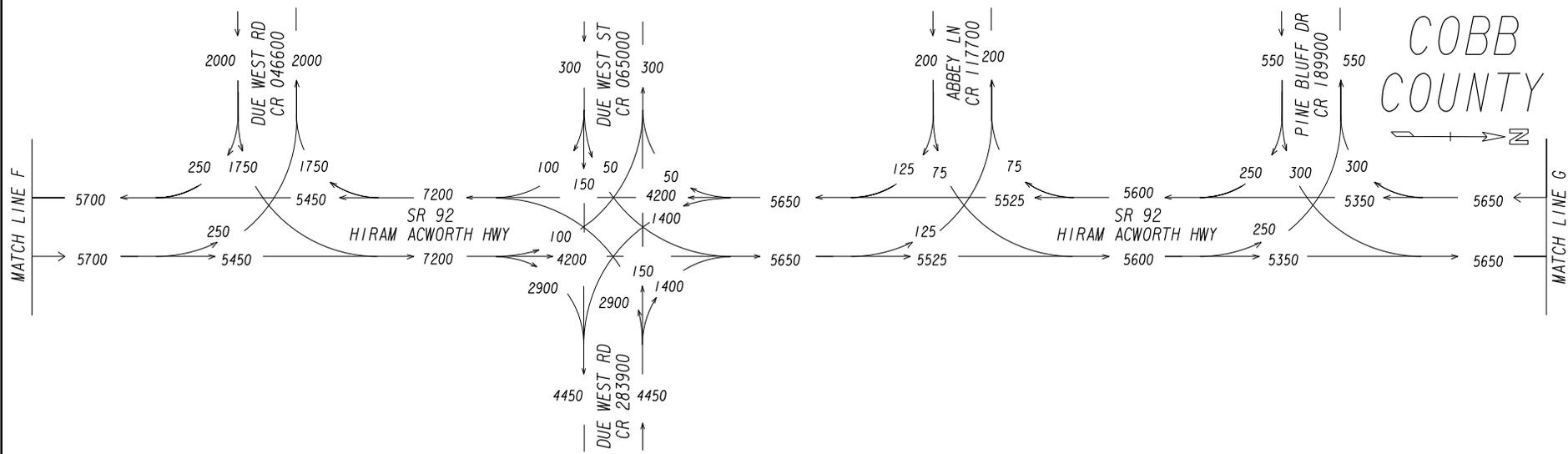
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REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-3

COBB COUNTY



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

2013 ADT
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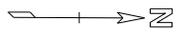
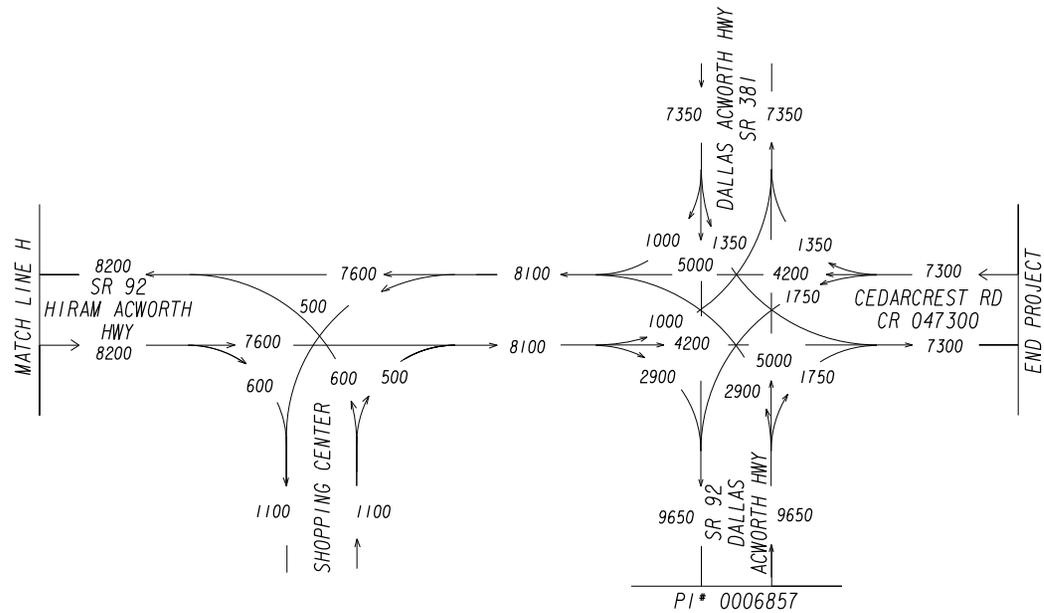
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REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-4

COBB COUNTY

CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

2013 ADT
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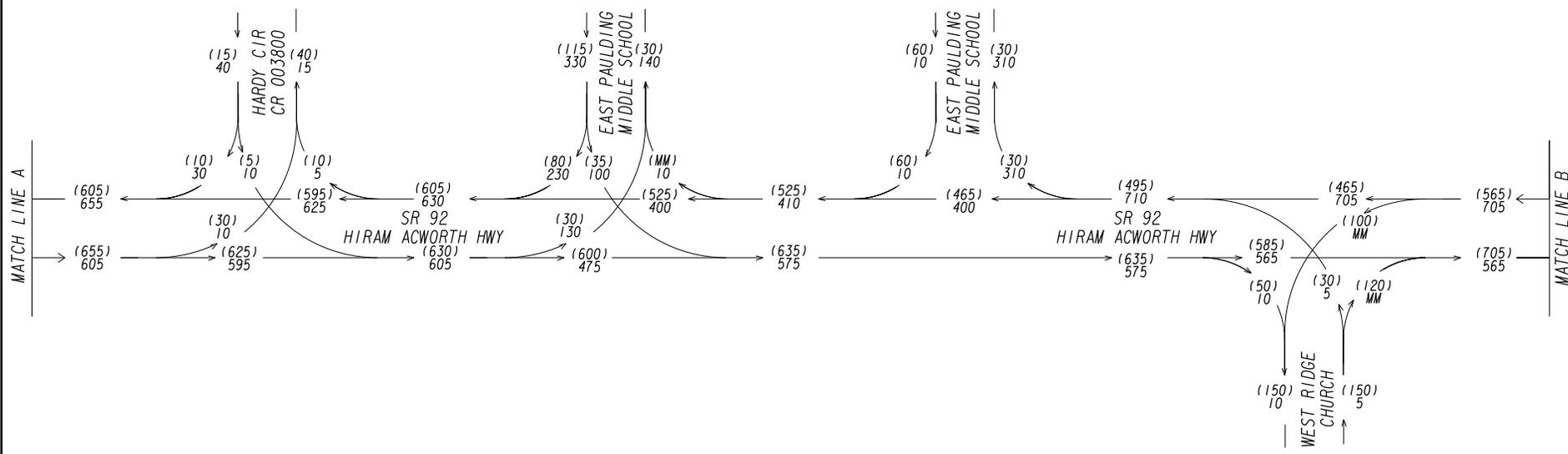
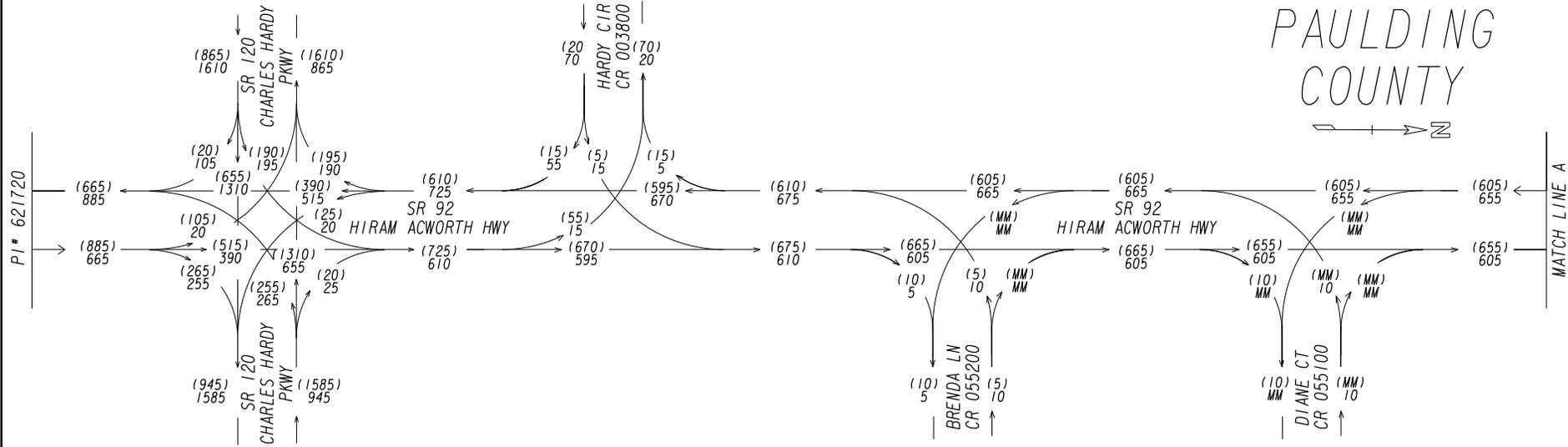
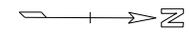
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T= 4.5%
 SU= 3.5%
 COMB= 1%

REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM

PAULDING COUNTY



CSSTP-007-00(692)
PI# 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

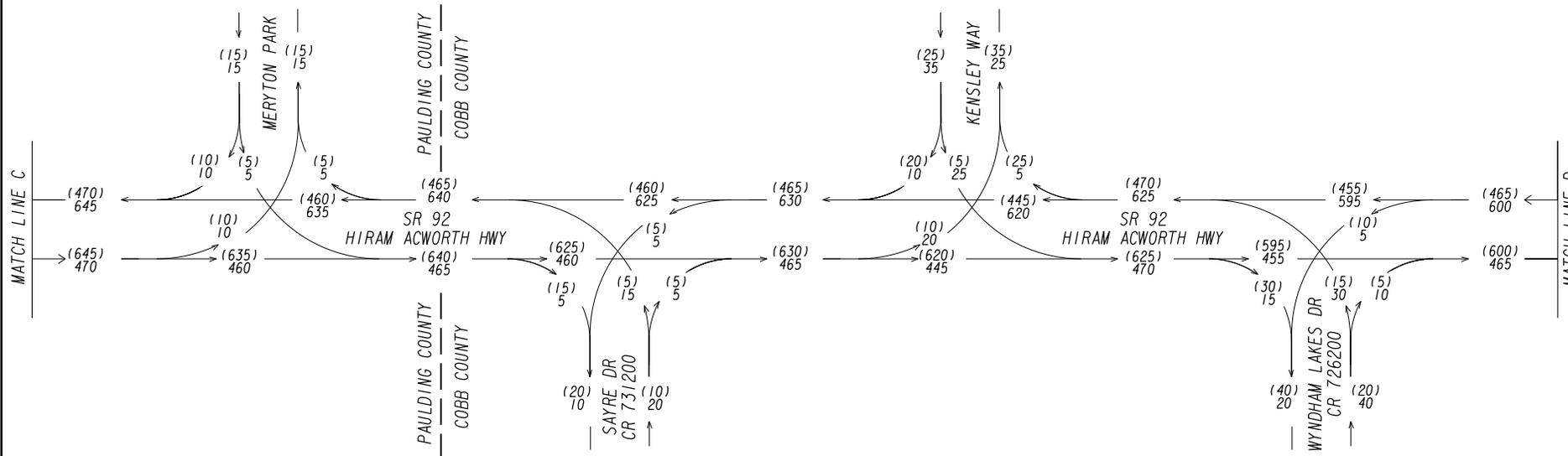
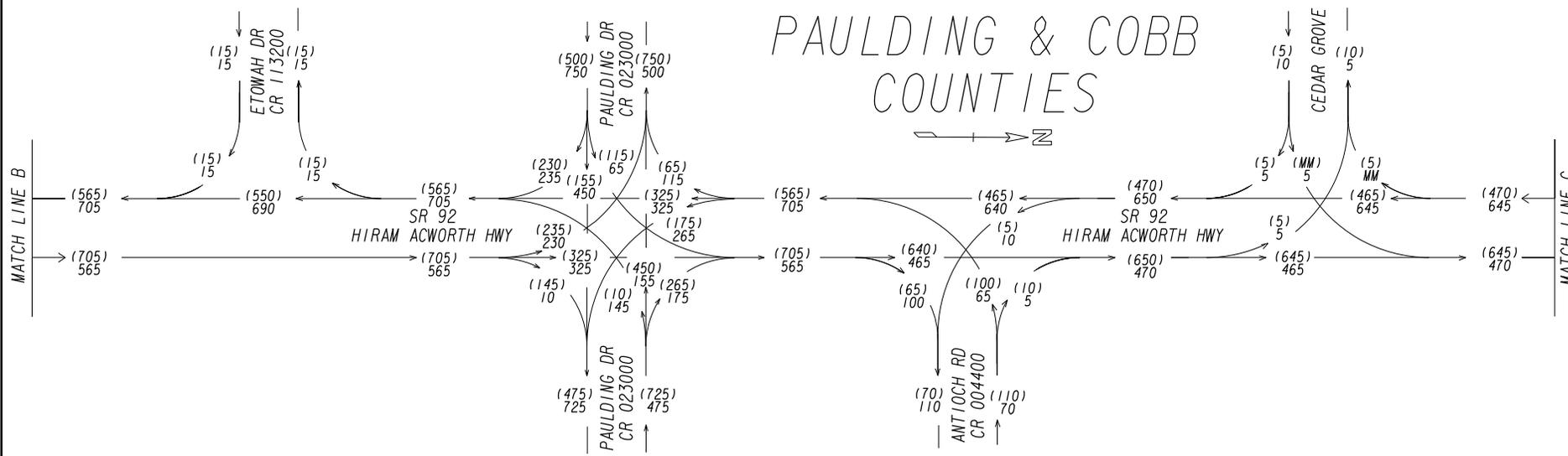
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EXISTING

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T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

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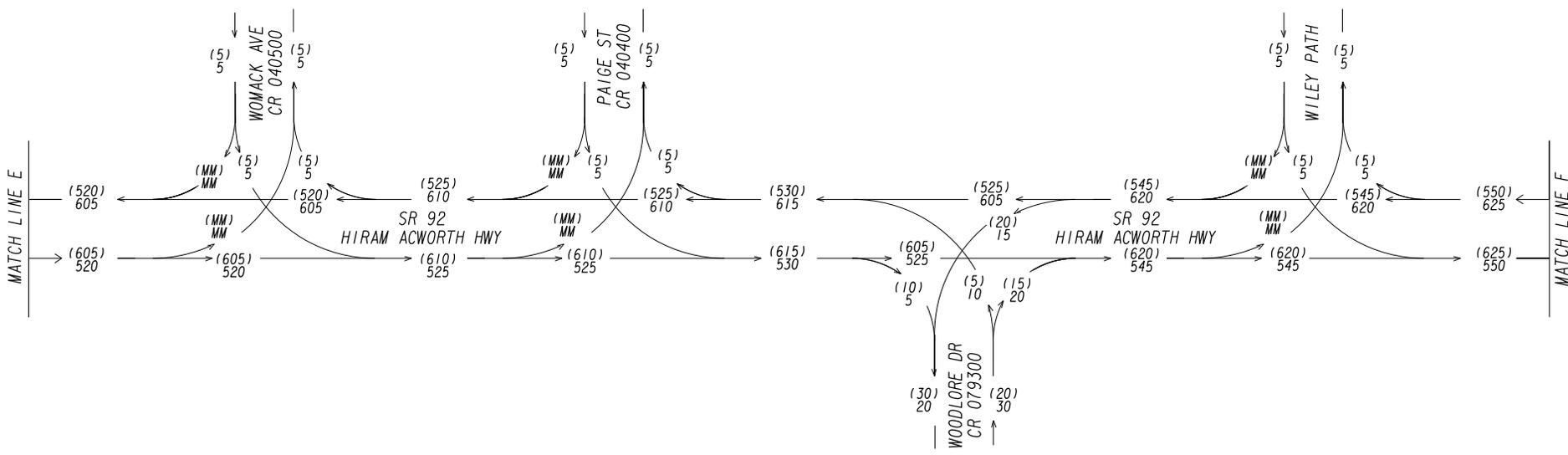
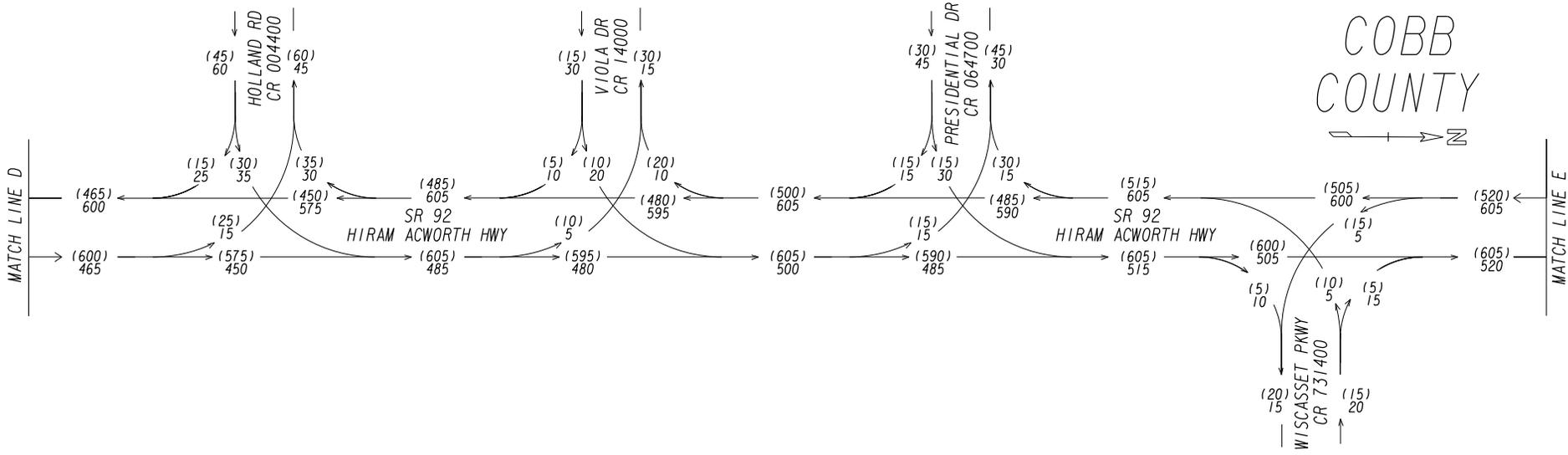
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SU = 4%
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T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No.
10-7



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

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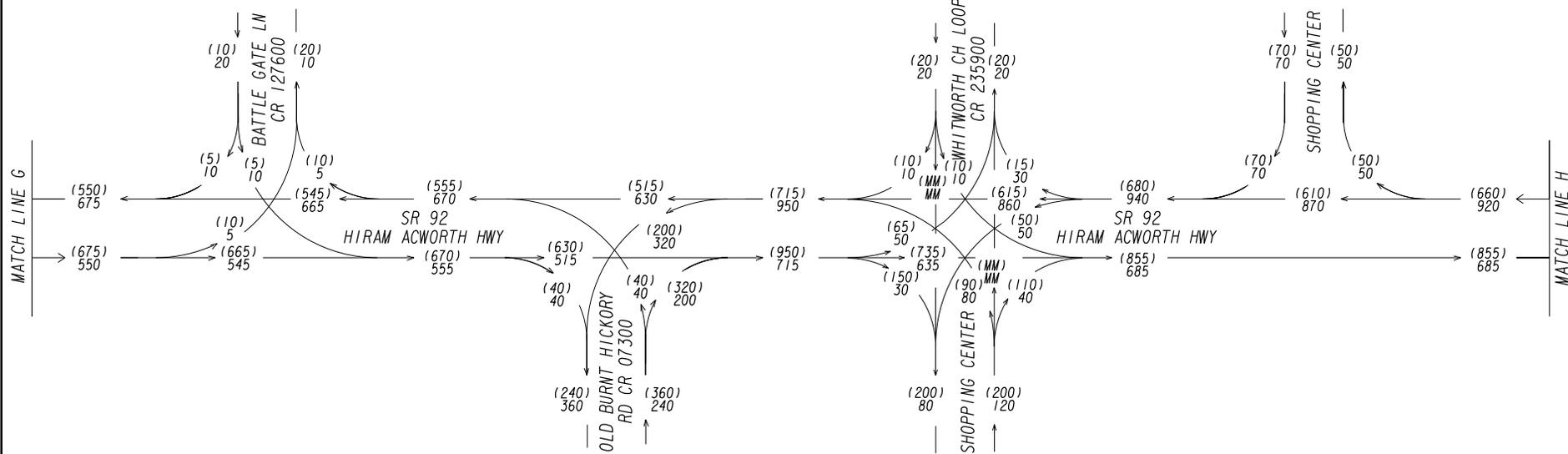
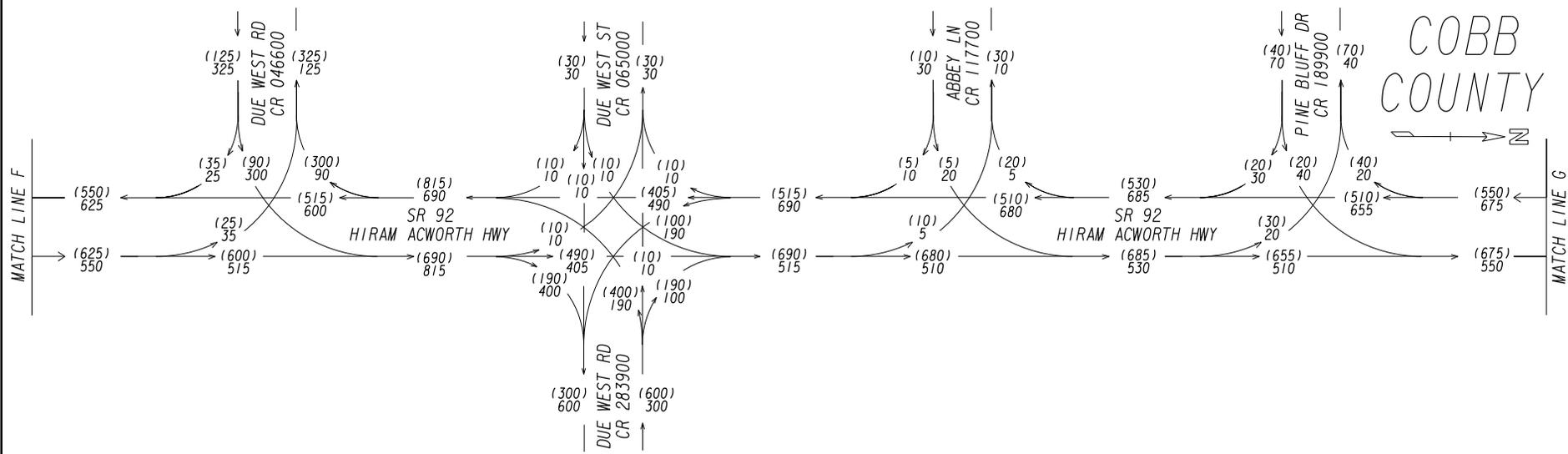
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REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-8

COBB COUNTY



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

2013 PM DHV = (000)
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24 HOUR T = 5%
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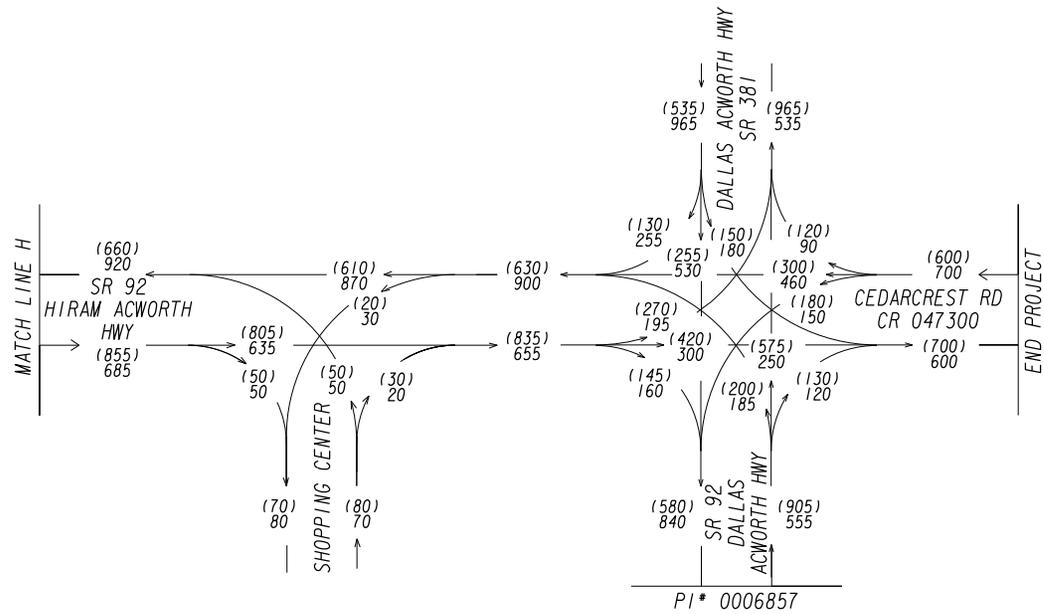
REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-9

COBB COUNTY

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CSSTP-007-00(692)
PI# 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2013 PM DHV = (000)
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EXISTING

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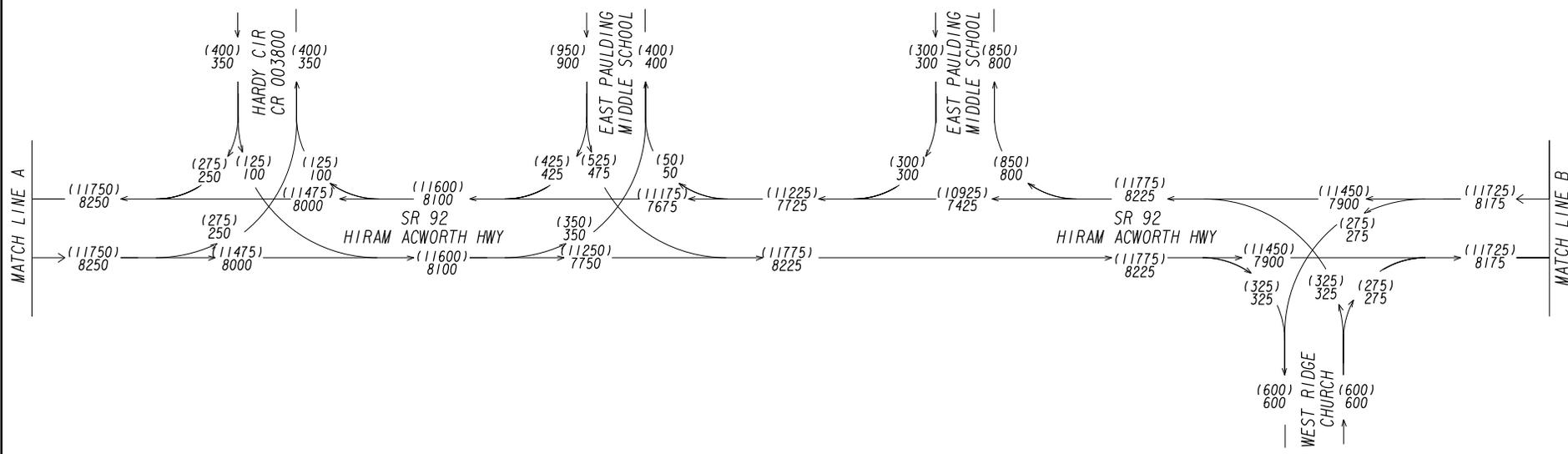
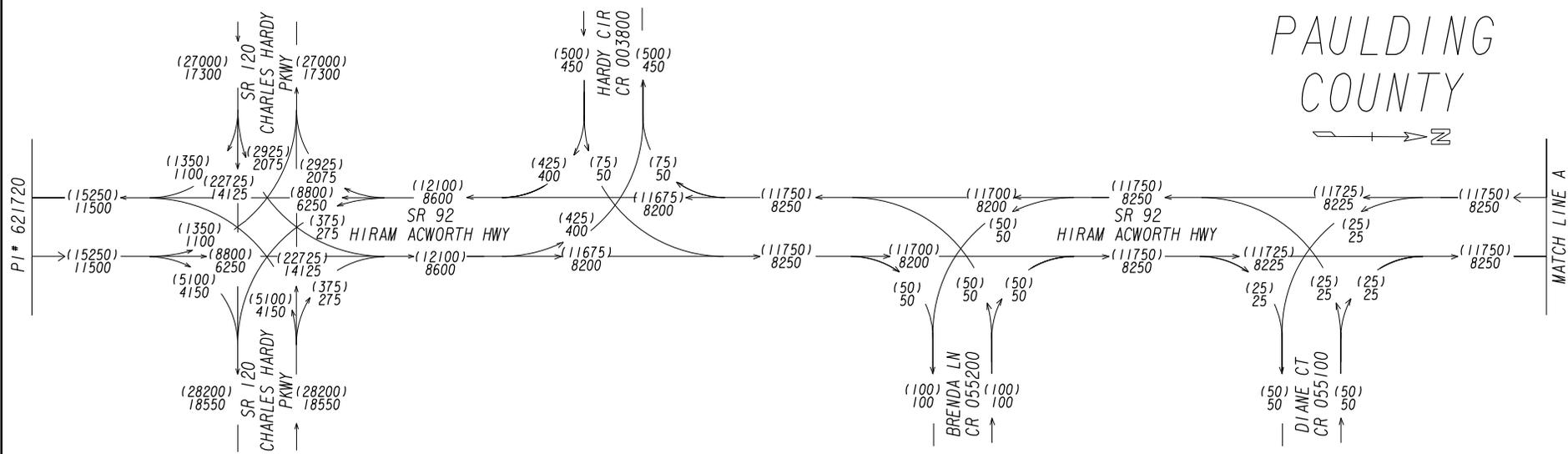
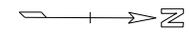
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SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING

TRAFFIC DIAGRAM

PAULDING COUNTY



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 ADT = (000)
2020 ADT = 000
NO BUILD

24 HOUR T = 5%
SU = 4%
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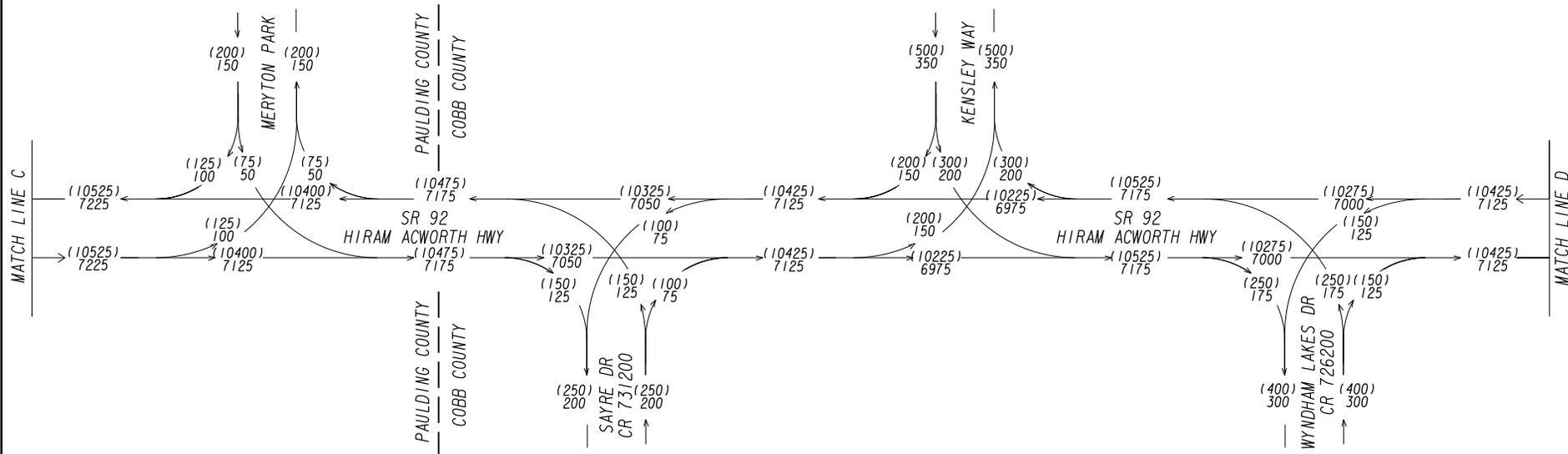
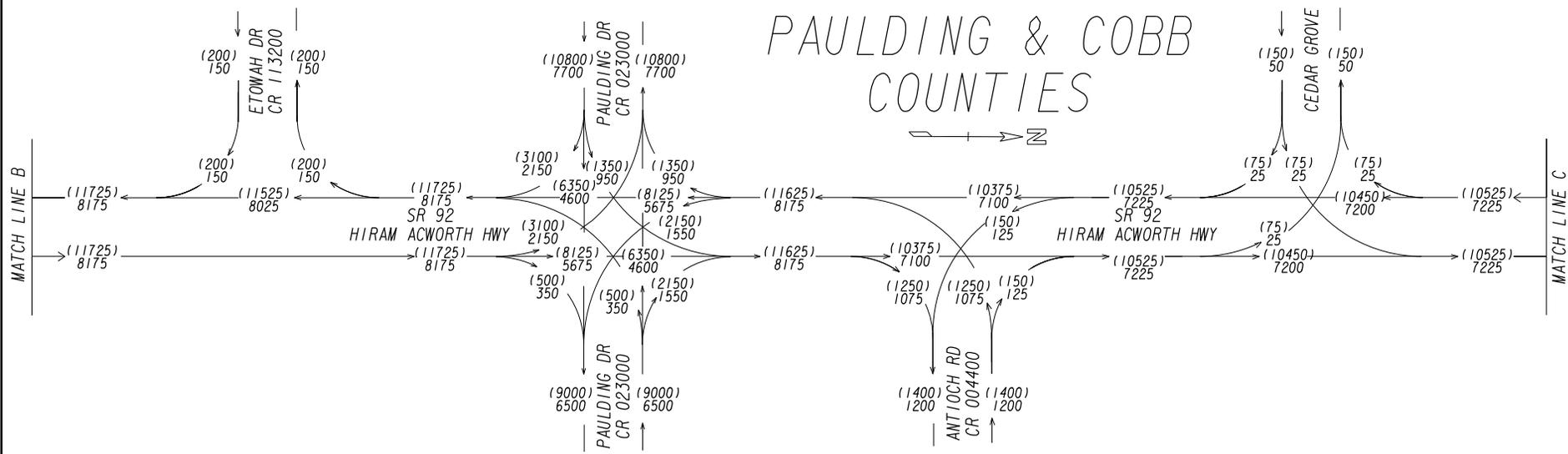
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REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No.
10-11

PAULDING & COBB COUNTIES



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

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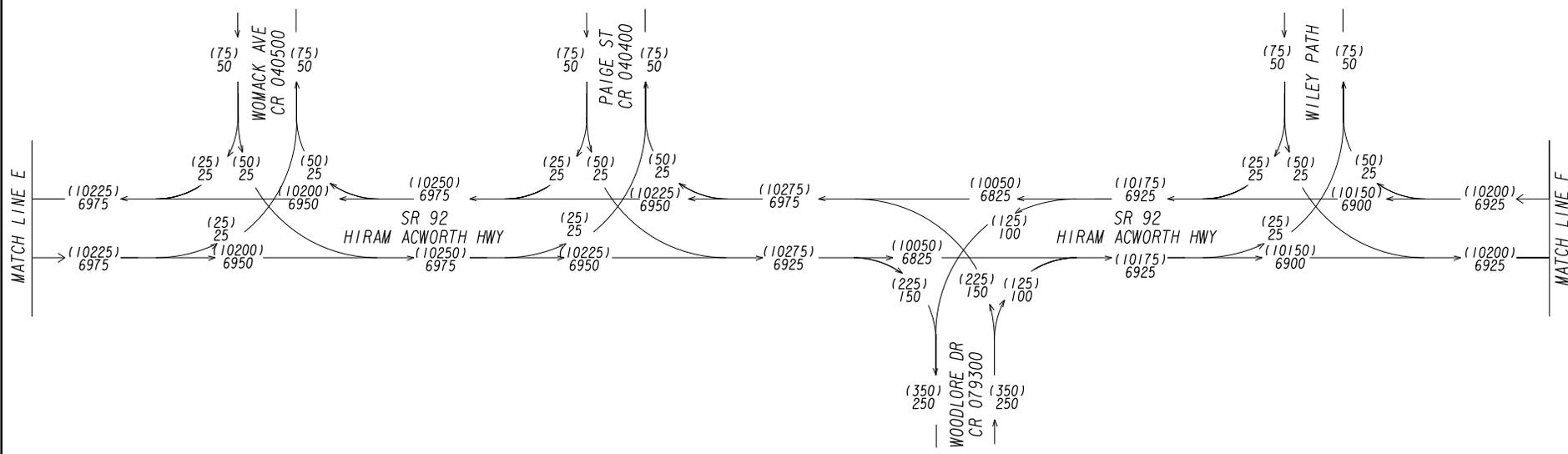
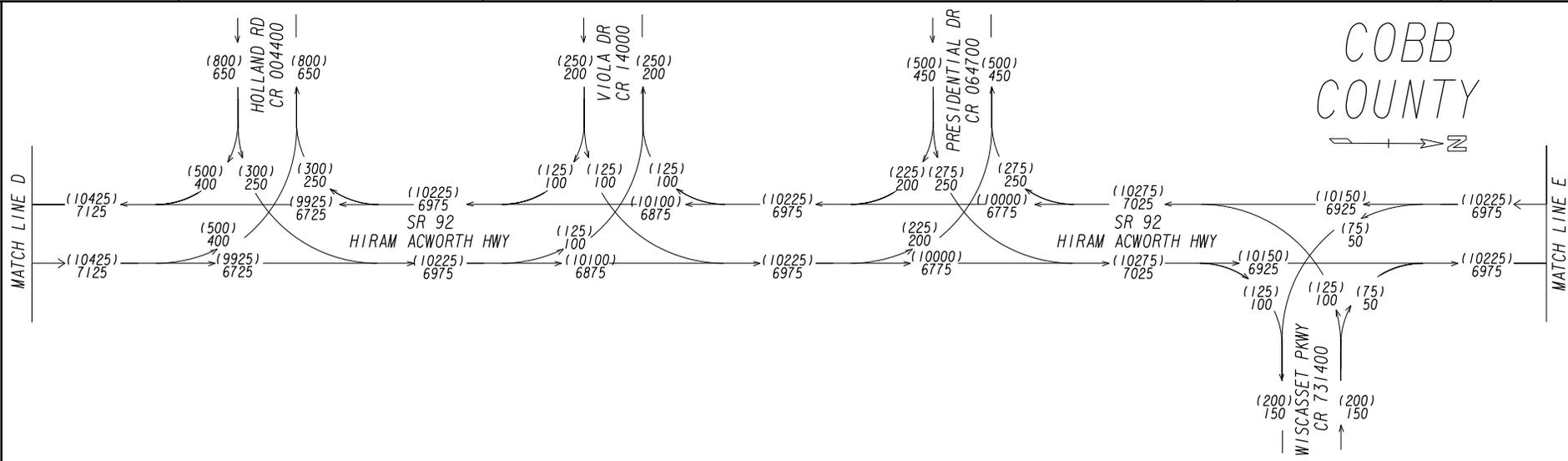
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REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-12

COBB COUNTY



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 ADT = (000)
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COMB = 1%

T = 4.5%
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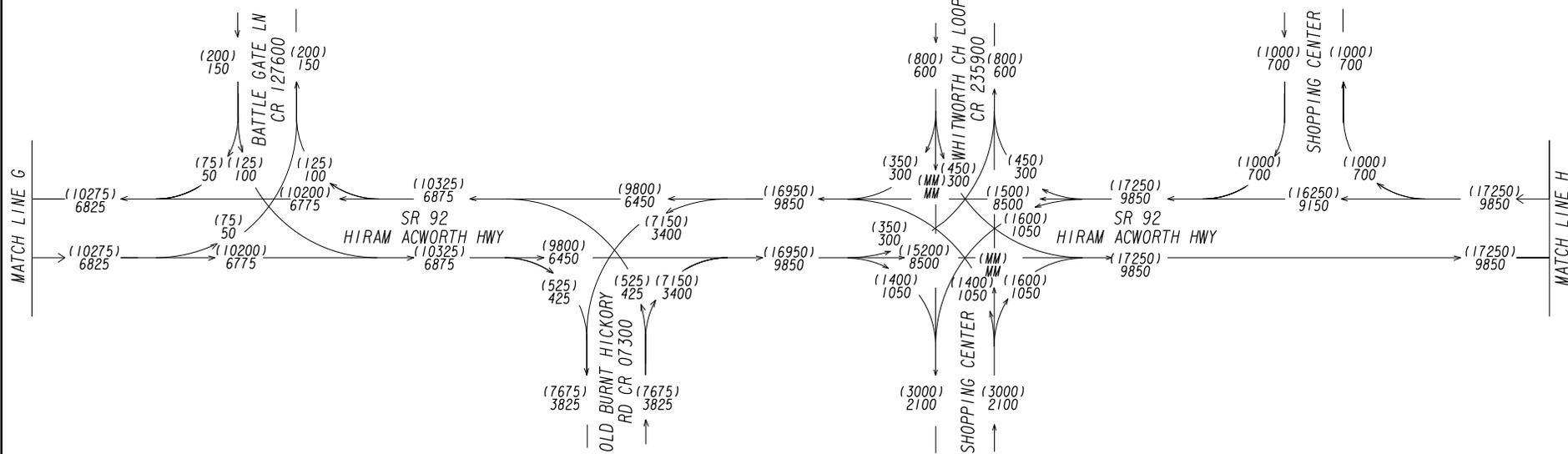
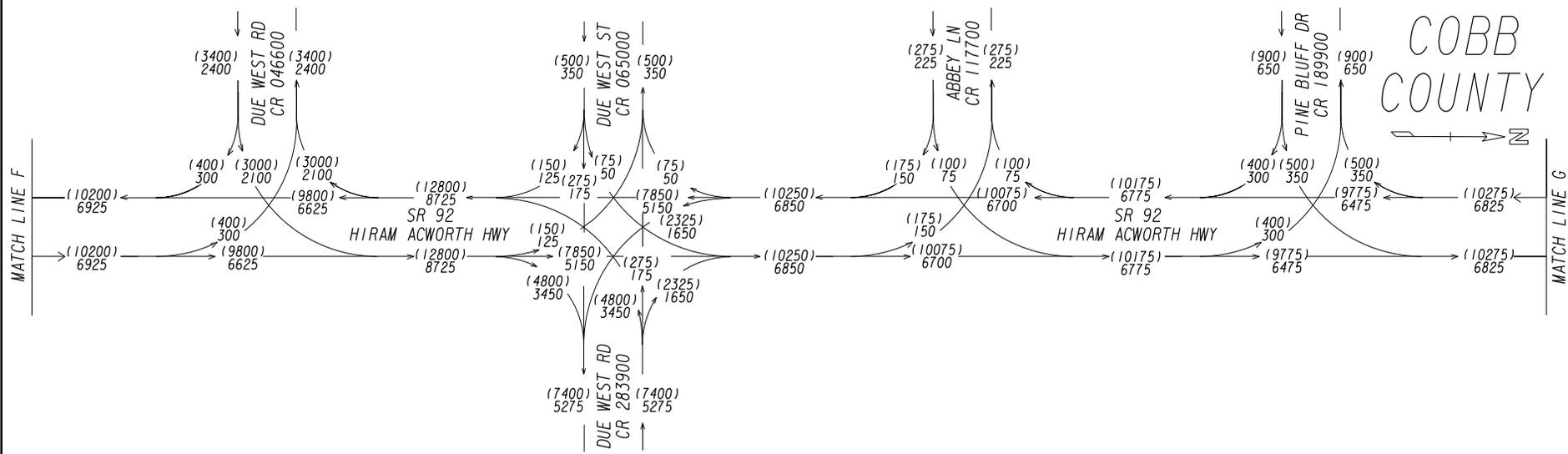
REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING

TRAFFIC DIAGRAM

DRAWING No. 10-13

COBB COUNTY



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 ADT = (000)
2020 ADT = 000
NO BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

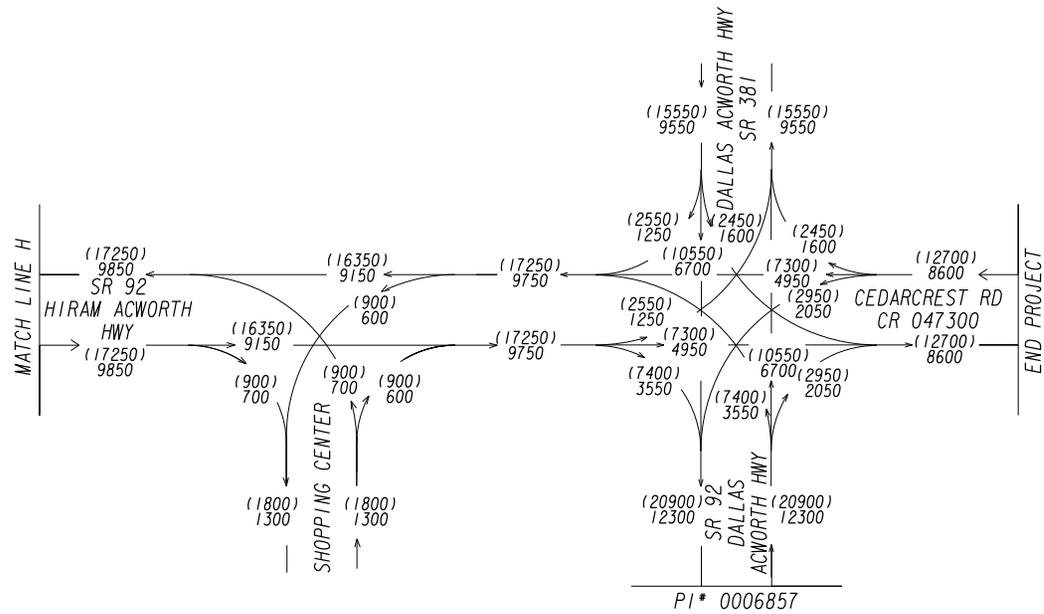
T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

COBB COUNTY

→ → → → →



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 ADT= (000)
2020 ADT= 000
NO BUILD

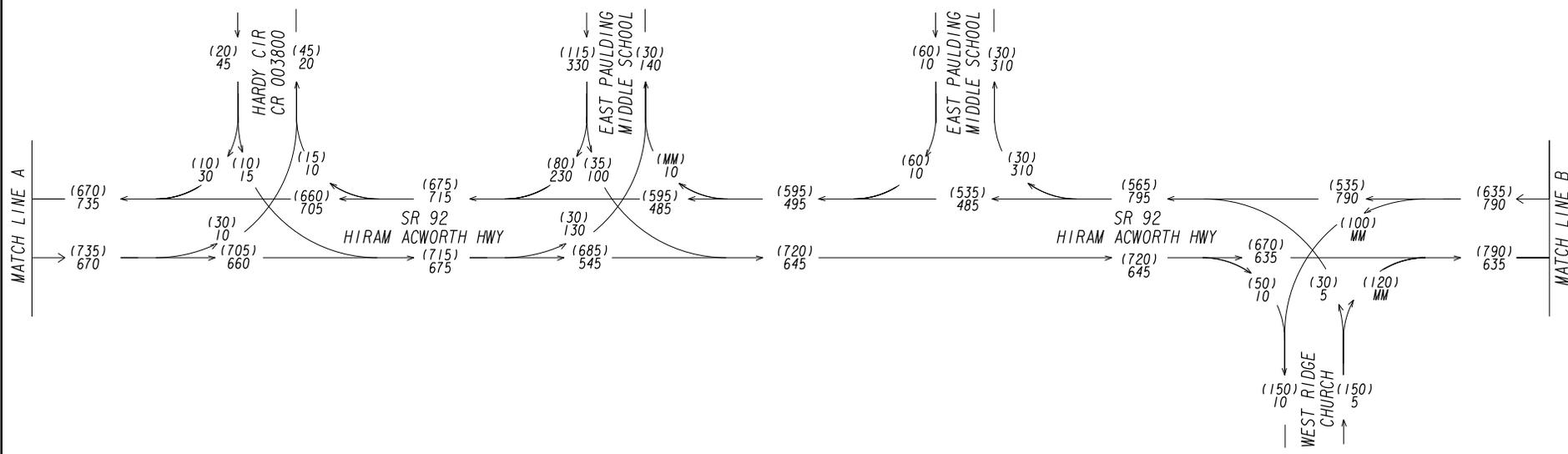
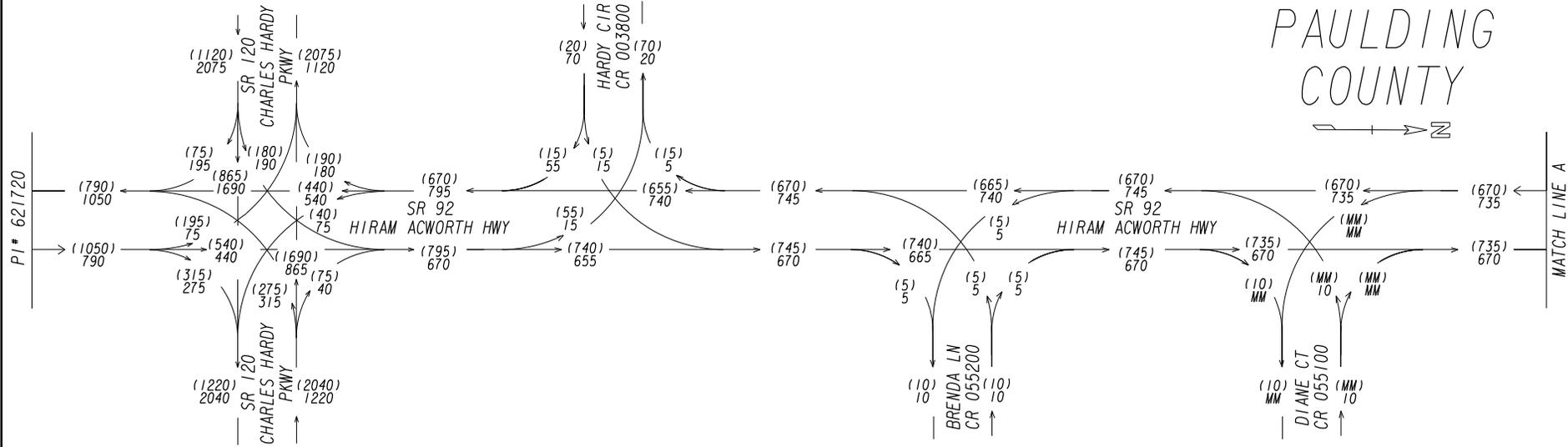
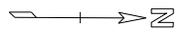
24 HOUR T= 5%
SU= 4%
COMB= 1%

T= 4.5%
SU= 3.5%
COMB= 1%

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

PAULDING COUNTY



CSSTP-007-00(692)
PI# 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2020 PM DHV = (000)
2020 AM DHV = 000
NO BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

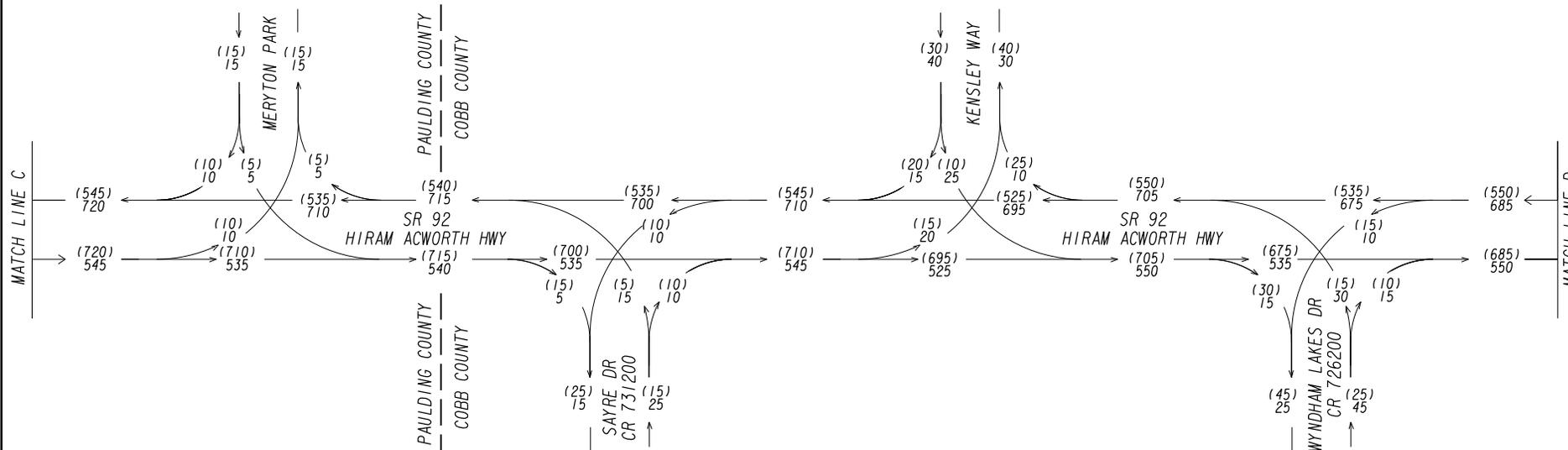
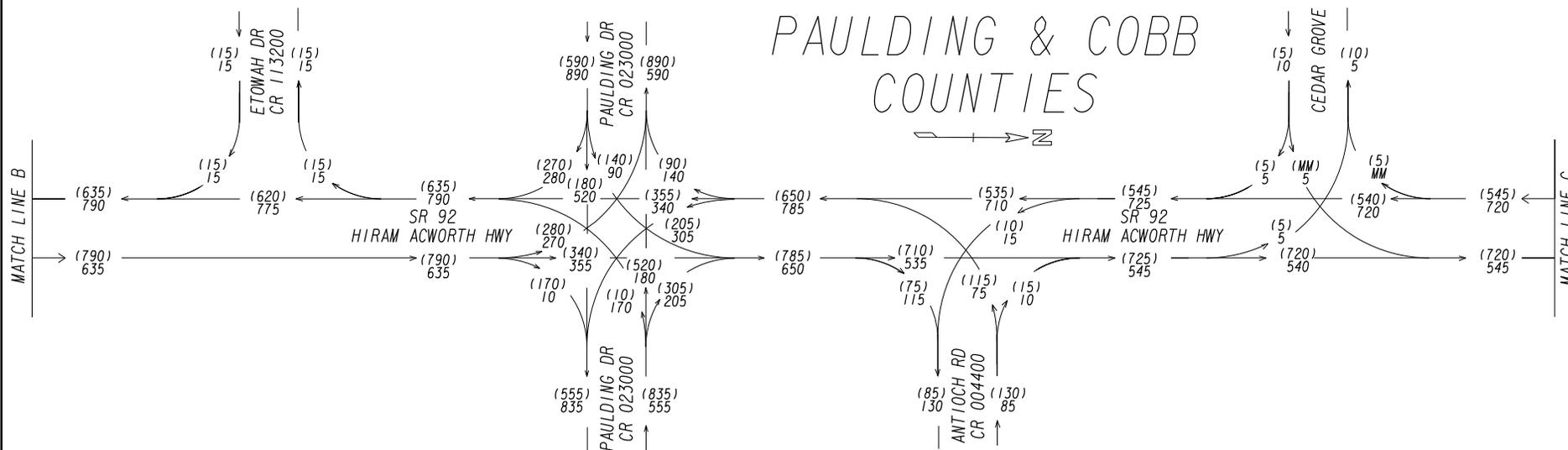
T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-16

PAULDING & COBB COUNTIES



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

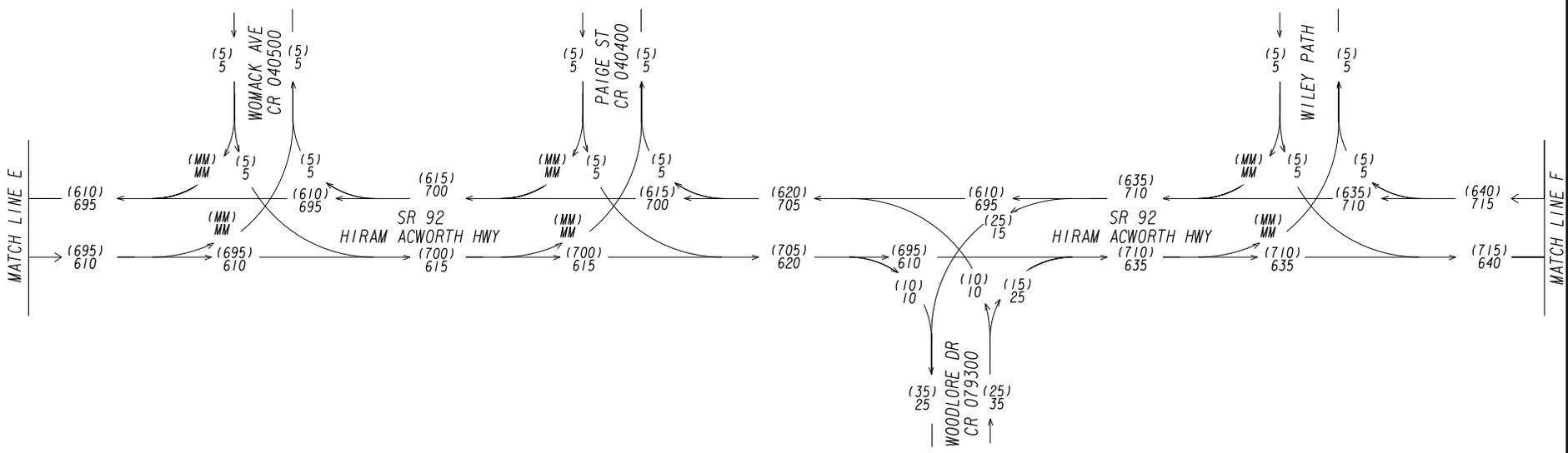
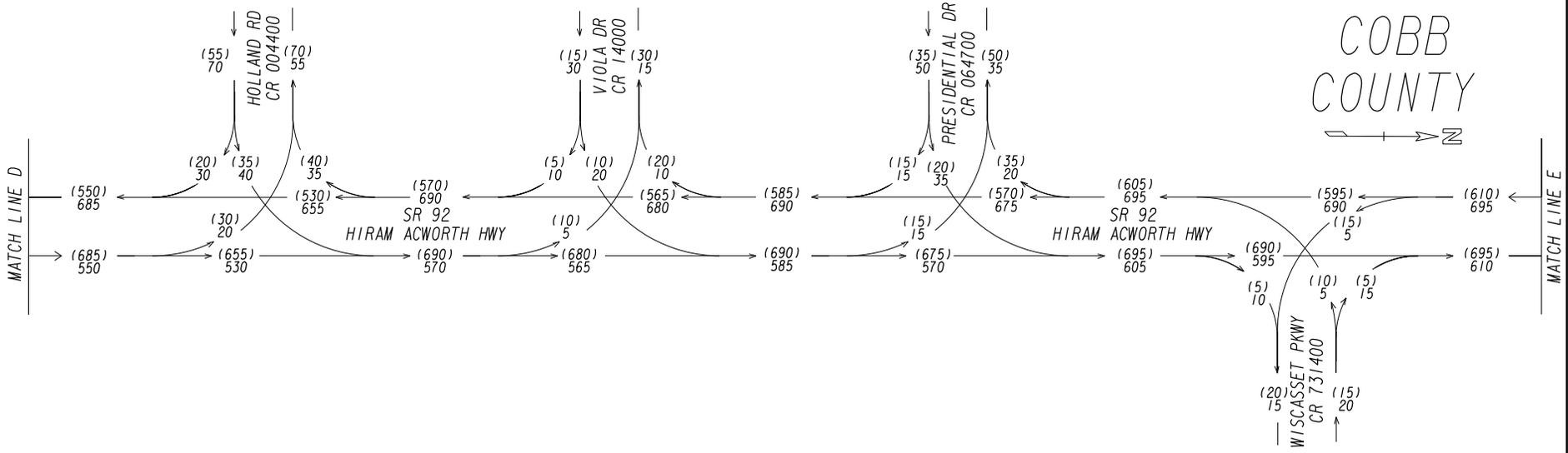
2020 PM DHV = (000)
2020 AM DHV = 000
NO BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2020 PM DHV = (000)
2020 AM DHV = 000
NO BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

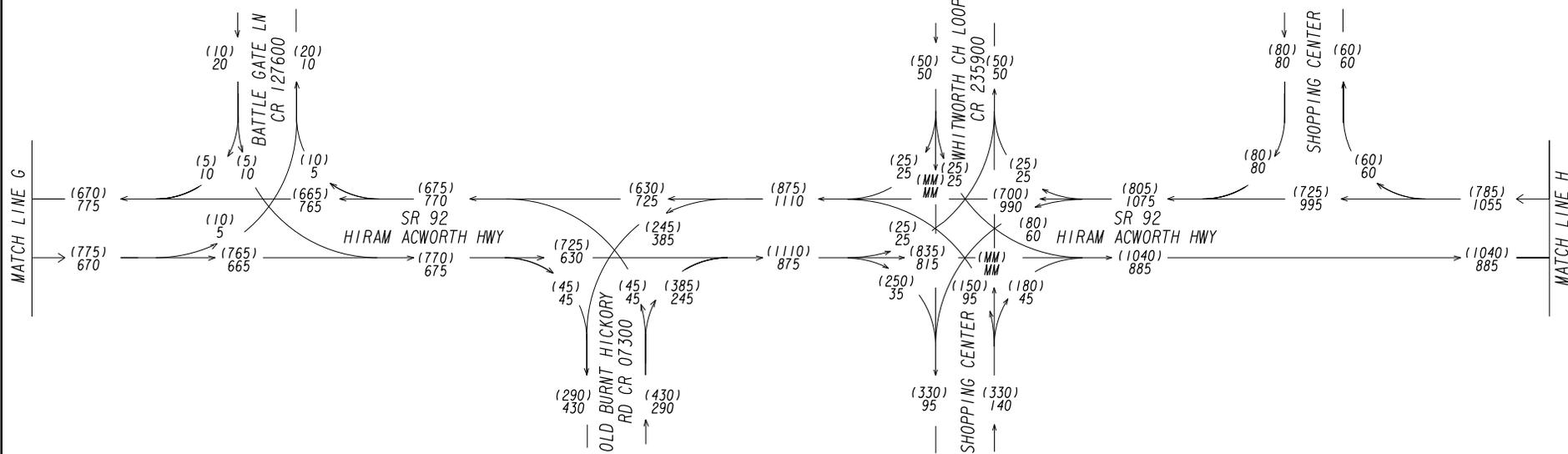
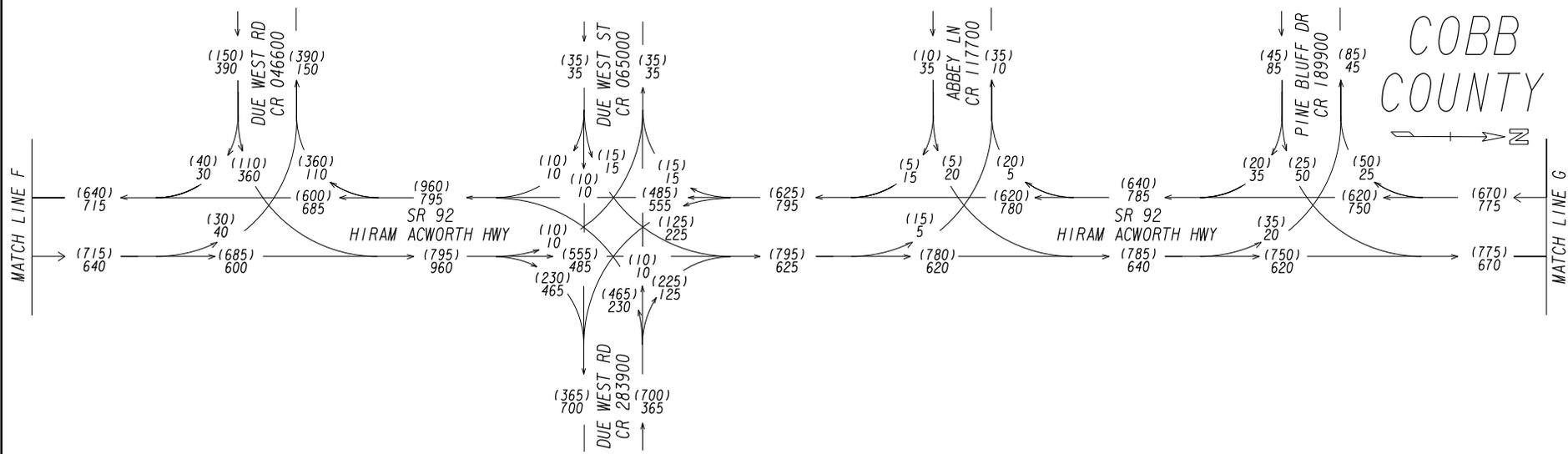
T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING

TRAFFIC DIAGRAM

COBB COUNTY



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

2020 PM DHV = (000)
 2020 AM DHV = 000
 NO BUILD

24 HOUR T = 5%
 SU = 4%
 COMB = 1%

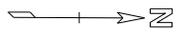
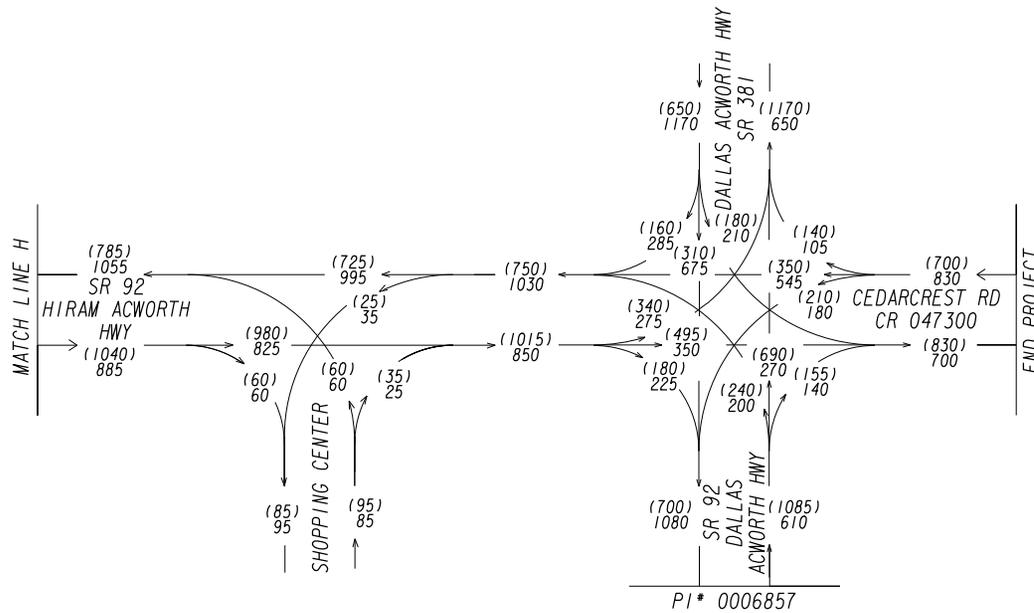
T = 4.5%
 SU = 3.5%
 COMB = 1%

REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-19

COBB COUNTY

CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2020 PM DHV = (000)
2020 AM DHV = 000
NO BUILD

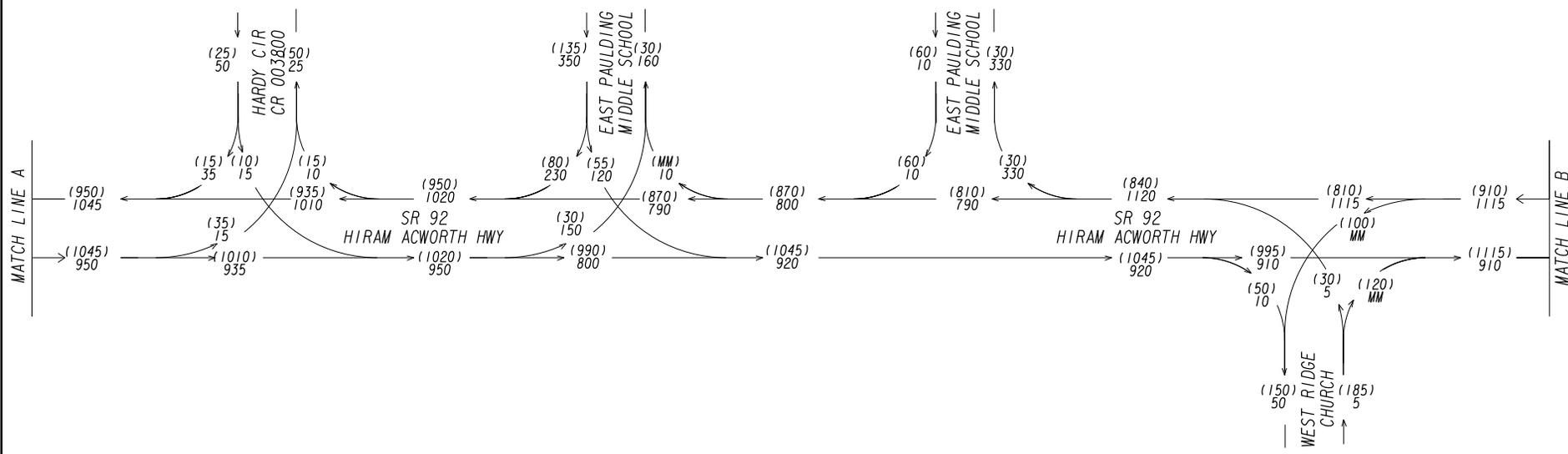
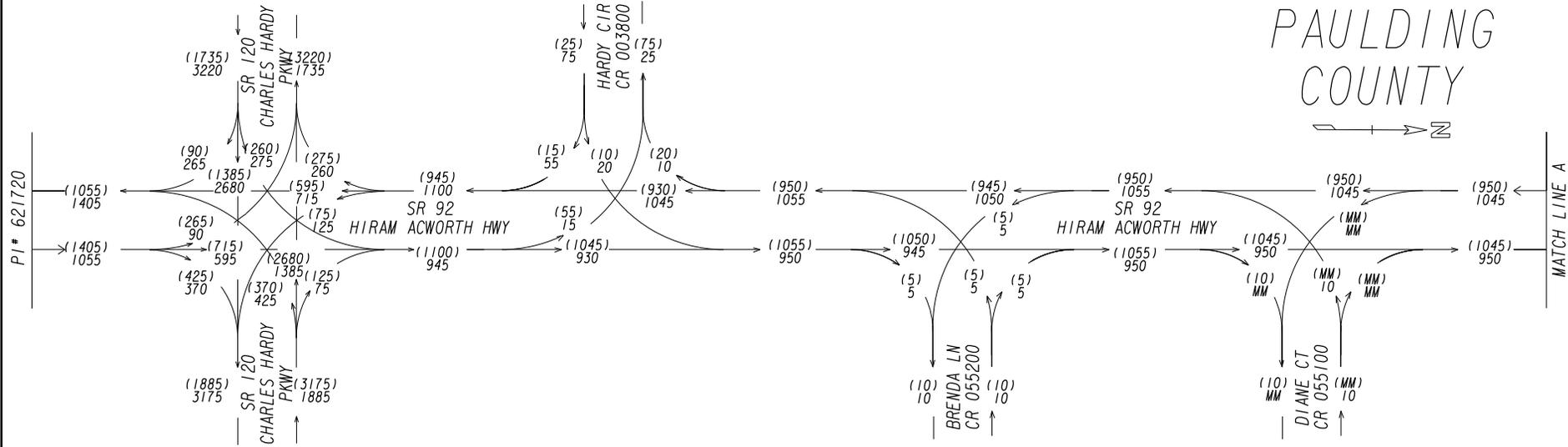
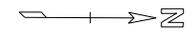
24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

PAULDING COUNTY



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 PM DHV = (000)
2040 AM DHV = 000
NO BUILD

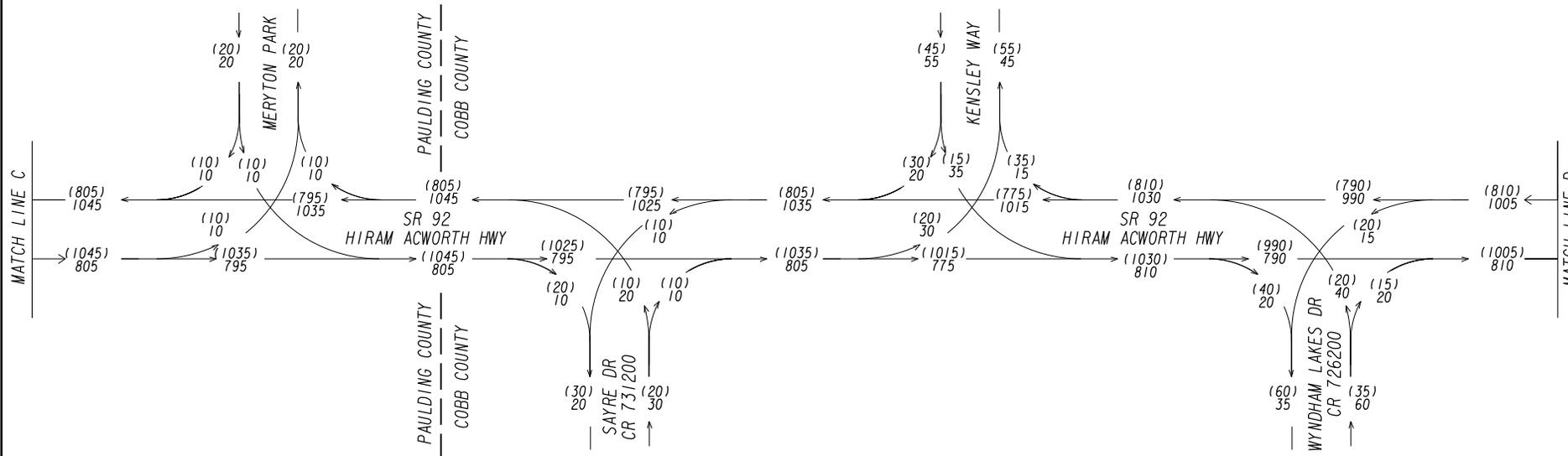
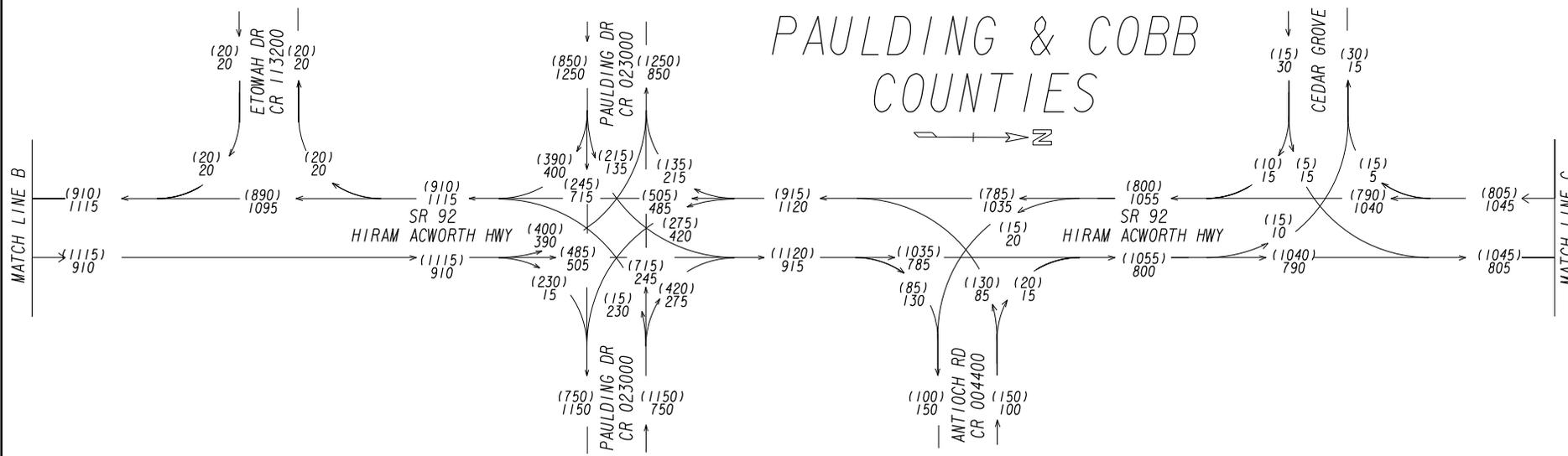
24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING NO. 10-21



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

2040 PM DHV = (000)
 2040 AM DHV = 000
 NO BUILD

24 HOUR T = 5%
 SU = 4%
 COMB = 1%

T = 4.5%
 SU = 3.5%
 COMB = 1%

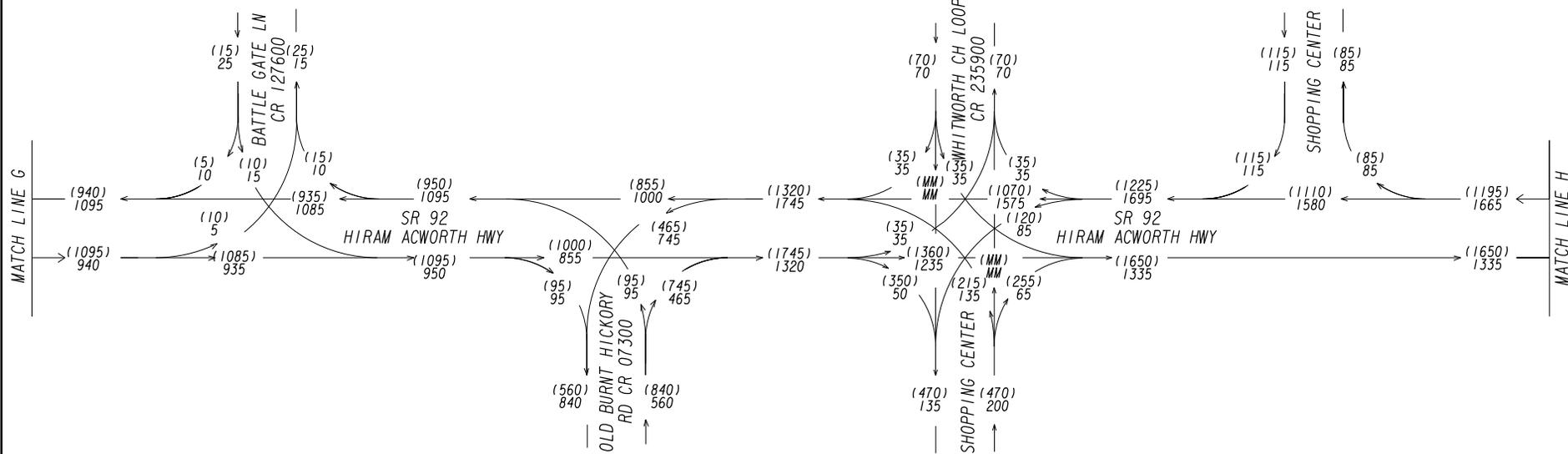
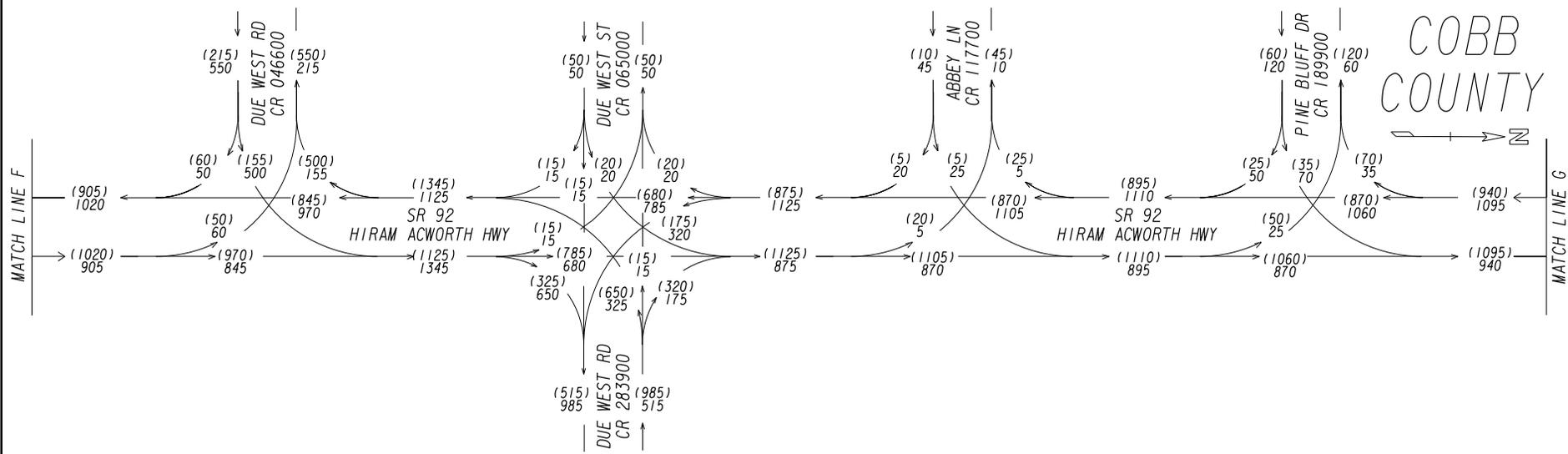
REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING

TRAFFIC DIAGRAM

DRAWING NO.
10-22

COBB COUNTY



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 PM DHV = (000)
2040 AM DHV = 000
NO BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

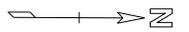
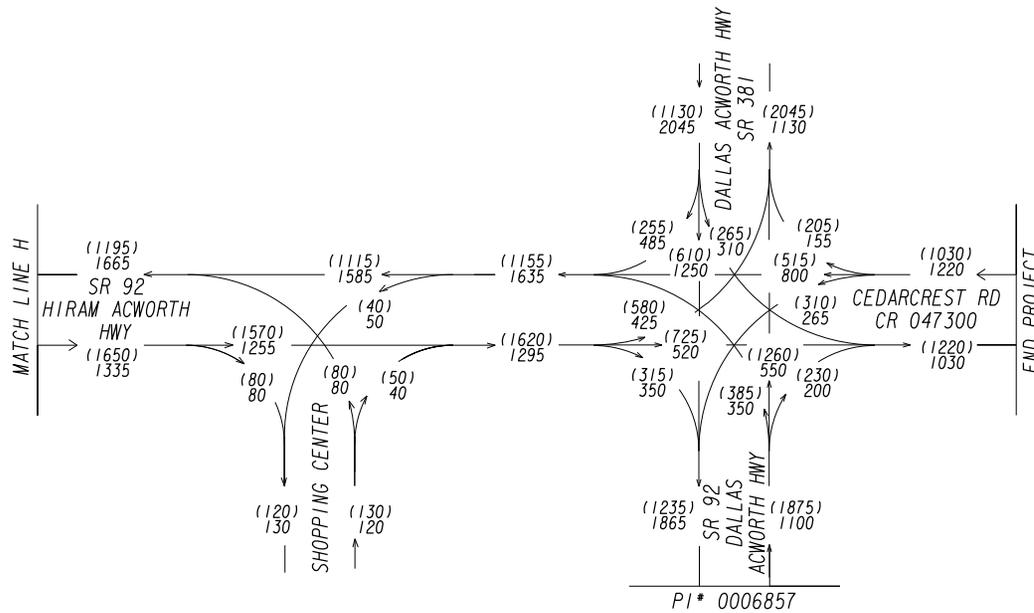
T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-24

COBB COUNTY

CSSTP-007-00(692)
PI# 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 PM DHV = (000)
2040 AM DHV = 000
NO BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

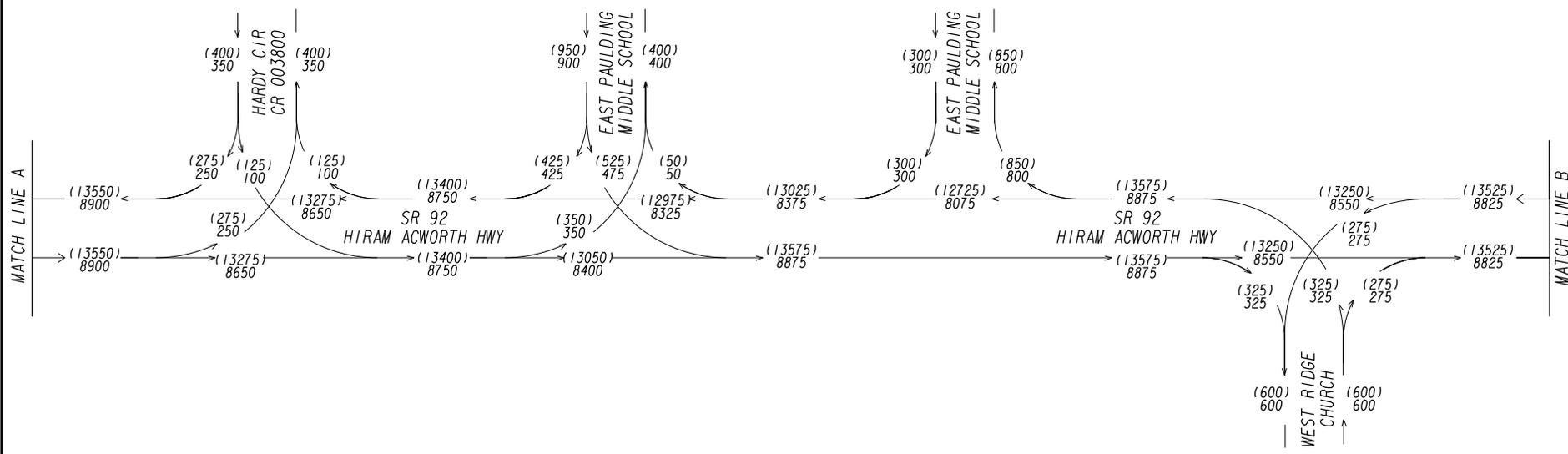
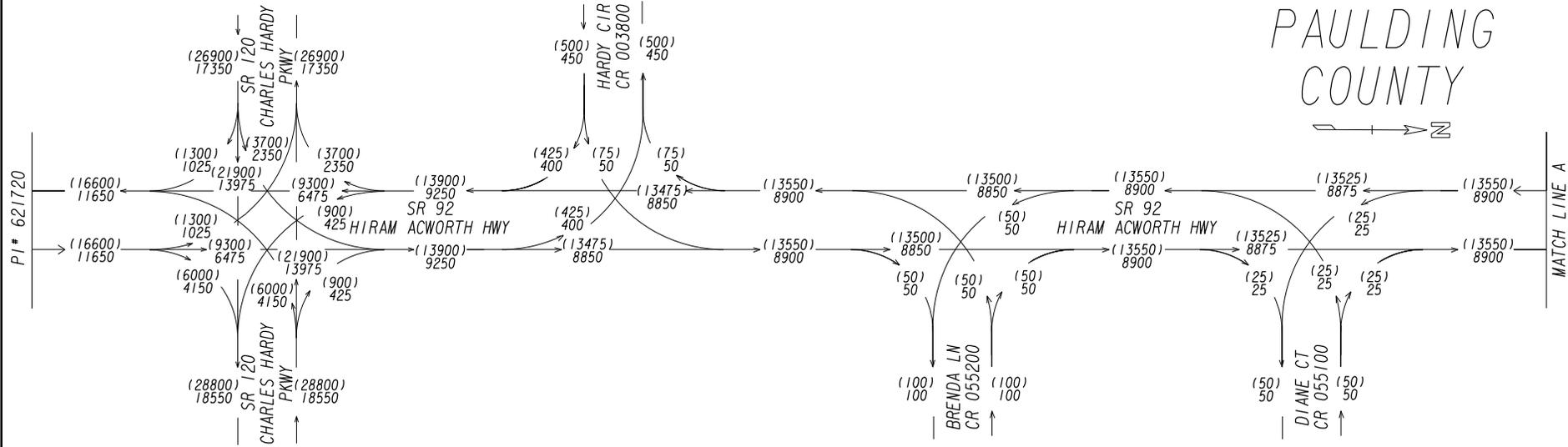
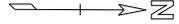
T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING

TRAFFIC DIAGRAM

PAULDING COUNTY



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 ADT = (000)
2020 ADT = 000
BUILD

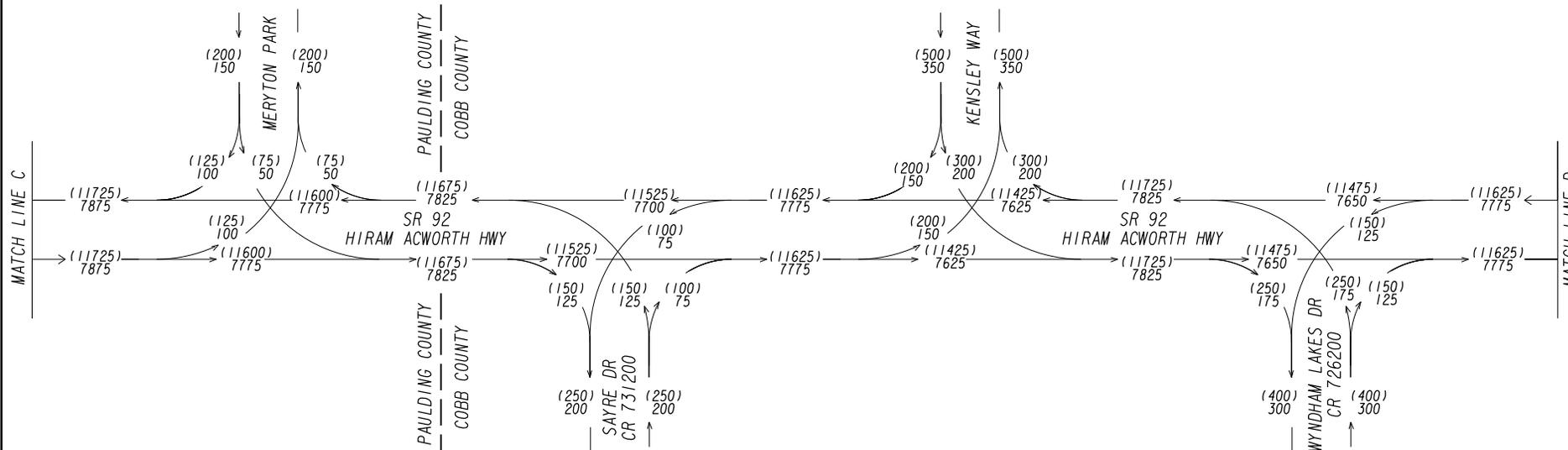
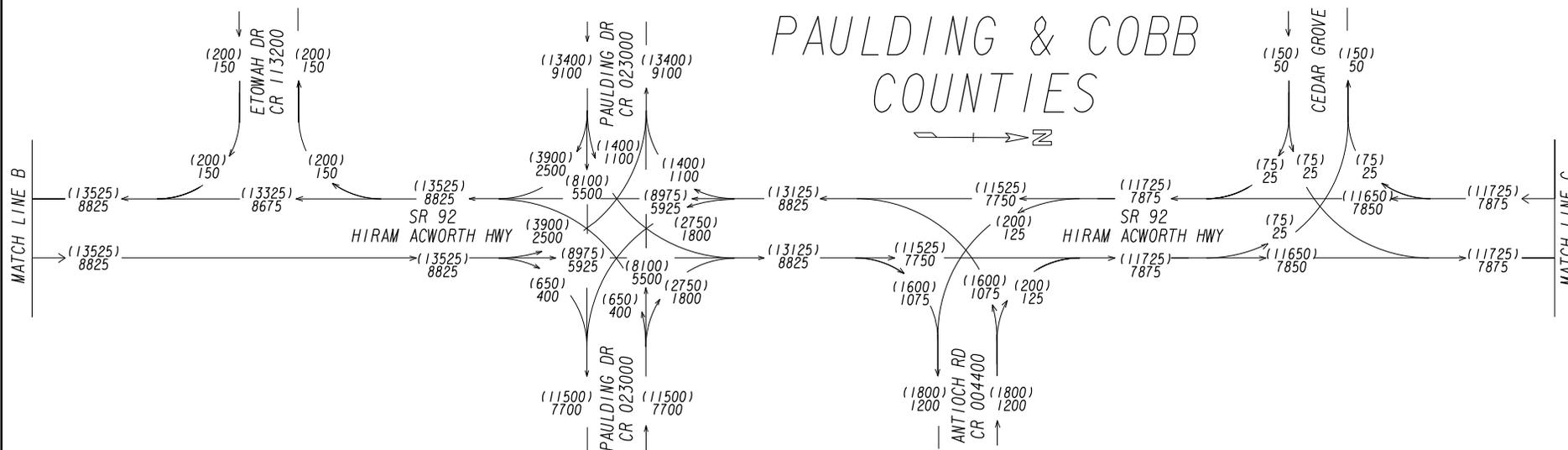
24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

PAULDING & COBB COUNTIES



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

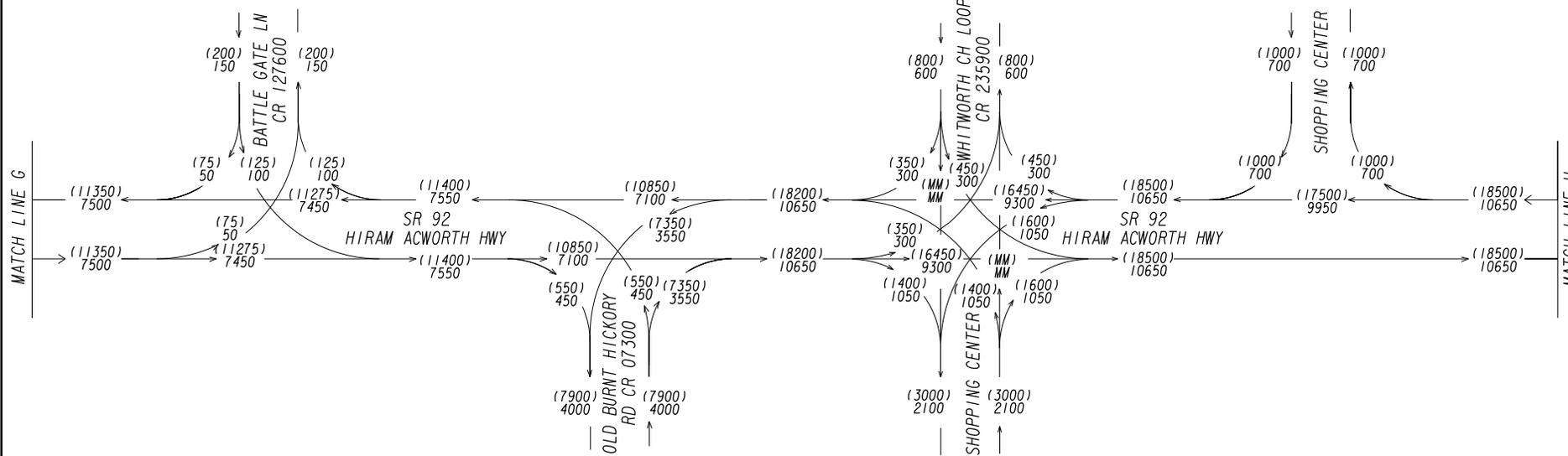
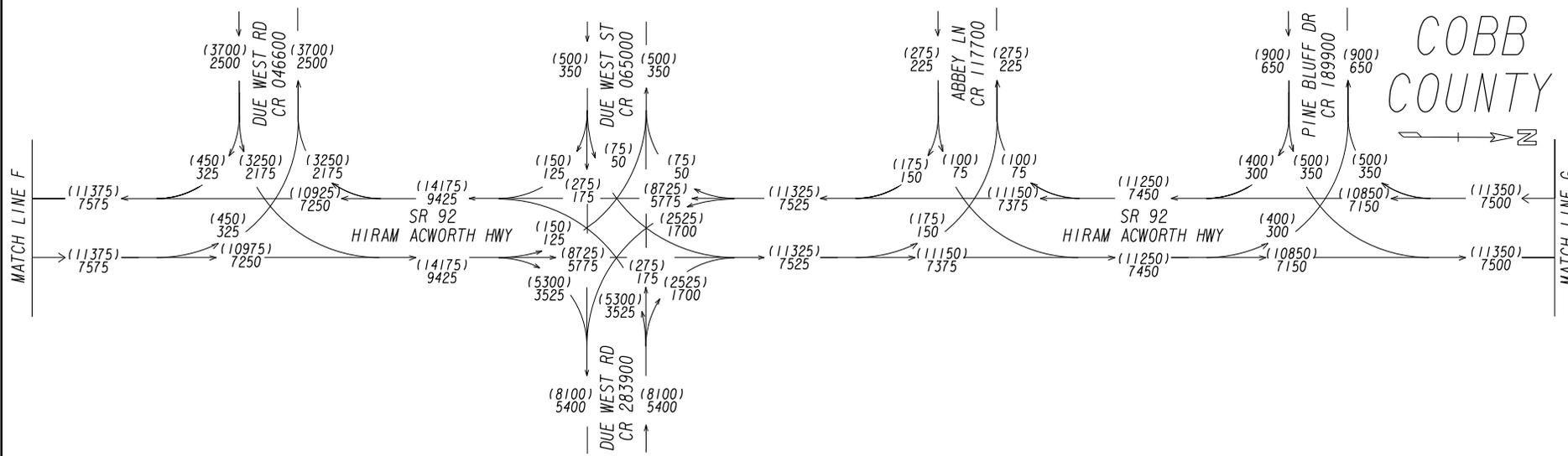
2040 ADT = (000)
2020 ADT = 000
BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 ADT = (000)
2020 ADT = 000
BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

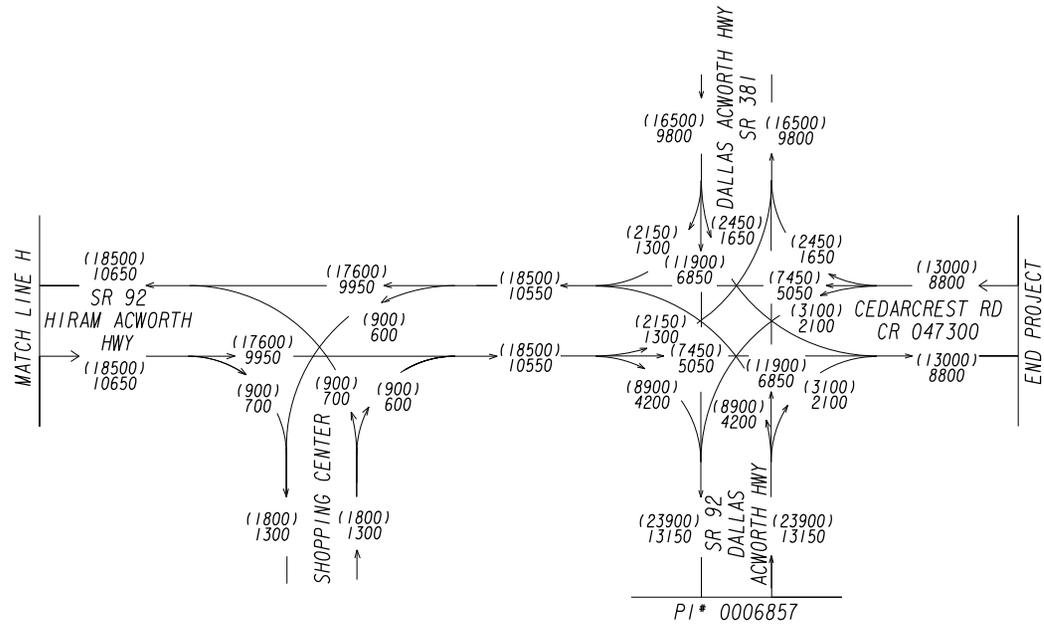
OFFICE: PLANNING

TRAFFIC DIAGRAM

DRAWING No.
10-29

COBB COUNTY

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CSSTP-007-00(692)
PI# 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 ADT= (000)
2020 ADT= 000
BUILD

24 HOUR T= 5%
SU= 4%
COMB= 1%

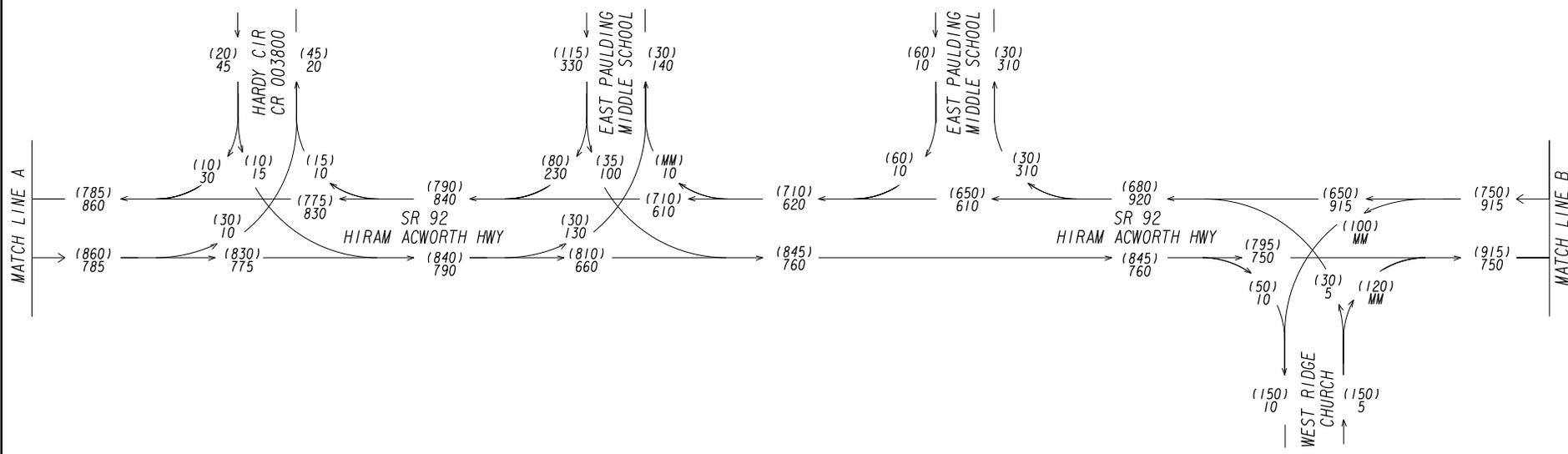
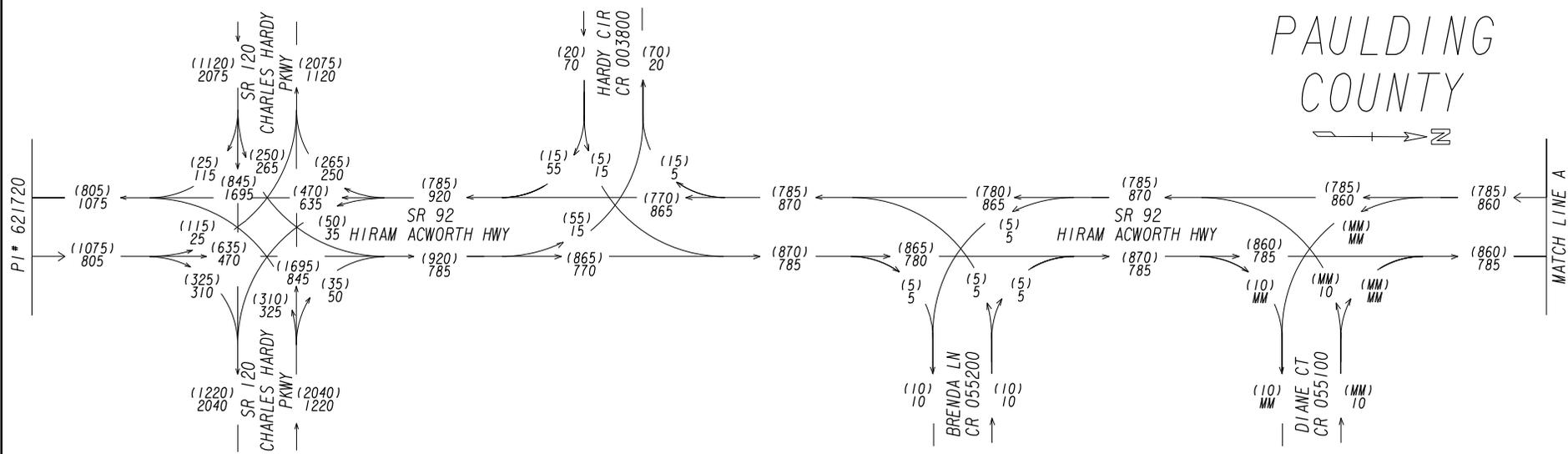
T= 4.5%
SU= 3.5%
COMB= 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING

TRAFFIC DIAGRAM

PAULDING COUNTY



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2020 PM DHV = (000)
2020 AM DHV = 000
BUILD

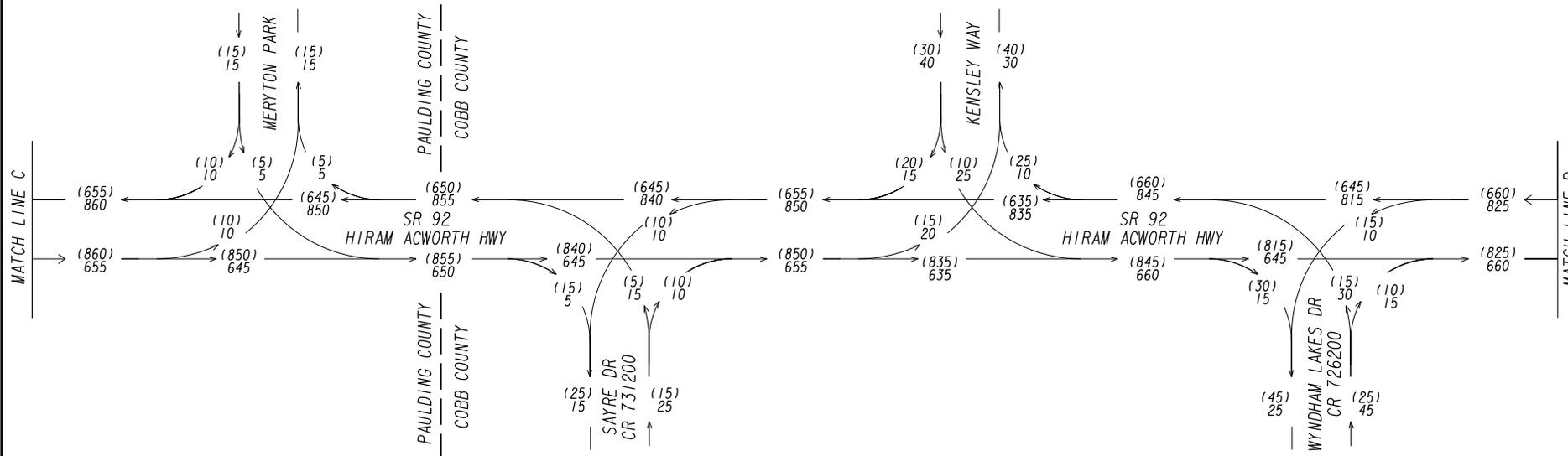
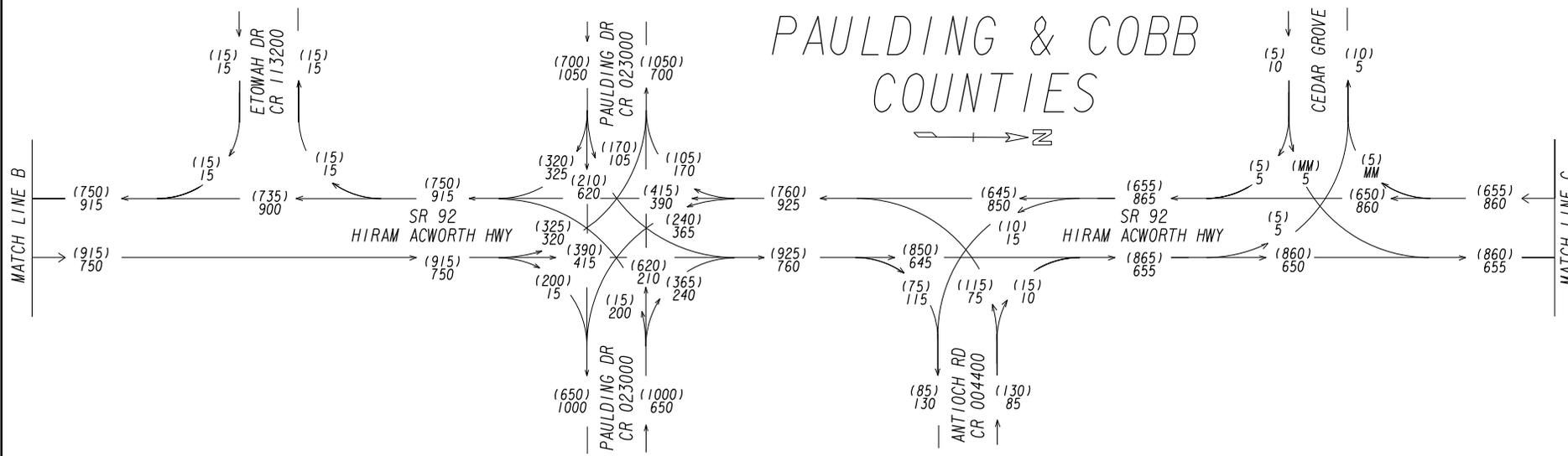
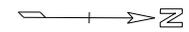
24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

PAULDING & COBB COUNTIES



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

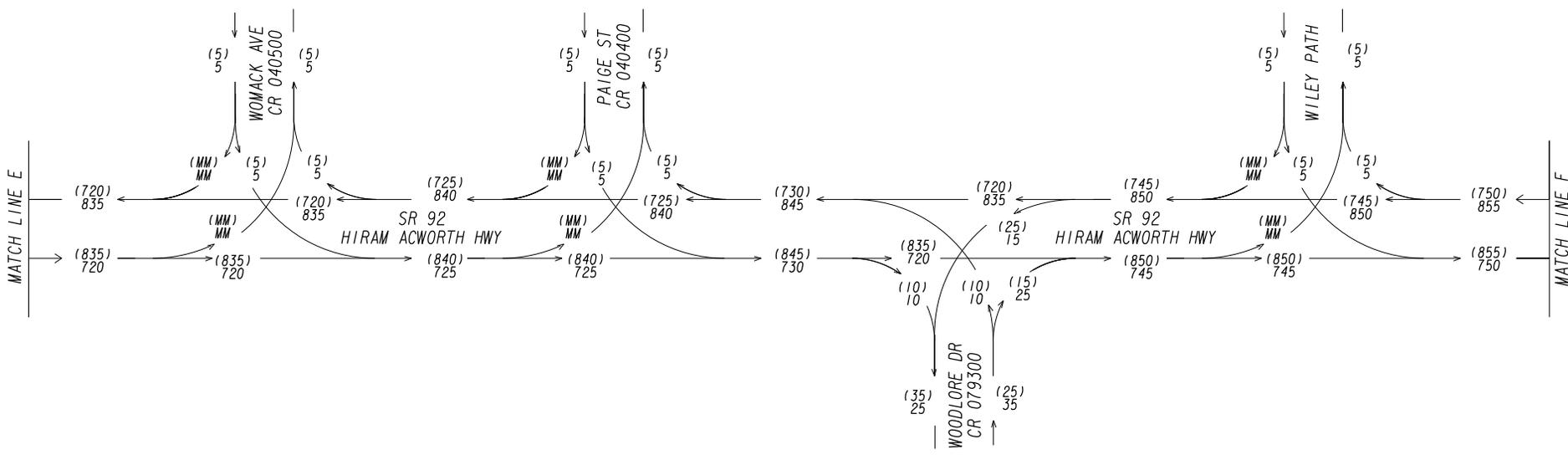
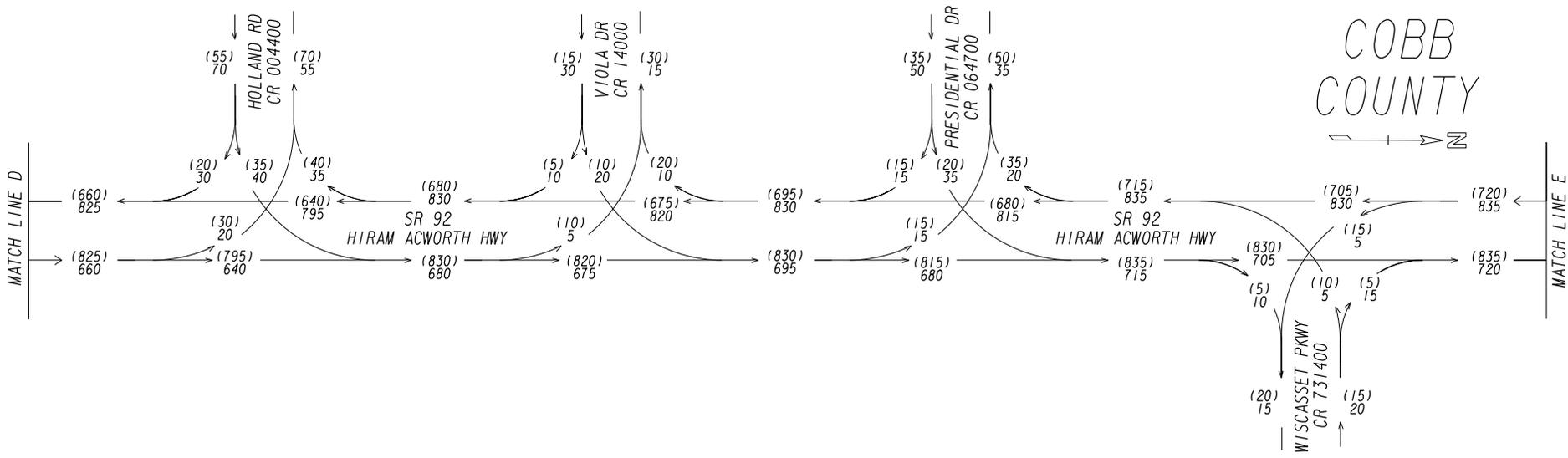
2020 PM DHV = (000)
 2020 AM DHV = 000
 BUILD

24 HOUR T = 5%
 SU = 4%
 COMB = 1%

T = 4.5%
 SU = 3.5%
 COMB = 1%

REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

2020 PM DHV = (000)
 2020 AM DHV = 000
 BUILD

24 HOUR T = 5%
 SU = 4%
 COMB = 1%

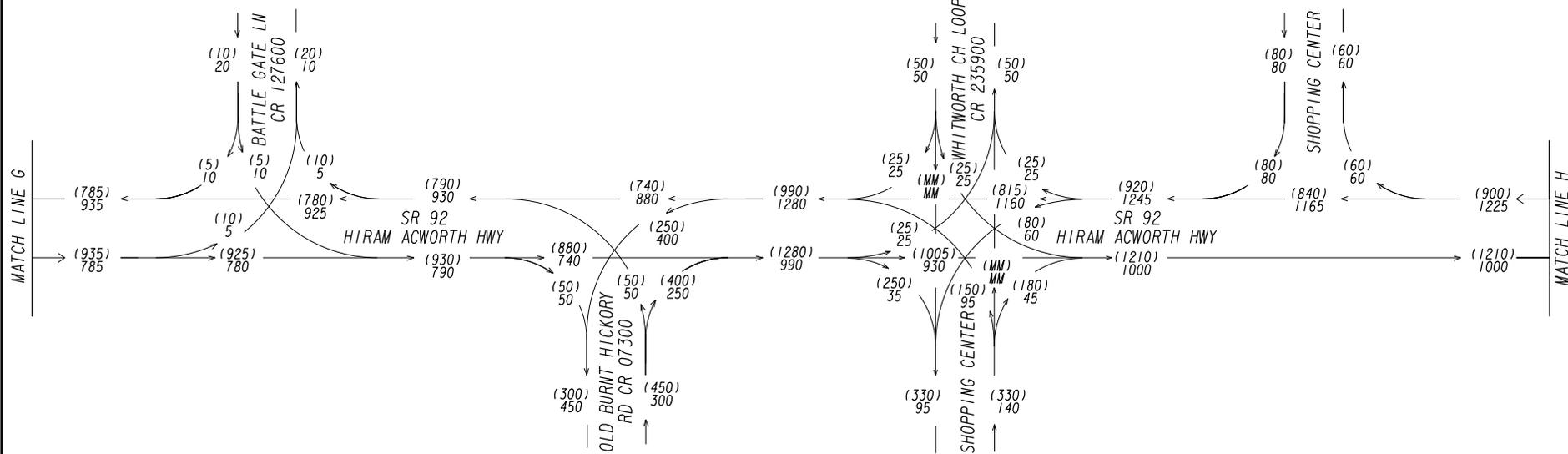
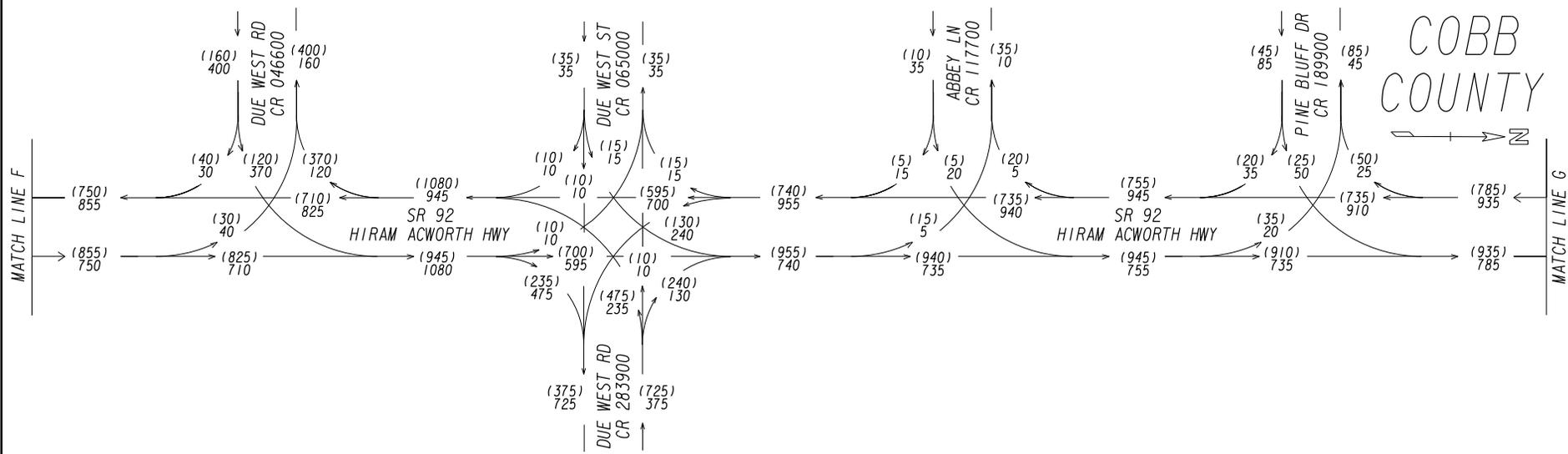
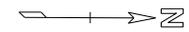
T = 4.5%
 SU = 3.5%
 COMB = 1%

REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING

TRAFFIC DIAGRAM

COBB COUNTY



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2020 PM DHV = (000)
2020 AM DHV = 000
BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

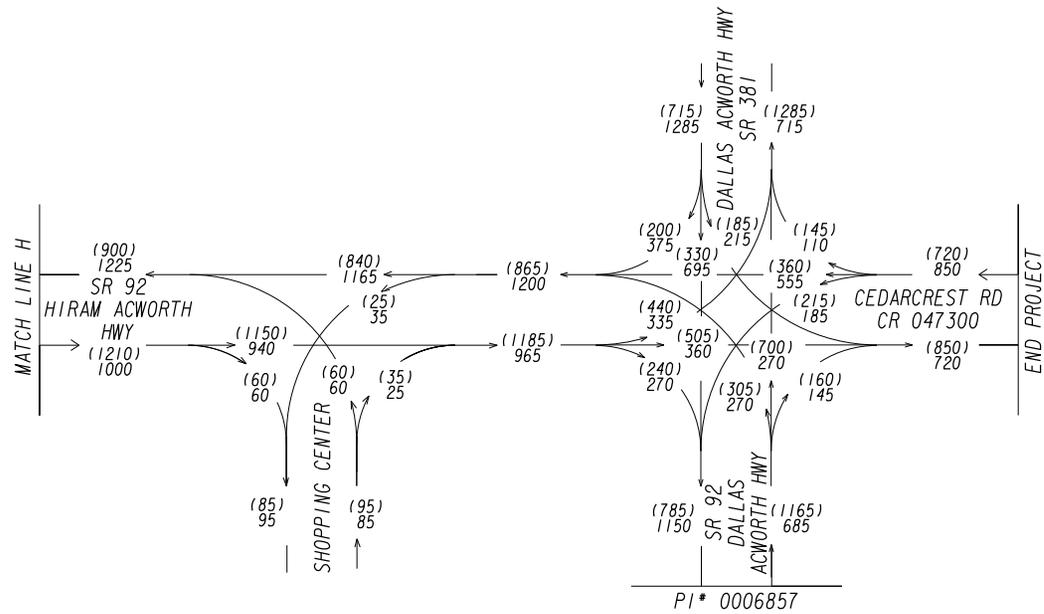
T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

COBB COUNTY

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CSSTP-007-00(692)
PI# 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2020 PM DHV = (000)
2020 AM DHV = 000
BUILD

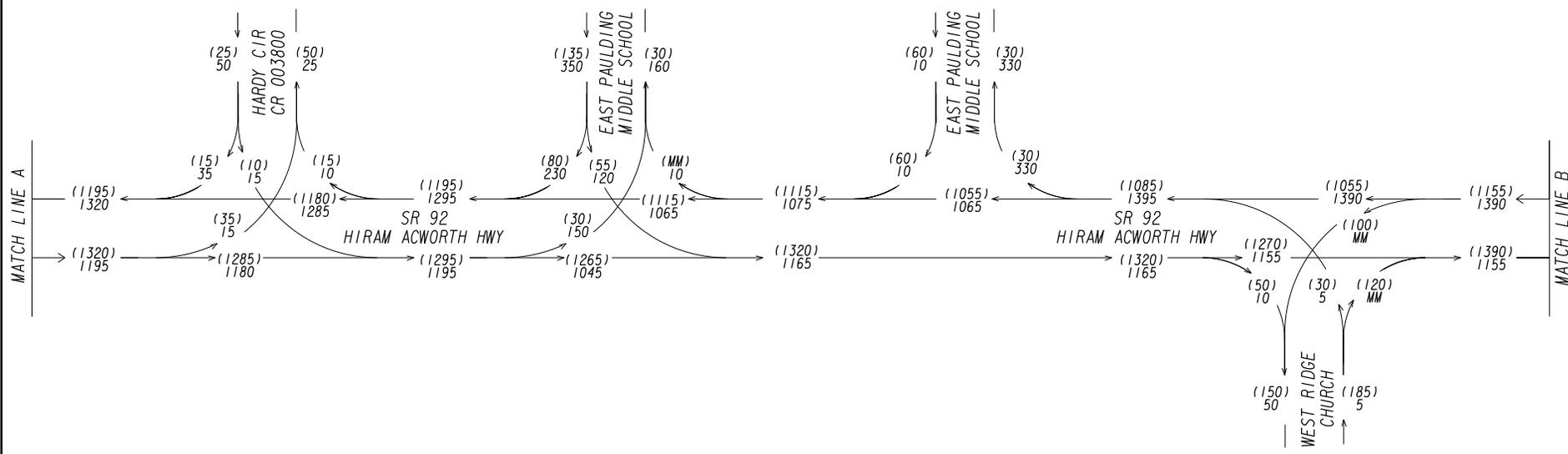
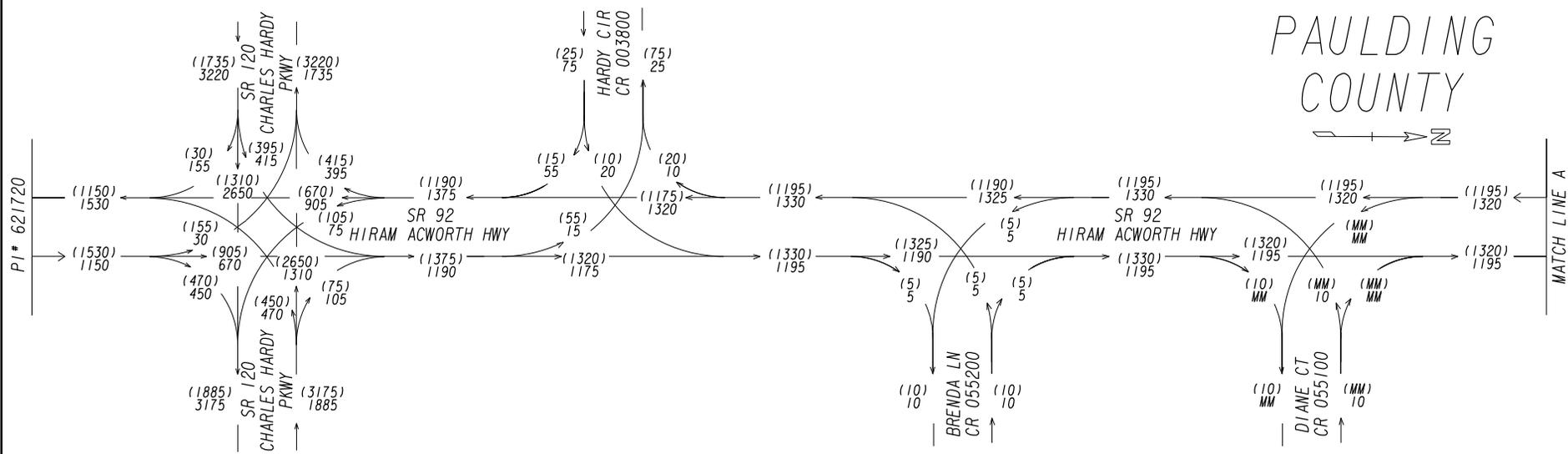
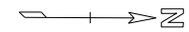
24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM
DRAWING No. 10-35

PAULDING COUNTY



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 DHV = (000)
2040 DHV = 000
BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

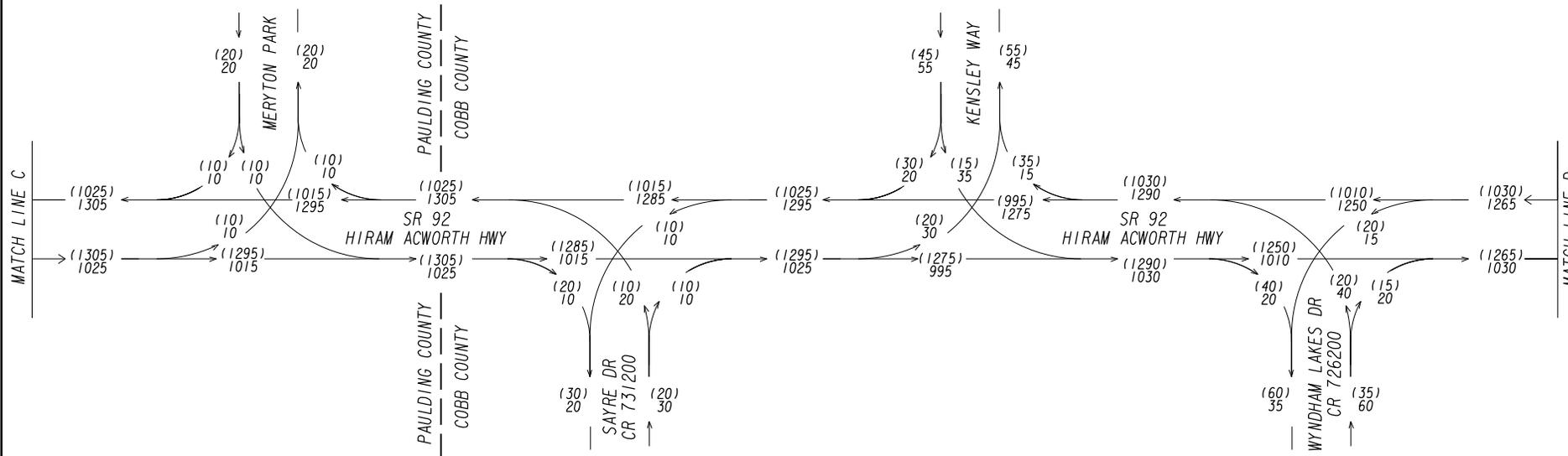
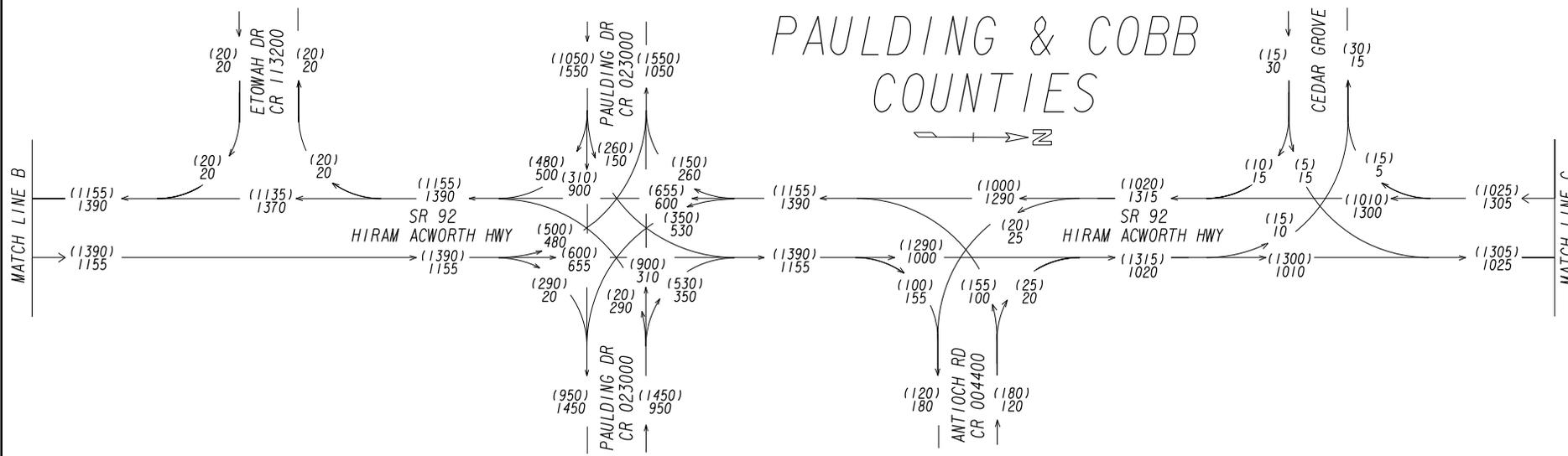
T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-36

PAULDING & COBB COUNTIES



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

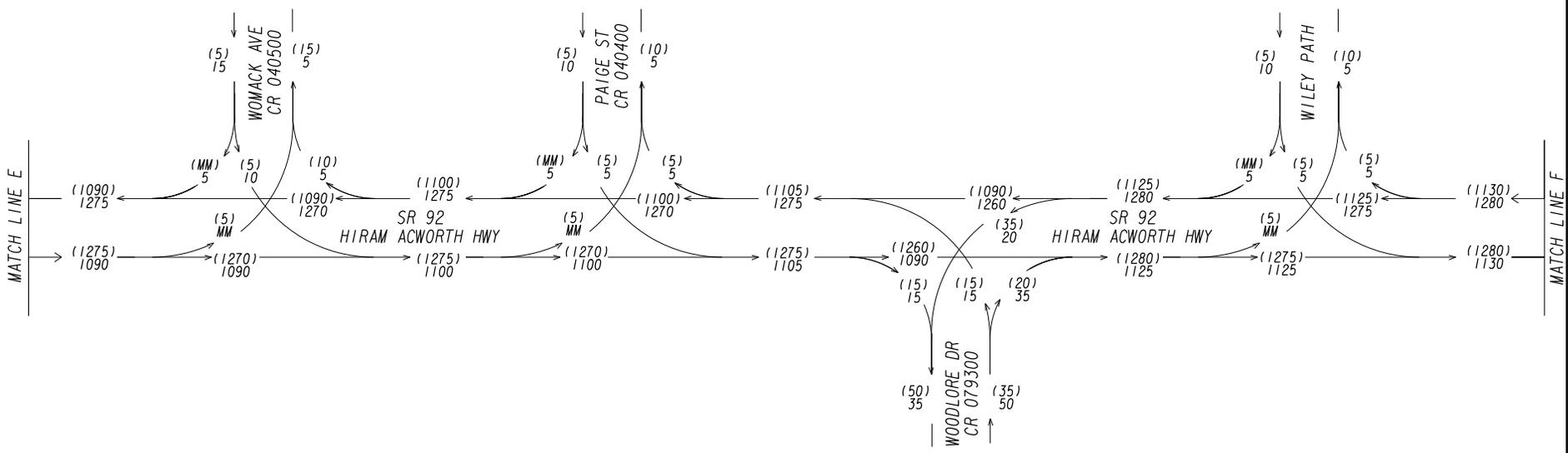
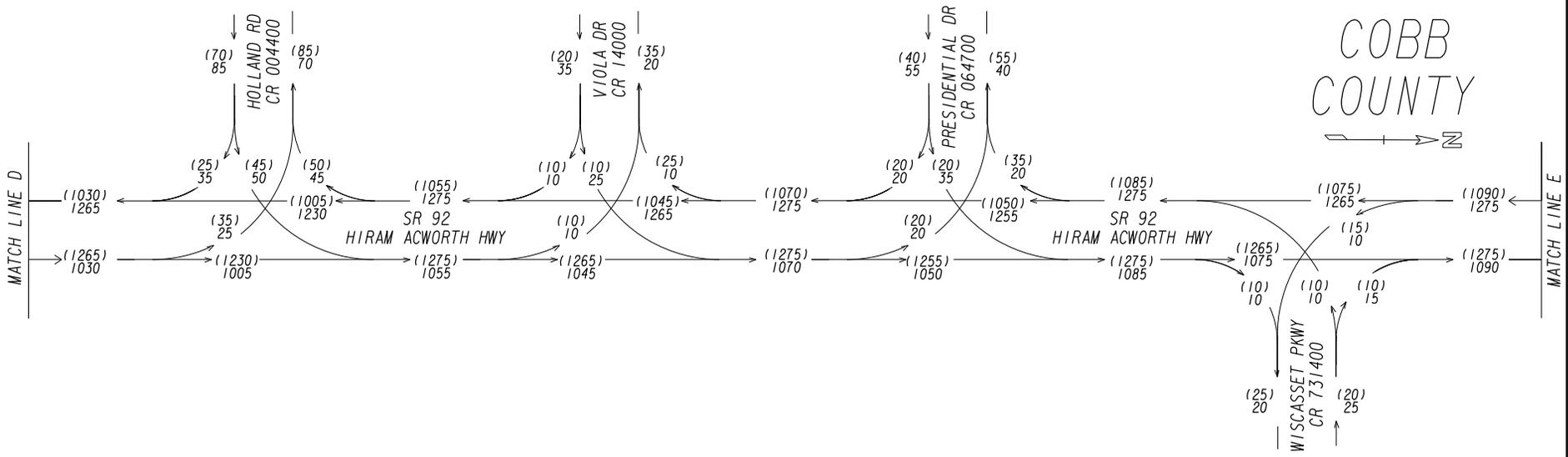
2040 DHV = (000)
2040 DHV = 000
BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM



CSSTP-007-00(692)
 PI* 0007692
 PAULDING & COBB COUNTIES
 SR 92 FM SR 120 TO CR 473/
 CEDARCREST RD SEGMENTS 3 & 4

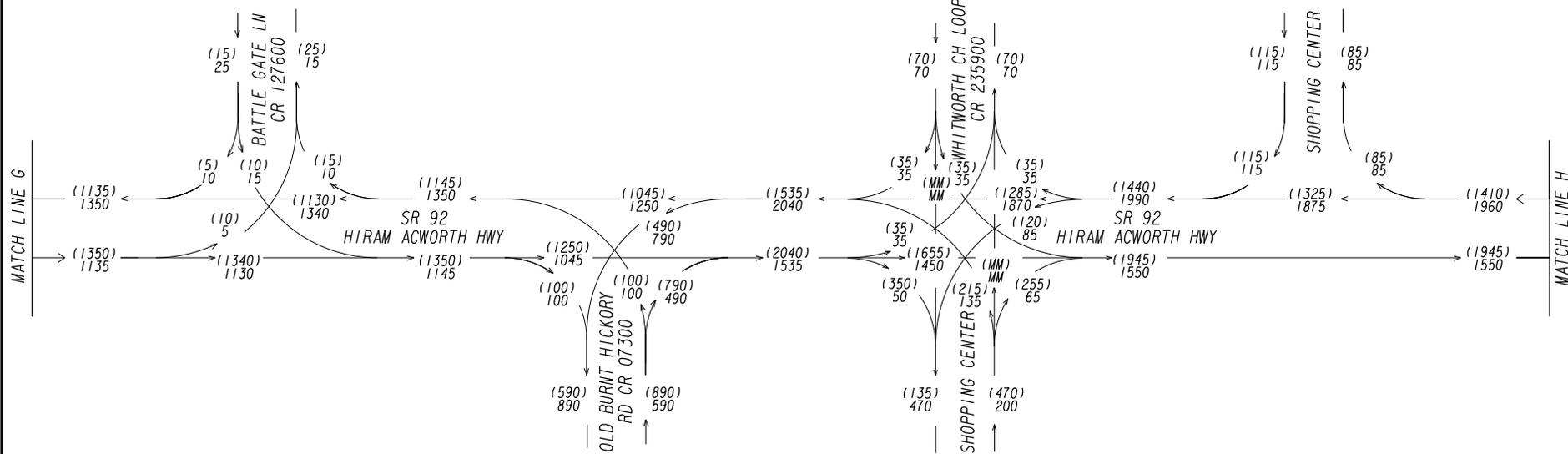
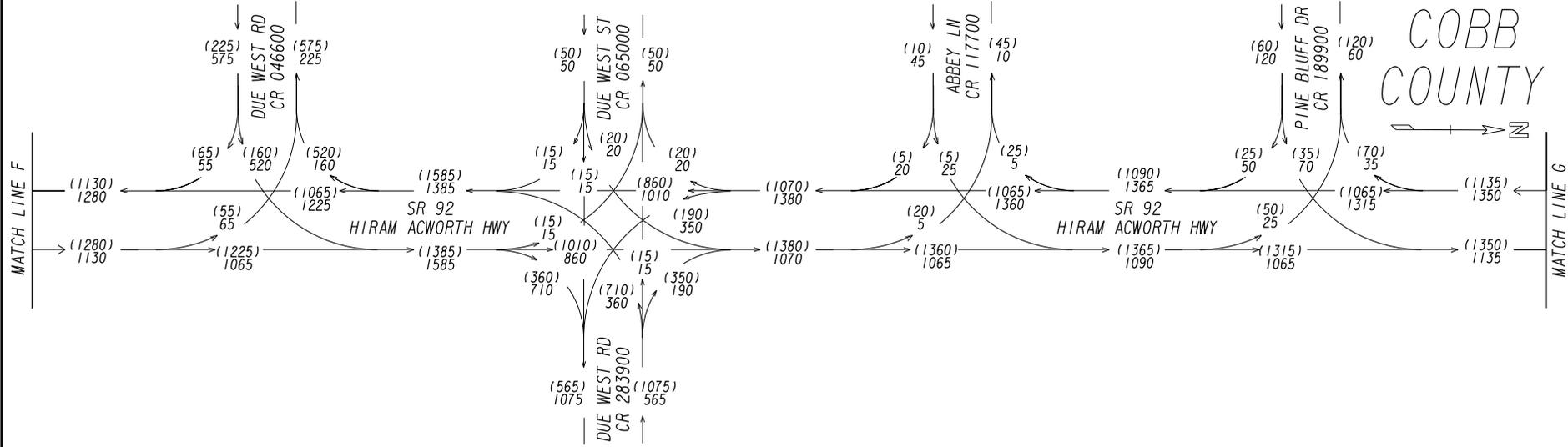
2040 DHV = (000)
 2040 DHV = 000
 BUILD

24 HOUR T = 5%
 SU = 4%
 COMB = 1%

T = 4.5%
 SU = 3.5%
 COMB = 1%

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM



CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 DHV = (000)
2040 DHV = 000
BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

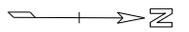
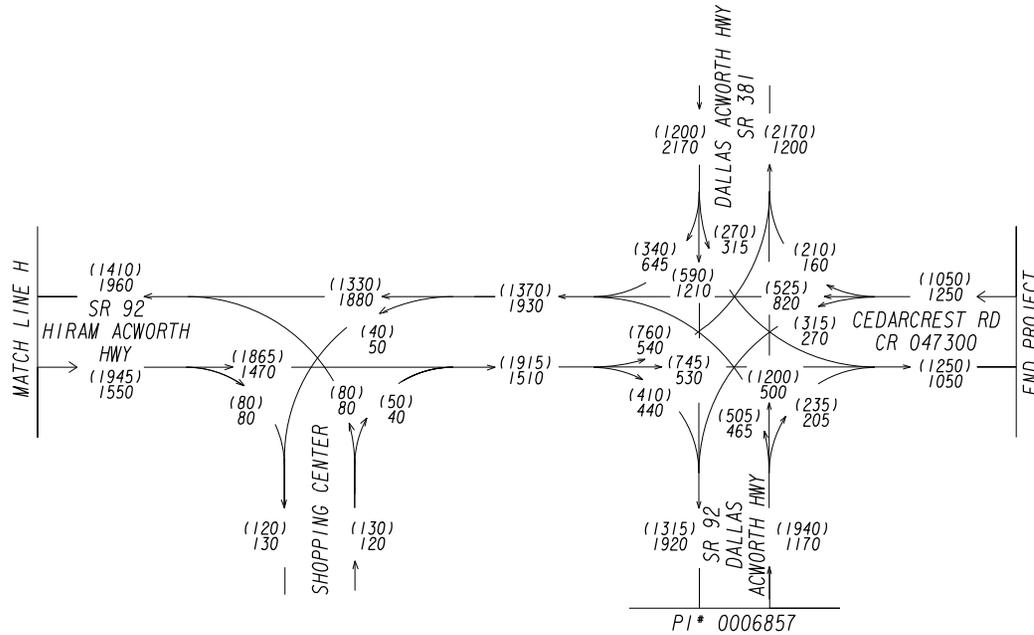
T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

DRAWING No. 10-39

COBB COUNTY

CSSTP-007-00(692)
PI* 0007692
PAULDING & COBB COUNTIES
SR 92 FM SR 120 TO CR 473/
CEDARCREST RD SEGMENTS 3 & 4

2040 DHV = (000)
2040 DHV = 000
BUILD

24 HOUR T = 5%
SU = 4%
COMB = 1%

T = 4.5%
SU = 3.5%
COMB = 1%

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PLANNING
TRAFFIC DIAGRAM

Attachment 6
Capacity Analysis Summary Tables

Table 7. Base Year 2013 Intersection Operations Analysis Summary Table

Intersection	Traffic Control	Peak Hour	Operations			
			Critical Movement	V/C Ratio	Level of Service	Delay
SR 92/Old Burnt Hickory Road	Two-Way Stop Control	AM	WB LT/RT	1.60	F	344.7
		PM	WB LT/RT	1.51	F	282.1
SR 92/Battle Gate Lane	Two-Way Stop Control	AM	EB LT/RT	0.10	C	22.7
		PM	EB LT/RT	0.05	C	21.2
SR 92/Pine Bluff Drive	Two-Way Stop Control	AM	EB LT/RT	0.37	D	31.4
		PM	EB LT/RT	0.19	C	24.1
SR 92/Abbey Lane	Two-Way Stop Control	AM	EB LT/RT	0.23	E	36.6
		PM	EB LT/RT	0.06	C	23.5
SR 92/Due West Road (North)	Traffic Signal	AM	Full Intersection Results Reported	0.54	B	16.7
		PM		0.75	C	25.9
SR 92/Due West Road (South)	Two-Way Stop Control	AM	EB LT/RT	2.77	F	866.6
		PM	EB LT/RT	0.83	F	83.3
SR 92/Wiley Path	Two-Way Stop Control	AM	EB LT/RT	0.03	D	26.7
		PM	EB LT/RT	0.03	D	26.7
SR 92/Woodlore Drive	Two-Way Stop Control	AM	WB LT/RT	0.11	C	18.4
		PM	WB LT/RT	0.07	C	17.5
SR 92/Paige Street	Two-Way Stop Control	AM	EB LT/RT	0.03	D	25.7
		PM	EB LT/RT	0.03	D	25.7
SR 92/Womack Avenue	Two-Way Stop Control	AM	EB LT/RT	0.03	D	25.3
		PM	EB LT/RT	0.03	D	25.3
SR 92/Wiscasset Parkway	Two-Way Stop Control	AM	WB LT/RT	0.06	C	15.8
		PM	WB LT/RT	0.08	C	22.6
SR 92/Presidential Drive	Two-Way Stop Control	AM	EB LT/RT	0.22	C	24.9
		PM	EB LT/RT	0.07	C	21.0
SR 92/Viola Drive	Two-Way Stop Control	AM	EB LT/RT	0.14	C	22.5
		PM	EB LT/RT	0.07	C	21.0
SR 92/Holland Road	Two-Way Stop Control	AM	EB LT/RT	0.27	C	24.1
		PM	EB LT/RT	0.21	C	24.1
SR 92/Wyndham Lakes Drive	Two-Way Stop Control	AM	WB LT/RT	0.19	C	23.4
		PM	WB LT/RT	0.10	C	22.4
SR 92/Kensley Way	Two-Way Stop Control	AM	EB LT/RT	0.18	C	24.9
		PM	EB LT/RT	0.07	B	14.5
SR 92/Sayre Drive	Two-Way Stop Control	AM	WB LT/RT	0.10	C	22.5
		PM	WB LT/RT	0.04	C	19.2
SR 92/Meryton Park	Two-Way Stop Control	AM	EB LT/RT	0.06	C	17.9
		PM	EB LT/RT	0.05	C	16.4
SR 92/Cedar Grove Path	Two-Way Stop Control	AM	EB LT/RT	0.05	C	20.7
		PM	EB LT/RT	0.01	B	11.6
SR 92/Antioch Road	Two-Way Stop Control	AM	WB LT/RT	0.53	F	53.0
		PM	WB LT/RT	0.80	F	83.5
SR 92/East Paulding Drive	Traffic Signal	AM	Full Intersection Results Reported	0.87	D	49.5
		PM		0.80	D	42.1
SR 92/Etowah Drive	Two-Way Stop Control	AM	EB RT	0.04	B	14.6
		PM	EB RT	0.03	B	12.5
SR 92/ Entrance to West Ridge Church	Two-Way Stop Control	AM	WB RT	0.06	E	44.4
		PM	WB RT	0.30	C	22.3
SR 92/ Entrance to East Paulding Middle School (North)	Two-Way Stop Control	AM	EB RT	0.02	B	11.1
		PM	EB RT	0.12	B	12.5
SR 92/Entrance to East Paulding Middle School (South)	Two-Way Stop Control	AM	EB LT	0.73	F	73.2
		PM	EB LT	0.25	C	34.6
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	0.15	C	19.4
		PM	EB LT/RT	0.07	C	20.0
SR 92/Diane Court	Two-Way Stop Control	AM	WB LT/RT	0.08	D	31.4
		PM	WB LT/RT	0.08	D	31.6
SR 92/Brenda Lane	Two-Way Stop Control	AM	WB LT/RT	0.11	E	43.5
		PM	WB LT/RT	0.06	E	45.8
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	0.33	D	27.2
		PM	EB LT/RT	0.13	D	27.6
SR 92/SR 120	Traffic Signal	AM	Full Intersection Results Reported	1.12	F	82.1
		PM		1.04	E	62.0

EB: Eastbound; WB: Westbound; SB: Southbound; NB: Northbound; RT: Right Turn; LT: Left Turn
Bold indicates failing level of service

Table 9. Design-Year 2040 No-Build Intersection Operations Analysis Summary

Intersection	Traffic Control	Peak Hour	Operations			
			Critical Movement	V/C Ratio	Level of Service	Delay
SR 92/Old Burnt Hickory Road	Two-Way Stop Control	AM	WB LT/RT	N/A*	F	N/A*
		PM	WB LT/RT	N/A*	F	N/A*
SR 92/Battle Gate Lane	Two-Way Stop Control	AM	EB LT/RT	0.34	F	73.3
		PM	EB LT/RT	0.22	F	68.3
SR 92/Pine Bluff Drive	Two-Way Stop Control	AM	EB LT/RT	1.53	F	378.8
		PM	EB LT/RT	0.82	F	148.2
SR 92/Abbey Lane	Two-Way Stop Control	AM	EB LT/RT	1.42	F	486.9
		PM	EB LT/RT	0.35	F	180.8
SR 92/Due West Road (North)	Traffic Signal	AM	Full Intersection Results Reported	1.00	D	51.2
		PM		1.23	F	105.4
SR 92/Due West Road (South)	Two-Way Stop Control	AM	EB LT/RT	N/A*	F	N/A*
		PM	EB LT/RT	N/A*	F	N/A*
SR 92/Wiley Path	Two-Way Stop Control	AM	EB LT/RT	0.10	E	43.7
		PM	EB LT/RT	0.08	F	67.7
SR 92/Woodlore Drive	Two-Way Stop Control	AM	WB LT/RT	0.36	E	43.5
		PM	WB LT/RT	0.35	F	56.3
SR 92/Paige Street	Two-Way Stop Control	AM	EB LT/RT	0.10	E	42.9
		PM	EB LT/RT	0.08	F	64.6
SR 92/Womack Avenue	Two-Way Stop Control	AM	EB LT/RT	0.10	E	41.8
		PM	EB LT/RT	0.08	F	64.1
SR 92/Wiscasset Parkway	Two-Way Stop Control	AM	WB LT/RT	0.20	E	40.0
		PM	WB LT/RT	0.20	E	47.6
SR 92/Presidential Drive	Two-Way Stop Control	AM	EB LT/RT	0.62	F	93.8
		PM	EB LT/RT	0.37	F	54.6
SR 92/Viola Drive	Two-Way Stop Control	AM	EB LT/RT	0.42	F	71.8
		PM	EB LT/RT	0.18	E	42.5
SR 92/Holland Road	Two-Way Stop Control	AM	EB LT/RT	0.88	F	134.7
		PM	EB LT/RT	0.77	F	117.6
SR 92/Wyndham Lakes Drive	Two-Way Stop Control	AM	WB LT/RT	0.63	F	87.6
		PM	WB LT/RT	0.35	F	56.5
SR 92/Kensley Way	Two-Way Stop Control	AM	EB LT/RT	0.62	F	93.6
		PM	EB LT/RT	0.31	E	38.1
SR 92/Sayre Drive	Two-Way Stop Control	AM	WB LT/RT	0.32	F	58.9
		PM	WB LT/RT	0.19	E	44.5
SR 92/Meryton Park	Two-Way Stop Control	AM	EB LT/RT	0.19	E	45.2
		PM	EB LT/RT	0.18	E	42.2
SR 92/Cedar Grove Path	Two-Way Stop Control	AM	EB LT/RT	0.46	F	94.7
		PM	EB LT/RT	0.16	E	49.8
SR 92/Antioch Road	Two-Way Stop Control	AM	WB LT/RT	2.88*	F	1078.5*
		PM	WB LT/RT	3.94*	F	N/A*
SR 92/East Paulding Drive	Traffic Signal	AM	Full Intersection Results Reported	1.23	F	146.5
		PM		1.26	F	120.3
SR 92/Etowah Drive	Two-Way Stop Control	AM	EB RT	0.10	C	24.6
		PM	EB RT	0.07	C	17.8
SR 92/ Entrance to West Ridge Church	Two-Way Stop Control	AM	WB RT	0.39	F	386.2
		PM	WB RT	1.41	F	297.5
SR 92/ Entrance to East Paulding Middle School (North)	Two-Way Stop Control	AM	EB RT	0.03	C	15
		PM	EB RT	0.18	C	17.2
SR 92/Entrance to East Paulding Middle School (South)	Two-Way Stop Control	AM	EB LT	2.36	F	290.3
		PM	EB LT	0.95	F	97.6
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	0.41	F	51.6
		PM	EB LT/RT	0.25	F	51.2
SR 92/Diane Court	Two-Way Stop Control	AM	WB LT/RT	0.18	F	82.0
		PM	WB LT/RT	0.00	A	00.0
SR 92/Brenda Lane	Two-Way Stop Control	AM	WB LT/RT	0.22	F	98.7
		PM	WB LT/RT	0.23	F	106.2
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	1.03	F	204.9
		PM	EB LT/RT	0.59	F	165.1
SR 92/SR 120	Traffic Signal	AM	Full Intersection Results Reported	1.71	F	264.2
		PM		1.62	F	256.8

EB: Eastbound; WB: Westbound; SB: Southbound; NB: Northbound; RT: Right Turn; LT: Left Turn

*N/A: Calculated value exceeds the limitations of the model

Bold indicates failing level of service

Table 10. Design-Year 2040 Build Intersection Operations Analysis Summary

Intersection	Traffic Control	Peak Hour	Operations			
			Critical Movement	V/C Ratio	Level of Service	Delay
SR 92/Old Burnt Hickory Road	Two-Way Stop Control	AM	WB LT/RT	N/A	F	N/A
		PM	WB LT/RT	N/A	F	N/A
SR 92/Battle Gate Lane	Two-Way Stop Control	AM	EB LT/RT	0.14	D	26.8
		PM	EB LT/RT	0.07	C	22.9
SR 92/Pine Bluff Drive	Two-Way Stop Control	AM	EB LT/RT	0.64	F	51.4
		PM	EB LT/RT	0.28	D	26.7
SR 92/Abbey Lane	Two-Way Stop Control	AM	EB RT	0.13	C	16.1
		PM	EB RT	0.02	B	12.8
SR 92/Due West Road (North)	Traffic Signal	AM	Full Intersection Results Reported	0.89	D	46.0
		PM		1.01	F	74.0
SR 92/Due West Road (South)	Two-Way Stop Control	AM	EB LT/RT	3.12	F	N/A
		PM	EB LT/RT	0.92	F	79.7
SR 92/Wiley Path	Two-Way Stop Control	AM	EB RT	0.03	B	14.4
		PM	EB RT	0.01	B	13.3
SR 92/Woodlore Drive	Two-Way Stop Control	AM	WB RT	0.11	B	13.8
		PM	WB RT	0.09	B	14.9
SR 92/Paige Street	Two-Way Stop Control	AM	EB RT	0.03	B	14.3
		PM	EB RT	0.01	B	13.0
SR 92/Womack Avenue	Two-Way Stop Control	AM	EB RT	0.04	B	14.6
		PM	EB RT	0.01	B	13.2
SR 92/Wiscasset Parkway	Two-Way Stop Control	AM	WB LT/RT	0.09	C	18.3
		PM	WB LT/RT	0.09	C	22.7
SR 92/Presidential Drive	Two-Way Stop Control	AM	EB RT	0.14	C	15.5
		PM	EB RT	0.07	B	13.2
SR 92/Viola Drive	Two-Way Stop Control	AM	EB RT	0.05	B	14.7
		PM	EB RT	0.04	B	13.0
SR 92/Holland Road	Two-Way Stop Control	AM	EB LT/RT	0.41	D	33.0
		PM	EB LT/RT	0.31	D	26.3
SR 92/Wyndham Lakes Drive	Two-Way Stop Control	AM	WB RT	0.13	B	13.6
		PM	WB RT	0.09	B	14.9
SR 92/Kensley Way	Two-Way Stop Control	AM	EB RT	0.15	C	15.7
		PM	EB RT	0.10	B	13.1
SR 92/Sayre Drive	Two-Way Stop Control	AM	WB LT/RT	0.31	C	22.1
		PM	WB LT/RT	0.09	C	22.8
SR 92/Meryton Park	Two-Way Stop Control	AM	EB RT	0.05	B	14.9
		PM	EB RT	0.04	B	12.7
SR 92/Cedar Grove Path	Two-Way Stop Control	AM	EB LT/RT	0.14	C	24.0
		PM	EB LT/RT	0.05	C	16.5
SR 92/Antioch Road	Two-Way Stop Control	AM	WB RT	0.15	A	9.9
		PM	WB LT	0.31	B	13.7
SR 92/East Paulding Drive	Traffic Signal	AM	Full Intersection Results Reported	1.03	E	75.3
		PM		0.93	D	42.0
SR 92/Etowah Drive	Two-Way Stop Control	AM	EB RT	0.36	B	10.9
		PM	EB RT	0.43	A	9.5
SR 92/ Entrance to West Ridge Church	Two-Way Stop Control	AM	WB RT	0.36	D	25.3
		PM	WB RT	0.55	D	32.2
SR 92/ Entrance to Paulding Middle School (1)	Two-Way Stop Control	AM	EB RT	0.36	B	12.8
		PM	EB RT	0.13	B	13.7
SR 92/Entrance to East Paulding Middle School (South)	Two-Way Stop Control	AM	EB LT/RT	1.20	F	153.4
		PM	EB LT/RT	0.53	D	32.5
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	0.20	C	22.0
		PM	EB LT/RT	0.10	C	20.9
SR 92/Diane Court	Two-Way Stop Control	AM	WB LT/RT	0.06	D	28.7
		PM	WB LT/RT	0.37	A	0.0
SR 92/Brenda Lane	Two-Way Stop Control	AM	WB LT/RT	0.03	C	24.0
		PM	WB LT/RT	0.04	C	17.5
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	0.29	C	23.2
		PM	EB LT/RT	0.10	C	19.8
SR 92/SR 120	Traffic Signal	AM	Full Intersection Results Reported	1.16	F	87.3
		PM		1.13	F	94.3

EB: Eastbound; WB: Westbound; SB: Southbound; NB: Northbound; RT: Right Turn; LT: Left Turn

*N/A: Calculated value exceeds the limitations of the model

Bold indicates failing level of service

Traffic Control Alternatives Comparison

For intersections that were identified in Table 10 to require additional traffic control modifications or additional lanes beyond the base two-lane undivided to four-lane divided widening, analysis was performed to compare control alternatives. Traffic signal, roundabout, and two-way stop alternatives were considered at five intersections. Table 11 summarizes the results of the alternative evaluation for the design-year 2040 build traffic conditions.

Table 11. Design-Year 2040 Build Intersection Traffic Control Alternatives Comparison Summary

Intersection	Peak Hour	Signal ¹		Roundabout ²			Two Way Stop Control ²		
		V/C Ratio	Delay	Critical Movement	V/C Ratio	Delay	Critical Movement	V/C Ratio	Delay
SR 92/Old Burnt Hickory Road	AM	0.76	22.4	NB TH/RT	0.89	36.8	WB LT/RT	N/A*	*N/A
	PM	0.78	22.9	WB RT	0.78	19.8	WB LT/RT	N/A*	*N/A
SR 92/Due West Road (North)	AM	0.90	35.5	SB TH	0.73	15.5	----	---	---
	PM	0.88	34.5	WB LT	0.83	37.6	----	---	---
SR 92/Due West Road (South)	AM	0.98	33.9	EB LT/TH/RT	0.81	42.3	EB LT/RT	3.12	N/A
	PM	0.51	9.6	NB TH/RT	0.62	11.1	EB LT/RT	0.92	79.7
SR 92/East Paulding Drive	AM	0.97	72.9	NB TH/LT	2.10	537.5	----	---	---
	PM	0.93	65.5	WB TH/LT	2.07	514.6	----	---	---
SR 92/East Paulding Middle School (South)	AM	0.57	15.1	WB LT/TH/RT	0.65	20.9	EB LT/RT	1.20	153.4
	PM	0.49	11.8	SB LT/TH	0.55	8.7	EB LT/RT	0.53	32.5

V/C Ratio – Volume-to-capacity ratio

*N/A: Calculated value exceeds the limitations of the model

1: Intersection V/C Ratio, and Average Control Delay;

2: Critical Movement V/C Ratio, and Control Delay for the Ultimate Roundabout Designs

At the SR 92/Old Burnt Hickory Road intersection, in addition to the extra SR 92 through lanes, a second southbound left-turn lane and separate westbound left-turn lane and a free right-turn lane are necessary in the signal alternative under 2040 conditions to allow the intersection to operate with a v/c ratio less than 1.0 for all movements. The intersection of SR 92/Due West Road (North) is able to operate under capacity under the signal alternative by adjusting the lane configuration of the westbound Due West Road (North) approach to provide an exclusive left-turn lane, a shared left/through lane and a free right-turn lane. At SR 92/Due West Road (South), to take advantage of two receiving lanes on SR 92 and to minimize delay on the northbound and southbound SR 92 approaches, an exclusive eastbound left-turn lane and a shared eastbound left-turn/right-turn lane is recommended. In order to operate under-capacity, the SR 92/East Paulding Drive intersection will require additional northbound and southbound left-turn lanes to operate with dual left-turn lanes on the SR 92 approaches.

At the SR 92/Entrance to East Paulding Middle School (South) intersection, under the signal alternative, separate eastbound left-turn and right-turn lanes are recommended to minimize delay on the northbound and southbound SR 92 approaches, and reduce queue storage requirements on the eastbound approach. In addition to the roundabout or signal alternatives at the SR 92/Entrance to East Paulding Middle School (South) intersection, other short-term improvements could be considered. This could include a traffic management plan for the Middle School that better utilizes the second entrance to the school, and/or encourages the use of alternative modes such as increased bussing of students, and improved pedestrian and bicycle access.

Table 19. East Paulding Drive Turn Lane Length Recommendations

Movement	Max Peak Hour Lane Group Flow Rate (Vehicles)	Vehicles in 1.5 Signal Cycles	Calculated Storage Length for 1.5 Cycles (Feet) ²	Recommended Storage (Feet)	Bay Taper (Feet)	Total Length (Taper + Storage)
EBL	260	17	425	425	100	525
EBR	500	33	825	825	100	925
WBL	290	19	475	475	100	575
WBR	405	27	675	675	100	775
NBL	500*	17	425	425	100	525
NBR	290	19	475	475	100	575
SBL	550*	18	450	450	100	550
SBR	260	17	425	425	100	525

*Flow is divided between two lanes

Segment Analysis

Table 20 and Table 21 summarize the overall arterial performance for SR 92 within the study area. Average travel speeds are compared for the no-build and build conditions under year 2040 weekday a.m. and p.m. peak hour conditions.

Table 20. Design-Year 2040 AM Peak Hour Segment Operations Comparison

Roadway Section	Arterial Class	Direction	2040 No-Build AM*		2040 Build AM**	
			LOS	Average Travel Speed (mph)	LOS	Average Travel Speed (mph)
SR 120 to East Paulding Drive	I	Northbound	E	19.9	C	28.4
		Southbound	F	11.7	D	24.7
East Paulding Drive to Due West Road (North)	I	Northbound	C	33.1	C	33.4
		Southbound	D	24.9	B	34.0
Due West Road (North) to Old Burnt Hickory Road	I	Northbound	A	53.3	A	54.9
		Southbound	A	47.8	A	48.0

*- Two-Lane Undivided

** - Four-lane Divided

Table 21. Design-Year 2040 PM Peak Hour Segment Operations Comparison

Roadway Section	Arterial Class	Direction	2040 No-Build PM*		2040 Build PM**	
			LOS	Average Travel Speed (mph)	LOS	Average Travel Speed (mph)
SR 120 to East Paulding Drive	I	Northbound	D	25.6	B	37.8
		Southbound	F	12.6	C	29.4
East Paulding Drive to Due West Road (North)	I	Northbound	D	22.7	C	27.5
		Southbound	D	22.3	B	37.0
Due West Road (North) to Old Burnt Hickory Road	I	Northbound	A	53.4	A	53.9
		Southbound	A	43.5	A	44.5

*- Two-Lane Undivided

** - Four-lane Divided

The analysis of the 2040 build conditions, as displayed in Table 20 and Table 21 shows that the segment between Due West Road (North) and Old Burnt Hickory Road is expected to operate at LOS A in both directions during both time periods. The segment between East Paulding Drive and Due West Road (North) is expected to operate at LOS C in the northbound direction during both peak hours and LOS B

Table 22. Opening-Year 2020 No-Build Intersection Operations Analysis Summary

Intersection	Traffic Control	Peak Hour	Operations			
			Critical Movement	V/C Ratio	Level of Service	Delay
SR 92/Old Burnt Hickory Road	Two-Way Stop Control	AM	WB LT/RT	2.80	F	895.4
		PM	WB LT/RT	2.19	F	587.6
SR 92/Battle Gate Lane	Two-Way Stop Control	AM	EB LT/RT	0.12	D	27.3
		PM	EB LT/RT	0.06	D	25.5
SR 92/Pine Bluff Drive	Two-Way Stop Control	AM	EB LT/RT	0.54	E	47.8
		PM	EB LT/RT	0.28	D	33.4
SR 92/Abbey Lane	Two-Way Stop Control	AM	EB LT/RT	0.26	E	37.8
		PM	EB LT/RT	0.05	D	25.1
SR 92/Due West Road (North)	Traffic Signal	AM	Full Intersection Results Reported	0.69	B	15.6
		PM		1.17	E	74.3
SR 92/Due West Road (South)	Two-Way Stop Control	AM	EB LT/RT	4.39	F	N/A*
		PM	EB LT/RT	1.07	F	153.7
SR 92/Wiley Path	Two-Way Stop Control	AM	EB LT/RT	0.04	D	31.5
		PM	EB LT/RT	0.04	D	31.5
SR 92/Woodlore Drive	Two-Way Stop Control	AM	WB LT/RT	0.14	C	20.0
		PM	WB LT/RT	0.12	C	23.3
SR 92/Paige Street	Two-Way Stop Control	AM	EB LT/RT	0.04	D	30.3
		PM	EB LT/RT	0.04	D	30.3
SR 92/Womack Avenue	Two-Way Stop Control	AM	EB LT/RT	0.04	D	29.9
		PM	EB LT/RT	0.04	D	29.9
SR 92/Wiscasset Parkway	Two-Way Stop Control	AM	WB LT/RT	0.07	C	17.5
		PM	WB LT/RT	0.09	D	26.3
SR 92/Presidential Drive	Two-Way Stop Control	AM	EB LT/RT	0.28	D	31.2
		PM	EB LT/RT	0.17	C	24.9
SR 92/Viola Drive	Two-Way Stop Control	AM	EB LT/RT	0.16	D	26.1
		PM	EB LT/RT	0.08	C	24.1
SR 92/Holland Road	Two-Way Stop Control	AM	EB LT/RT	0.35	D	30.0
		PM	EB LT/RT	0.29	D	29.5
SR 92/Wyndham Lakes Drive	Two-Way Stop Control	AM	WB LT/RT	0.23	D	26.5
		PM	WB LT/RT	0.13	C	24.0
SR 92/Kensley Way	Two-Way Stop Control	AM	EB LT/RT	0.21	D	27.3
		PM	EB LT/RT	0.11	C	18.8
SR 92/Sayre Drive	Two-Way Stop Control	AM	WB LT/RT	0.12	C	23.5
		PM	WB LT/RT	0.05	C	19.3
SR 92/Meryton Park	Two-Way Stop Control	AM	EB LT/RT	0.05	C	19.5
		PM	EB LT/RT	0.06	C	18.0
SR 92/Cedar Grove Path	Two-Way Stop Control	AM	EB LT/RT	0.05	C	23.4
		PM	EB LT/RT	0.01	B	12.2
SR 92/Antioch Road	Two-Way Stop Control	AM	WB LT/RT	0.71	F	82.9
		PM	WB LT/RT	1.05	F	159.3
SR 92/East Paulding Drive	Traffic Signal	AM	Full Intersection Results Reported	0.93	E	69.4
		PM		1.16	E	58.4
SR 92/Etowah Drive	Two-Way Stop Control	AM	EB RT	0.03	C	15.4
		PM	EB RT	0.04	B	13.1
SR 92/ Entrance to West Ridge Church	Two-Way Stop Control	AM	WB RT	0.05	E	43.0
		PM	WB RT	0.33	D	25.5
SR 92/ Entrance to East Paulding Middle School (North)	Two-Way Stop Control	AM	EB RT	0.02	B	11.7
		PM	EB RT	0.13	B	13.0
SR 92/Entrance to East Paulding Middle School (South)	Two-Way Stop Control	AM	EB LT	0.82	F	99.0
		PM	EB LT	0.28	E	40.8
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	0.20	C	23.9
		PM	EB LT/RT	0.12	D	26.6
SR 92/Diane Court	Two-Way Stop Control	AM	WB LT/RT	0.08	E	35.4
		PM	WB LT/RT	0.04	D	33.4
SR 92/Brenda Lane	Two-Way Stop Control	AM	WB LT/RT	0.07	D	30.4
		PM	WB LT/RT	0.07	F	51.1
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	0.34	D	29.2
		PM	EB LT/RT	0.13	D	30.2
SR 92/SR 120	Traffic Signal	AM	Full Intersection Results Reported	1.41	F	141.8
		PM		1.34	F	127.6

EB: Eastbound; WB: Westbound; SB: Southbound; NB: Northbound; RT: Right Turn; LT: Left Turn

*N/A: Calculated value exceeds the limitations of the model

Bold indicates failing level of service

Table 23. Opening-Year 2020 Build Intersection Operations Analysis Summary

Intersection	Traffic Control	Peak Hour	Operations			
			Critical Movement	V/C Ratio	Level of Service	Delay
SR 92/Old Burnt Hickory Road	Two-Way Stop Control	AM	WB LT/RT	1.19	F	156.6
		PM	WB LT/RT	1.23	F	155.1
SR 92/Battle Gate Lane	Two-Way Stop Control	AM	EB LT/RT	0.07	C	16.9
		PM	EB LT/RT	0.03	C	15.2
SR 92/Pine Bluff Drive	Two-Way Stop Control	AM	EB LT/RT	0.3	C	21.7
		PM	EB LT/RT	0.14	C	16.9
SR 92/Abbey Lane	Two-Way Stop Control	AM	EB RT	0.07	B	12.7
		PM	EB RT	0.02	B	11.1
SR 92/Due West Road (North)	Traffic Signal	AM	Full Intersection Results Reported	0.71	C	29.6
		PM		0.76	D	38.2
SR 92/Due West Road (South)	Two-Way Stop Control	AM	EB LT/RT	1.40	F	229.6
		PM	EB LT/RT	0.48	C	23.5
SR 92/Wiley Path	Two-Way Stop Control	AM	EB RT	0.01	B	11.7
		PM	EB RT	0.01	B	11.2
SR 92/Woodlore Drive	Two-Way Stop Control	AM	WB RT	0.23	B	11.3
		PM	WB RT	0.05	B	11.9
SR 92/Paige Street	Two-Way Stop Control	AM	EB RT	0.01	B	11.8
		PM	EB RT	0.01	B	11.0
SR 92/Womack Avenue	Two-Way Stop Control	AM	EB RT	0.01	B	11.7
		PM	EB RT	0.01	B	11.2
SR 92/Wiscasset Parkway	Two-Way Stop Control	AM	WB LT/RT	0.04	B	12.8
		PM	WB LT/RT	0.05	C	16.8
SR 92/Presidential Drive	Two-Way Stop Control	AM	EB RT	0.23	B	12.1
		PM	EB RT	0.06	B	11.2
SR 92/Viola Drive	Two-Way Stop Control	AM	EB RT	0.06	B	12.0
		PM	EB RT	0.03	B	11.0
SR 92/Holland Road	Two-Way Stop Control	AM	EB LT/RT	0.21	C	17.9
		PM	EB LT/RT	0.16	C	16.4
SR 92/Wyndham Lakes Drive	Two-Way Stop Control	AM	WB RT	0.08	B	11.1
		PM	WB RT	0.05	B	11.8
SR 92/Kensley Way	Two-Way Stop Control	AM	EB RT	0.08	B	12.1
		PM	EB RT	0.05	B	10.9
SR 92/Sayre Drive	Two-Way Stop Control	AM	WB LT/RT	0.07	B	14.8
		PM	WB LT/RT	0.04	B	14.2
SR 92/Meryton Park	Two-Way Stop Control	AM	EB RT	0.03	B	11.8
		PM	EB RT	0.03	B	10.7
SR 92/Cedar Grove Path	Two-Way Stop Control	AM	EB LT/RT	0.04	C	29.3
		PM	EB LT/RT	0.01	B	10.6
SR 92/Antioch Road	Two-Way Stop Control	AM	WB LT/RT	0.11	B	10.0
		PM	WB LT/RT	0.21	B	11.8
SR 92/East Paulding Drive	Traffic Signal	AM	Full Intersection Results Reported	0.92	D	40.5
		PM		0.66	C	28.0
SR 92/Etowah Drive	Two-Way Stop Control	AM	EB RT	0.02	B	10.1
		PM	EB RT	0.02	A	9.2
SR 92/ Entrance to West Ridge Church	Two-Way Stop Control	AM	WB RT	0.02	C	17.1
		PM	WB RT	0.36	C	17.2
SR 92/ Entrance to East Paulding Middle School (North)	Two-Way Stop Control	AM	EB RT	0.02	B	10.5
		PM	EB RT	0.10	B	11.2
SR 92/Entrance to East Paulding Middle School (South)	Two-Way Stop Control	AM	EB LT	0.59	D	22.1
		PM	EB LT	0.28	C	16.0
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	0.12	C	15.1
		PM	EB LT/RT	0.06	C	15.6
SR 92/Diane Court	Two-Way Stop Control	AM	WB LT/RT	0.04	C	18.7
		PM	WB LT/RT	0.0	A	0.0
SR 92/Brenda Lane	Two-Way Stop Control	AM	WB LT/RT	0.02	B	13.0
		PM	WB LT/RT	0.02	B	12.8
SR 92/Hardy Circle	Two-Way Stop Control	AM	EB LT/RT	0.17	B	14.7
		PM	EB LT/RT	0.05	B	13.1
SR 92/SR 120	Traffic Signal	AM	Full Intersection Results Reported	0.81	C	32.2
		PM		0.82	C	33.8

EB: Eastbound; WB: Westbound; SB: Southbound; NB: Northbound; RT: Right Turn; LT: Left Turn

*N/A: Calculated value exceeds the limitations of the model

Bold indicates failing level of service

In general, the roundabout and signal alternatives provides superior operational performance in comparison to the existing two-way stop control at the locations summarized in Table 24. Under 2020 opening year volumes, the roundabout and signal have comparable operational performance. However, the roundabout alternatives are recommended at each location due to the safety benefits. Similar to the 2040 conditions analysis, a traffic management plan could be considered at SR 92/East Paulding Middle School (South) to improve operations at the Middle School.

Figure 9 displays the year 2013 base year and year 2020 build conditions lane configuration and traffic control devices for the intersections of SR 92/Old Burnt Hickory Road, SR 92/Due West Road (North), SR 92/Due West Road (South), and SR 92/Entrance to East Paulding Middle School (South). As seen in Figure 9, interim roundabout designs were assumed at the intersections of SR 92/Old Burnt Hickory Road, and SR 92/Due West Road (North) in the 2020 opening year.

Table 24. Year 2020 Build Scenario Intersection Traffic Control Comparison Summary

Intersection	Peak Hour	Signal ¹		Roundabout ²			Two Way Stop Control ²		
		V/C Ratio	Delay	Critical Movement	V/C Ratio	Delay	Critical Movement	V/C Ratio	Delay
SR 92/Old Burnt Hickory Road	AM	0.47	14.6	SB LT/TH	0.71	15.2	WB LT/RT	1.19	156.6
	PM	0.49	12.6	NB TH/RT	0.67	16.1	WB LT/RT	1.23	221.9
SR 92/Due West Road (North)	AM	0.55	23.5	NB TH/RT	0.78	22.5	----	---	---
	PM	0.69	20.8	WB LT	0.61	18.1	----	---	---
SR 92/Due West Road (South)	AM	0.44	10.9	EB LT/RT	0.76	27.8	EB LT/RT	1.40	229.6
	PM	0.37	9.9	SB TH/RT	0.60	11.4	EB LT/RT	0.48	23.5
SR 92/East Paulding Middle School (South)	AM	0.40	11.6	EB LT/TH/RT	0.50	12.9	EB LT/RT	0.59	30.6
	PM	0.35	9.6	NB LT/TH	0.44	8.3	EB LT/RT	0.28	16.0

V/C Ratio – Volume-to-capacity ratio

- 1: Intersection V/C Ratio, and Average Control Delay;
- 2: Critical Movement V/C Ratio, and Control Delay for the Interim Roundabout Designs

ACCESS ANALYSIS

The construction of the proposed median has implications for left turning vehicles at all intersections where a median break is no longer provided. Table 25 and Table 26 show the number of redirected vehicles making a U-turn at a given median opening, as well as the distance to the next upstream median opening.

Table 25. SR 92 Year 2020 Build Scenario Northbound Median Opening Conditions

Location	Proposed Conditions		
	Approximate Distance from Nearest Upstream Median Break	Number of U-Turns During the AM Peak Hour	Number of U-Turns During the PM Peak Hour
Old Burnt Hickory Road	1,500 feet	<5	<5
Battle Gate Lane	5,350 feet	<5	<5
Pine Bluff Drive	1,750 feet	20	15
Battlefield Driveway	2,750 feet	<5	<5
Due West Road (North)	625 feet	<5	<5
Due West Road (South)	3,900 feet	10	10
Wiscasset Parkway	2,350 feet	20	25
Holland Road	2,400 feet	50	30
Sayre Drive	3,150 feet	20	10
Cedar Grove Path	1,200 feet	75	115
East Paulding Drive	1,150 feet	<5	<5
Access Road to Westridge Baptist Church	2,600 feet	<5	<5
Access Road 2 to East Paulding Middle School	1,000 feet	<5	<5

Table 26. SR 92 Year 2020 Build Scenario Southbound Median Opening Conditions

Location	Proposed Conditions		
	Approximate Distance from Nearest Upstream Median Break	Number of U-Turns During the AM Peak Hour	Number of U-Turns During the PM Peak Hour
Old Burnt Hickory Road	1,100 feet	<5	<5
Battle Gate Lane	1,500 feet	<5	<5
Pine Bluff Drive	5,350 feet	<5	<5
Battlefield Driveway	1,750 feet	<5	<5
Due West Road (North)	2,750 feet	5	5
Due West Road (South)	625 feet	<5	<5
Wiscasset Parkway	3,900 feet	30	40
Holland Road	2,350 feet	55	30
Sayre Drive	2,400 feet	35	25
Cedar Grove Path	3,150 feet	10	5
East Paulding Drive	1,200 feet	15	<5
Access Road to Westridge Baptist Church	1,150 feet	<5	<5
Access Road 2 to East Paulding Middle School	2,600 feet	<5	<5

SEGMENT ANALYSIS

Table 27 and Table 28 summarize the overall arterial performance for SR 92 within the study area. Average travel speeds are compared for the no-build and build conditions under year 2020 weekday a.m. and p.m. peak hour conditions.

Table 27. Opening-Year 2020 AM Peak Hour Segment Operations Comparison

Roadway Section	Arterial Class	Direction	2020 No-Build AM*		2020 Build AM**	
			LOS	Average Travel Speed (mph)	LOS	Average Travel Speed (mph)
SR 120 to East Paulding Drive	I	Northbound	D	26.2	B	37.4
		Southbound	E	17.7	B	36.7
East Paulding Drive to Due West Road (North)	I	Northbound	A	47.5	A	42.1
		Southbound	C	34.0	B	40.5
Due West Road (North) to Old Burnt Hickory Road	I	Northbound	A	54.7	A	54.9
		Southbound	A	49.9	A	50.7

* - Two-Lane Undivided

** - Four-lane Divided

Table 28. Opening-Year 2020 PM Peak Hour Segment Operations Comparison

Roadway Section	Arterial Class	Direction	2020 No-Build PM*		2020 Build PM**	
			LOS	Average Travel Speed (mph)	LOS	Average Travel Speed (mph)
SR 120 to East Paulding Drive	I	Northbound	C	31.8	B	40.3
		Southbound	E	20.9	B	38.1
East Paulding Drive to Due West Road (North)	I	Northbound	A	49.0	B	38.0
		Southbound	C	32.2	B	41.14
Due West Road (North) to Old Burnt Hickory Road	I	Northbound	A	54.6	A	54.9
		Southbound	A	49.6	A	48.4

* - Two-Lane Undivided

** - Four-lane Divided

As summarized in Table 27 and Table 28, the results of the segment operations analysis under no-build year 2020 traffic conditions shows that the northern segments in the corridor are expected to operate at LOS A or C during the a.m. and p.m. peak hours. The southernmost section of the corridor, between SR 120 and East Paulding Drive, operates at LOS E southbound during the a.m. peak hour and has the slowest expected average travel speeds, with speeds around 17 and 21 miles per hour in the southbound direction during both the a.m. and p.m. peak hours, respectively. The finding of acceptable overall arterial performance under opening-year 2020 conditions is consistent with the current roadway configuration and intersection operations analysis in which few traffic signals are present in the corridor to reduce average travel speeds, and most intersections continue to operate acceptably under opening-year conditions.

Attachment 7
Summary of TE Study and
Signal Warrant Analysis

EXECUTIVE SUMMARY

This report evaluates the safety and operational performance of a six-mile section of State Route 92 in Cobb and Paulding Counties, Georgia. Kittelson & Associates, Inc. conducted an analysis of the future traffic conditions and transportation needs for the proposed widening of SR 92 from a two-lane undivided roadway to a four-lane divided cross-section between SR 120 and Old Burnt Hickory Road. The report summarizes existing safety conditions and operational performance, followed by a design-year 2040 no-build and build operations analysis and an opening year 2020 no-build and build operations analysis.

The traffic analysis indicates the need for a four-lane divided roadway between SR 120 and Old Burnt Hickory Road to support future travel demand along the SR 92 corridor. In particular, the proposed widening is expected to be necessary to maintain adequate intersection operations throughout the study area. To further improve operational and safety performance at key intersections, turn lane improvements are recommended at the SR 92/East Paulding Drive signal and multilane roundabouts are recommended at the intersections of SR 92/Old Burnt Hickory Road, SR 92/Due West Road (North), SR 92/Due West Road (South), and SR 92/Entrance to East Paulding Middle School (South).

The traffic analysis defines the lane geometry and traffic control requirements for the corridor based on design year (2040) forecast traffic conditions. Traffic volume projections for opening year 2020 and design year 2040 were developed by GDOT Planning staff and provided to the project team for use in preparing the traffic analysis.

SAFETY ANALYSIS FINDINGS

- Using four years of crash data (Years 2006 to 2009), the safety analysis revealed 506 crashes, including 131 injury crashes and one fatal crash.
 - Intersection related crashes comprise approximately 75% of the total crashes over the 4-year period. The intersections of SR 92/SR 120, SR 92/East Paulding Drive, and SR 92/Due West Road South were the top three locations within the study area based upon total numbers of crashes.
 - For the 25% of crashes that are non-intersection related, key crash types included single-vehicle crashes and rear-end or angle crashes associated with vehicles turning to or from a driveway.
 - The presence of the nearby middle and high-school was also found to be a key contributor to the safety performance of the SR 92 corridor within the study area.
- The widening of SR 92 from a two-lane undivided to a four-lane divided cross-section is expected to provide safety benefits due to improved access management. Additional safety benefit is expected from the addition of left-and right-turn lanes at driveway and cross-

street locations throughout the corridor to reduce conflicts as vehicles turn to or from a minor street or driveway.

- To improve the safety performance at key intersections within the study area, roundabouts were considered at the intersections of SR 92/Due West Road (South), SR 92/Due West Road (North), SR 92/Old Burnt Hickory Road, and SR 92/Entrance to East Paulding Middle School (South). Because of the identified crash trends, a roundabout was also considered as a potential safety improvement at the intersection of SR 92/East Paulding Drive, but was dropped from consideration because a two-lane roundabout is not expected to provide adequate capacity to serve the projected design year 2040 traffic volumes.

OPERATIONAL ANALYSIS FINDINGS

Year 2040 No-Build Conditions

- Under year 2040 no-build design-year conditions, 26 intersections (including the two existing signalized intersections at SR 92/Due West Road (North) and SR 92/East Paulding Drive), are expected to operate at LOS F.

Year 2040 Build Conditions

- The Design Year 2040 Build conditions analysis was conducted in two parts: (1) with the base widening from a two-lane undivided to a four-lane divided cross-section along SR 92 (inclusive of auxiliary left and right-turn lanes at all intersections) and (2) evaluation of further traffic control or turn lane improvements at key intersections where the mainline widening along SR 92 alone did not provide sufficient capacity for 2040 traffic volumes.
- With the base widening from a two-lane undivided to a four-lane divided cross-section, most intersections are projected to operate acceptably. Intersections that required additional consideration of turn lane improvements, roundabouts, or improved signals include:
 - SR 92/Old Burnt Hickory Road;
 - SR 92/Due West Road (North);
 - SR 92/Due West Road (South);
 - SR 92/East Paulding Drive; and,
 - SR 92/Entrance to East Paulding Middle School (South).
- When compared to the signalized or unsignalized alternatives, roundabouts at the intersections of SR 92/Old Burnt Hickory Road, SR 92/Due West Road (South), SR 92/Due West Road (North), and SR 92/Entrance to East Paulding Middle School (South) generally provide lower average delays and vehicle queues, along with better expected safety performance.
- Based upon the 2040 design year volumes, this report recommends signalization and turn lane improvements at the intersection SR 92/East Paulding Drive.

- A roundabout alternative was dropped from consideration at SR 92/East Paulding Drive because a two-lane roundabout is not expected to be sufficient to provide adequate levels of service for the 2040 Design Year volumes. Turn lane improvements to the existing signalized intersection is recommended to provide acceptable operations.

FINDINGS AND RECOMMENDATIONS

FINDINGS

Safety Analysis

- Using four years of crash data (Years 2006 to 2009), the safety analysis revealed 506 crashes, including 131 injury crashes and one fatal crash.
 - Intersection related crashes comprise approximately 75% of the total crashes over the 4-year period. The intersections of SR 92/SR 120, SR 92/East Paulding Drive, and SR 92/Due West Road South were the top three locations within the study area based upon total numbers of crashes.
 - For the 25% of crashes that are non-intersection related, key crash types included single-vehicle crashes and rear-end or angle crashes associated with vehicles turning to or from a driveway.
 - The presence of the nearby middle and high-school was also found to be a key contributor to the safety performance of the SR 92 corridor within the study area.
- The widening of SR 92 from a two-lane undivided to a four-lane divided cross-section is expected to provide safety benefits due to improved access management. Additional safety benefit is expected from the addition of left-and right-turn lanes at driveway and cross-street locations throughout the corridor to reduce conflicts as vehicles turn to or from a minor street or driveway.
- To improve the safety performance at key intersections within the study area, roundabouts were considered at the intersections of SR 92/Due West Road (South), SR 92/Due West Road (North), and SR 92/Old Burnt Hickory Road. Because of the identified crash trends, a roundabout was also considered as a potential safety improvement at the intersection of SR 92/East Paulding Drive, but was dropped from consideration because a two-lane roundabout is not expected to provide adequate capacity to serve the projected design year 2040 traffic volumes.

Base Year 2013 Conditions

- Under year 2013 base-year conditions, the signalized SR 92/Due West Road (North) intersection operates acceptably at LOS B and C, respectively, during the weekday a.m. and p.m. peak hours, and the signalized intersection of SR 92/East Paulding Drive operates acceptably at LOS D during both peak hours.
- Five intersections, identified below, were found to operate at LOS F during the peak hours indicated.

- SR 92/Old Burnt Hickory Road (AM and PM)
- SR 92/Due West Road (South) (AM and PM)
- SR 92/Antioch Road (AM and PM)
- SR 92/Entrance to East Paulding Middle School (South) (AM)
- All remaining intersections provide adequate operations during both peak hours.

Design-Year 2040 Conditions

No-Build Conditions

- Under year 2040 no-build design-year conditions, the signalized intersections at SR 92/Due West Road (North) and SR 92/East Paulding Drive are expected to operate at LOS D and F, respectively, during the weekday a.m. peak hour, and both at LOS F during the weekday p.m. peak hour.
- With the exception of the SR 92/Etowah Drive and SR 92/Entrance to East Paulding Middle School (North) intersections, every other two-way stop controlled intersection, identified below, were found to operate at LOS E or F during the peak hours indicated.
 - SR 92/Old Burnt Hickory Road (AM and PM)
 - SR 92/Battle Gate Lane (AM and PM)
 - SR 92/Pine Bluff Drive (AM and PM)
 - SR 92/Abbey Lane (AM and PM)
 - SR 92/Due West Road (South) (AM and PM)
 - SR 92/Wiley Path (AM and PM)
 - SR 92/Woodlore Drive (AM and PM)
 - SR 92/Paige Street (AM and PM)
 - SR 92/Womack Avenue (AM and PM)
 - SR 92/Wiscasset Parkway (AM and PM)
 - SR 92/Presidential Drive (AM and PM)
 - SR 92/Viola Drive (AM and PM)
 - SR 92/Holland Road (AM and PM)
 - SR 92/Wyndham Lakes Drive (AM and PM)
 - SR 92/Kensley Way (AM and PM)
 - SR 92/Sayre Drive (AM and PM)
 - SR 92/Meryton Park (AM and PM)
 - SR 92/Cedar Grove Path (AM and PM)
 - SR 92/Antioch Road (AM and PM)
 - SR 92/ Entrance to West Ridge Church (AM and PM)

- SR 92/Entrance to East Paulding Middle School (South) (AM and PM)
- SR 92/Hardy Circle (AM and PM)
- SR 92/Diane Court (AM)
- SR 92/Brenda Lane (AM and PM)
- SR 92/Hardy Circle (AM and PM)

Build Conditions

- With the build improvements including widening from a two-lane undivided to a four-lane divided cross-section, all intersections with the exception of SR 92/Old Burnt Hickory Road, SR 92/Due West Road (North), SR 92/Due West Road (South), SR 92/East Paulding Drive, and SR 92/Entrance to East Paulding Middle School (South) are projected to operate acceptably. Additional traffic control improvements were considered at each of these locations including a traffic signal and roundabout control. A roundabout alternative was also considered at SR 92/Due West Road (North) because of its close proximity to SR 92/Due West Road (South) and crash history.
- At the intersection of SR 92/Old Burnt Hickory Road, a multilane roundabout and a traffic signal are both possible options to accommodate the 2040 design year traffic volumes. However, the roundabout provides safety benefits as well as lower vehicular delays. Based upon these considerations and coordination with GDOT staff, the roundabout is the preferred traffic control alternative. The design of the roundabout should reserve sufficient space for the ultimate partial three-lane configuration illustrated in Figure 8. However, in the opening year, a smaller two-lane configuration is recommended.
- Based on the analysis results, a roundabout alternative was dropped from consideration at SR 92/East Paulding Drive.
- Due to their safety benefits and comparable operational performance to the signalized alternatives, roundabouts were identified as the preferred traffic control for year 2040 design-year conditions at the intersections of SR 92/Due West Road (North), SR 92/Due West Road (South), and SR 92/Entrance to East Paulding Middle School (South).
- A segment analysis projects some segments of the corridor to operate with a segment LOS of F under year 2040 no-build conditions with the existing two-lane undivided cross-section. Under year 2040 build conditions, the corridor is projected to operate at LOS A between Due West Road (North) to Old Burnt Hickory Road, at LOS B and C between East Paulding Drive to Due West Road (North) depending on the time period and direction, and between LOS B and D between SR 120 to East Paulding Drive depending on the time period and direction.

Opening Year 2020 Conditions

No-Build Conditions

- Under year 2020 no-build conditions, the signalized intersections at SR 92/Due West Road (North) and SR 92/East Paulding Drive operate at LOS B and E, respectively during the weekday a.m. peak hour, and both at LOS E during the weekday p.m. peak hour.
- Five intersections, identified below, were found to operate at LOS F during the peak hours indicated.
 - SR 92/Old Burnt Hickory Road (AM and PM)
 - SR 92/Due West Road (South) (AM and PM)
 - SR 92/Antioch Road (AM and PM)
 - SR 92/Entrance to East Paulding Middle School (South) (AM)
 - SR 92/Brenda Lane (PM)

Build Conditions

- With the build improvements including widening from a two-lane undivided to a four-lane divided cross-section all intersections with the exception of SR 92/Old Burnt Hickory Road and Due West Road (South) are projected to operate acceptably.
- For key intersections within the study area that were considered for traffic control improvements under the design year 2040 analysis, the same control alternatives were considered as part of the opening year 2020 conditions. This includes the intersections of: SR 92/Old Burnt Hickory Road, SR 92/Due West Road (North), SR 92/Due West Road (South), and SR 92/Entrance to East Paulding Middle School (South). Signal warrant analyses were performed for each of the intersections for years 2020 traffic volumes to verify that a signal was a viable alternative. All three existing two-way stop control intersections considered for signal control were found to meet signal warrants for opening-year build conditions.
- Under opening year 2020 traffic volumes, interim roundabout designs were analyzed at the SR 92/Old Burnt Hickory Road, and SR 92/Due West Road (North) intersections, as illustrated in Figure 9. The interim roundabout designs and signal control alternatives provide comparable operational performance at the two intersections. Opportunities for staging improvements to roundabouts at SR 92/Due West Road (South), and SR 92/Entrance to East Paulding Middle School (South) were not identified, and the ultimate roundabout designs and signal control alternatives at the two intersections provide comparable operational performance. However, the roundabout alternative is recommended at all four intersections due to the additional safety benefits provided.

Segment Analysis

- An analysis of the overall arterial performance for the SR 92 corridor within the study area shows that the corridor north of East Paulding Drive is expected to operate at LOS A to C during the a.m. and p.m. peak hours under both build and no-build conditions. The southern segment between SR 120 and East Paulding Drive is expected to operate between LOS C to E depending on time period and direction under no-build conditions and at LOS B under build conditions. The finding of acceptable overall arterial performance on the northern portion of the corridor under opening-year 2020 conditions is consistent with the 2020 intersection operations analysis in which few traffic signals are present in the corridor to reduce average travel speeds, and most intersections continue to operate acceptably under opening-year conditions.

RECOMMENDATIONS

- The traffic analysis indicates the need for a four-lane divided roadway between SR 120 and Old Burnt Hickory Road to support future travel demand along the SR 92 corridor. In particular, the proposed widening is expected to be necessary to maintain adequate intersection operations and safety performance throughout the study area. To further improve operational and safety performance at key intersections, the following are recommended:
 - Turn lane improvements at the existing signalized intersection of SR 92/East Paulding Drive; and,
 - Multilane roundabouts at the intersections of SR 92/Old Burnt Hickory Road, SR 92/Due West Road (North), SR 92/Due West Road (South), and SR 92/Entrance to Paulding Middles School (South).

**Attachment 8a
Roundabout Data**

Roundabout Feasibility Report

SR 92 at Due West Road (North) and Due West Road (South)

Paulding County, Georgia

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Georgia Department of Transportation

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January 2014



INTRODUCTION AND EXECUTIVE SUMMARY

Kittelson & Associates, Inc. (KAI) evaluated the operational and geometric feasibility of roundabouts at the intersections of SR 92/Due West Road (North) and SR 92/Due West Road (South). The intersections are both located in Paulding County, Georgia; however, the Cobb County line is located immediately to the east of SR 92 in the influence area of the Due West (north) intersection. This report documents the development of the conceptual roundabout designs for the study intersections, including the operational analysis to determine the size of the roundabouts needed. The operations review, feasibility evaluation, and conceptual design development includes each of the components outlined in the Georgia Department of Transportation (GDOT)'s Roundabout Design Checklist for Concept Development.

Based upon KAI's evaluation, a roundabout is a feasible alternative for implementation at the intersections of SR 92/Due West Road (North) and SR 92/Due West Road (South). Partial two-lane roundabouts at both intersections are sufficient to serve estimated traffic volumes through the design year 2040.

Roundabouts are estimated to provide safety benefits over the existing signalized intersection control at the intersection of SR 92/Due West Road (North), and the unsignalized intersection of SR 92/Due West Road (South) by reducing the likelihood for injury crashes. This is due to reduced intersection speeds with a roundabout as well as removal of severe crash types such as right-angle and left-turn crashes. A reduction in total vehicle crashes is also expected with roundabout implementation.

For the roundabout alternatives, KAI developed several design options at a sketch level to identify the anticipated footprint, potential impacts, and potential constructability associated with each option. The concept designs present options at the intersection of SR 92/Due West Road (North) to construct the roundabout with northbound and westbound right-turn bypass lanes that allows for a phased implementation to give GDOT flexibility if the bypass lanes are desired in the future, or if estimated traffic volumes change.

SUMMARY AND CONCLUSIONS

Kittelson & Associates, Inc. (KAI) evaluated the operational and geometric feasibility of roundabouts at the intersections of SR 92/Due West Road (North) and SR 92/Due West Road (South) in Paulding County, Georgia. This report documents the development of the conceptual roundabout designs for the study intersections, including the operational analysis to determine the size of the roundabouts needed. The operations review, feasibility evaluation, and conceptual design development is based upon the Georgia Department of Transportation (GDOT)'s Roundabout Design Checklist for Concept Development.

Based upon KAI's evaluation, a roundabout is a feasible alternative for implementation at the intersections of SR 92/Due West Road (North) and SR 92/Due West Road (South). Multilane roundabouts at both intersections are sufficient to serve estimated traffic volumes through the design year 2040. At both locations, the projected operations of the roundabout show less delay and queuing compared with the signalized alternatives

Roundabouts are estimated to provide safety benefits over the current signalized intersection control at the intersection of SR 92/Due West Road (North), and the unsignalized intersection of SR 92/Due West Road (South) by reducing the likelihood for injury crashes. This is due to reduced intersection speeds with a roundabout as well as removal of severe crash types such as right-angle and left-turn crashes. A reduction in total vehicle crashes is also expected with roundabout implementation.

For the roundabout alternatives, KAI developed several design options at a sketch level to identify the anticipated footprint, potential impacts, and potential constructability associated with each option. The concept design for the intersection of SR 92/Due West Road (North) includes right-turn bypass lanes on the northbound and eastbound approaches for design year conditions.

The planning level cost estimates of the roundabouts are approximately \$5,184,235 compared to \$3,452,675 for the signal alternative. A 20-year life-cycle analysis projects the roundabouts to cost approximately \$13,050,487 compared to \$22,362,044 for the signals. This accounts for capital costs as well as the life-cycle cost of expected crashes, cost of delay, and maintenance considerations.

Based upon the results of this study, roundabouts are feasible alternatives at the study intersections, and are preferred based on their expected operations and safety performance compared to the signal alternative. We recommend a phased approach to implementing the roundabout at the Due West (North) location that would delay construction of the two right-turn bypass lanes until they are needed based upon realized traffic volume conditions.

Roundabout Feasibility Report

SR 92 at Old Burnt Hickory Road

Paulding County, Georgia

Prepared For:
Georgia Department of Transportation

Prepared By:
Kittelson & Associates, Inc.
225 E. Robinson Street, Suite 450
Orlando, FL 32801
(407) 540-0555

Project Manager: Justin Bansen, P.E.

P.I. 0007692

January 2014



INTRODUCTION AND EXECUTIVE SUMMARY

Kittelson & Associates, Inc. (KAI) evaluated the operational and geometric feasibility of a roundabout at the intersection of SR 92 with Old Burnt Hickory Road in Paulding County, Georgia. This report documents the development of the conceptual roundabout design for the study intersection, including the operational analysis to determine the necessary number of lanes and lane configurations to serve the design year 2040 traffic volumes.

KAI originally evaluated a roundabout at this study location in January 2013 and found a partial two-lane roundabout to be a feasible alternative based upon year 2037 design volumes. The roundabout feasibility was re-evaluated in August/September 2013 based upon updated design year 2040 traffic volumes developed for the SR 92 corridor. Based upon the 2040 design year volumes, the original two-lane roundabout concept may still be a viable alternative for near-term traffic volume conditions. However, two of the three roundabout capacity models that were considered indicated the potential for over-capacity operations between the years of 2030 and 2037, both prior to the design year 2040. Therefore, KAI also evaluated phased implementation for a partial three-lane roundabout alternative to serve as the ultimate intersection configuration to accommodate the approved 2040 design year volumes.

Overall, the existing two-way stop control configuration will not adequately accommodate the anticipated volume growth at the intersection. Roundabout and signal alternative configurations are identified in this report that each provides acceptable operations through design year 2040. Each provides beneficial characteristics. However, the roundabout and signal alternatives provide relatively comparable performance in accommodating the 2040 design year traffic volumes. The biggest operational difference between the two options is accommodation of emergency services from the adjacent fire station where the signal option provides greater flexibility for accommodating the needs of the fire station.

A roundabout is estimated to provide safety benefits over the existing two-way stop or alternative signalized intersection control by reducing the likelihood for injury crashes. This is due to reduced intersection speeds with a roundabout as well as removal of severe crash types such as right-angle and left-turn crashes. A reduction in total vehicle crashes is also expected with roundabout implementation.

KAI developed an updated roundabout concept that provides an ultimate partial-three lane configuration with the option of phased implementation for an interim two-lane configuration that is similar to the original roundabout concept developed by KAI in January 2013. KAI evaluated the concepts to verify that they meet applicable recommendations for fastest path speed control, WB-67 design vehicle accommodation, adequate natural vehicle path alignment, and appropriate multimodal accommodations. For comparison purposes, the conceptual design for the signalized intersection (developed by URS) is also provided in this study.

SUMMARY AND CONCLUSIONS

The following bullet-points summarize the findings of the feasibility study:

- The intersection was evaluated under design year 2040 traffic volume conditions. Control alternatives considered include two-way stop, traffic signal, and roundabout control. Two way stop control does not provide sufficient capacity for design year 2040 volumes. Either a roundabout or traffic signal are needed to serve the 2040 design traffic volumes.
 - The roundabout analysis results estimate a wide range of potential operations for a two-lane roundabout configuration, ranging from acceptable using the Sidra capacity model to over-capacity according to the base HCM 2010 and calibrated HCM 2010 models. Based upon the amount of variability in the operational results and degree to which some capacity models are predicting over capacity operation for a two-lane configuration, an ultimate partial three-lane roundabout was evaluated. However, the ultimate roundabout configuration also requires a free-flow right-turn bypass adjacent to the fire station which creates a less desirable access scenario for fire-station operations.
 - The signal alternative requires one additional lane on the southbound approach in comparison to the roundabout alternative. However, otherwise the signal provides a similar number of lanes on each approach and comparable operational performance to the roundabout through the design year 2040.
- A roundabout is estimated to provide safety benefits over the existing two-way stop control and traffic signal alternative by reducing the likelihood for injury crashes due to reduced intersection speeds and removal of potential for some severe crash types such as right-angle and left-turn crashes.
- The conceptual geometric designs illustrate that the ultimate partial three-lane roundabout is spatially feasible at the study intersection. However, relative to the signal option, the roundabout requires more additional right-of-way and has greater impacts to fire station access.
- Consideration was given to Fire Station access and operations throughout preparation of the concept designs. However, additional coordination with GDOT staff and the County Emergency Services group is needed if GDOT desires to continue to consideration of a roundabout at this location.
- The planning level cost estimate of the roundabout is \$2,435,286 compared to \$1,720,774 for the signal alternative. A 20-year life-cycle analysis projects the roundabout to \$6,196,238 compared to \$8,540,566 for the signal alternative. This life-cycle cost accounts for capital costs as well as the life-cycle cost of expected crashes, cost of delay, and maintenance considerations. However, it does not account for reconstruction of the roundabout from the opening year to the ultimate configuration. Comparatively, the signal

option has approximately a 35% higher life cycle cost than the roundabout alternative at this location when considering the cost of crashes and intersection delay on the public.

- At the intersection of SR 92/Old Burnt Hickory Road, a multilane roundabout and a traffic signal are both possible options to accommodate the 2040 design year traffic volumes. However, the roundabout provides safety benefits as well as lower vehicular delays. Based upon these considerations and coordination with GDOT staff, the roundabout is the preferred traffic control alternative. The design of the roundabout should reserve sufficient right-of-way for the ultimate partial three-lane configuration illustrated in Figure 5. However, in the opening year, the smaller two-lane configuration illustrated in Figure 6 is recommended.

REFERENCES

1. *Concept Report Traffic Study - SR 92 from SR 120 to Old Burnt Hickory Road. Kittelson & Associates, Inc. January, 2013.*
2. Department of Transportation State of Georgia, *Roundabout Analysis Tool.*
3. American Association of State Highway and Transportation Officials, *Highway Safety Manual*, 2010.
4. National Cooperative Highway Research Program, *Report 572 Roundabouts in the United States*, 2007.
5. National Cooperative Highway Research Program, *Report 672 Roundabouts: An Informational Guide*, 2nd Edition, 2010.

Attachment 8b
Paulding County Letter of Support for Roundabouts



Department of Transportation
240 Constitution Blvd • Dallas, Georgia • 30132
(770) 445-4759 phone • (770) 443-7566 fax
www.paulding.gov

SCOTT K. GREENE, PE
Director

August 15, 2011

Mr. Jeremy T. Busby, PE.
Georgia Department of Transportation
Office of Program Delivery
600 West Peachtree Street
25th Floor
Atlanta, GA 30308

RE: Project PI 0007692 SR 92 Widening from SR 120 North to Burnt Hickory Road

Dear Mr. Busby:

Under current policy we understand the Georgia Department of Transportation is considering roundabouts as an alternative to traffic signals along the above mentioned segment of SR 92. Paulding County would like to confirm with the Department that we have no preference whether a traffic signal or roundabout is utilized at intersections along this corridor. However, Paulding County does not want to see the project delayed by studies, scope or concept changes unless there is a great potential benefit and the schedule impact can be mitigated. If roundabouts are determined to be the best option Paulding County will be 100% supportive and amenable to signing a lighting agreement for maintenance purposes.

If you should have any questions or concerns with the county's stance on the above mentioned matter please contact myself or Erica Parish, Project Manager to discuss at 770-445-4759.

Yours truly,

A handwritten signature in blue ink that reads "Scott K. Greene".

Scott K. Greene, PE
Director Paulding DOT

C: File

Attachment 9
SI & A Report

Bridge Inventory Data Listing



Parameters: Bridge Serial Num

Structure ID:223-0030-0

Paulding

SUFF. RATING: 89.15

Location & Geography

Structure ID: 223-0030-0
 200 Brgde Information: 07
 *6A Feature Int: PICKETTS MILL CREEK
 *6B Critical Bridge: 0
 *7A Route No Carried: SR00092
 *7B Facility Carried: STATE ROUTE 92
 9 Location: 6.6 MI NE OF DALLAS
 2 Dot District: 6
 207 Year Photo: 2012
 *91 Inspection Frequency: 24 Date: 05/02/2012
 92A Fract Crit Insp Freq: 0 Date: 02/01/1901
 92B Underwater Insp Freq: 0 Date: 02/01/1901
 92C Other Spc. Insp Freq: 0 Date: 02/01/1901
 * 4 Place Code: 00000
 *5 Inventory Route(O/U): 1
 Type: 3
 Designation: 1
 Number: 00092
 Direction: 0
 *16 Latitude: 33 - 58.1058 HMMS Prefix:SR
 *17 Longitude: 84 - 44.3738 HMMS Suffix:00
 MP: 13.77
 98 Border Bridge: 000 % Shared:00
 99 ID Number: 0000000000000000
 *100 STRAHNET: 0
 12 Base Highway Network: 1
 13A LRS Inventory Route: 2231009200
 13B Sub Inventory Route: 0
 *101 Parallel Structure: N
 *102 Direction of Traffic: 2
 *264 Road Inventory Mile Post: 013.29
 *208 Inspection Area: 09 Initials: WBR
 Engineer's Initials: sgm
 * Location ID No: 223-00092D-013.77N

*104 Highway System: 1
 *26 Functional Classification: 16
 *204 Federal Route Type: F No: 01861
 105 Federal Lands Highway: 0
 *110 Truck Route: 0
 206 School Bus Route: 1
 217 Benchmark Elevation: 0000.00
 218 Datum: 0
 *19 Bypass Length: 03
 *20 Toll: 3
 *21 Maintanance: 01
 *22 Owner: 01
 *31 Design Load: 2
 37 Historical Significance: 5
 205 Congressional District: 11
 27 Year Constructed: 1966
 106 Year Reconstructed: 0000
 33 Bridge Median: 0
 34 Skew: 45
 35 Structure Flared: 0
 38 Navigation Control: 0
 213 Special Steel Design: 0
 267 Type of Paint: 0
 *42 Type of Service On: 1
 Type of Service Under: 5
 214 Movable Bridge: 0
 203 Type Bridge: Q - - -
 259 Pile Encasement: 3
 *43 Structure Type Main: 1 19
 45 No.Spans Main: 002
 44 Structure Type Appr: 0 00
 46 No Spans Appr: 0000
 226 Bridge Curve Horz: 0 Vert: 0.00
 111 Pier Protection: 0
 107 Deck Structure Type: N
 108 Wearing Structure Type: N
 Membrane Type: N
 Deck Protection: N

Signs & Attachments

225 Expansion Joint Type: 00
 242 Deck Drains: 0
 243 Parapet Location: 0
 Height: 0.00
 Width: 0.00
 238 Curb Height: 0
 Curb Material: 0
 239 Handrail: 0 0
 *240 Median Barrier Rail: 0
 241 Bridge Median Height: 0
 * Bridge Median Width: 0
 230 Guardrail Loc. Dir. Rear: 0
 Fwr: 0
 Oppo. Dir. Rear: 0
 Oppo. Fwr: 0
 244 Aproach Slab: 0
 224 Retaining Wall: 0
 233Posted Speed Limit: 55
 236 Warning Sign: 0.00
 234 Delineator: 0.00
 235 Hazard Boards: 0
 237 Utilities Gas: 00
 Water: 00
 Electric: 00
 Telephone: 00
 Sewer: 00
 247 Lighting Street: 0
 Navigation: 0
 Aerial: 0
 *248 County Continuity No.: 00

Attachment 10
Hydrology Study for MS4 Permit

Concept Level MS4/Hydrology Study

PI Number: 0007692
County: Paulding and Cobb Counties
Description: SR 92 from 790 feet north of E Paulding Middle School to 505 feet north of CR 473/
Old Burnt Hickory Road – Segment 3 & 4

Introduction

The project corridor can be separated into three primary drainage basins; Powder Springs Creek basin, Pickett's Mill Creek basin, and Little Allatoona Creek basin.

The proposed project will widen the SR 92 roadway from an existing 2-lane rural section to a 4-lane urban section with a 20-foot median, 5-foot sidewalk on the east side, and 10-foot multi-use path on the west side, which will increase the impervious area of the SR 92 corridor. A system of curb inlets and longitudinal pipes will be installed to capture and convey stormwater from the roadway to grassed channels and wet detention ponds. There are no existing Best Management Practices (BMPs) on the SR 92 corridor.

Section 4.2.5.1 of the Georgia General NPDES Stormwater Permit No. GAR041000 for stormwater discharges associated with Municipal Separate Storm Sewer Systems (MS4s) states that the permittee (GDOT) must develop, implement and enforce a program to address stormwater runoff into the MS4 from GDOT's new development and redevelopment projects. The GDOT's program must ensure that controls are in place that will prevent or minimize water quality impacts.

Section 4.2.5.1(a) of the permit states that all stormwater runoff shall be adequately treated prior to discharge. Stormwater runoff that must be treated does not apply to flows that originate outside of GDOT's right-of-way or diverted flows from undisturbed areas. The stormwater management system shall be designed to remove 80% of the average annual post-development total suspended solids (TSS) load as defined in the Georgia Stormwater Management Manual, "Blue Book". Compliance with this performance standard is presumed to be met if a system is sized to capture and treat the water quality volume, which is defined as the runoff volume resulting from the first 1.2 inches of rainfall from a site.

In order to comply with Section 4.2.5.1 of the permit, the project proposes to install a combination of grassed channels and wet detention ponds to treat the first 1.2 inches of stormwater runoff from the roadway.

For the purpose of calculating the pre-developed and post-developed composite curve number (CN) values, a CN of 98 was used for impervious areas and a CN of 65 was used for pervious areas. These CN values are based on values provided in Tables 2-2a and 2-2c in the USDA Technical Release 55 (TR-55) for hydrologic soil group B.

Pre-Development Hydrologic Conditions

The SR 92 corridor is predominantly rural and residential in nature. It is bordered by a combination of residential, commercial, and undeveloped properties. Based upon the types of vegetation, the types and extent of property development, and the amount of impervious area on the corridor, the average CN value for the existing corridor was calculated to be 72.

There are no water quality BMPs on the existing SR 92 to treat stormwater runoff from the roadway.

Post-Development Hydrologic Conditions

Proposed water quality BMPs will be designed to treat onsite stormwater runoff from the SR 92 corridor. The onsite stormwater runoff area generally corresponds to the roadway section from shoulder to shoulder. Stormwater flows from areas outside the project limits will be diverted to downstream natural channels to the extent possible and will not pass through proposed water quality BMPs. Where grassed channel BMPs are installed in cut sections, the drainage area flowing to the channel may receive a minimal quantity of offsite area. The average post-construction CN value for the proposed project corridor was calculated to be 87.

In total, twenty-two (22) water quality BMPs are proposed for the project to treat stormwater runoff from the roadway. These BMPs are comprised of 9 grassed channels and 13 wet detention ponds.

The SR 92 runoff flows to two primary drainage basins, the Powder Springs Creek basin and the Pickett's Mill Creek basin. Roadway runoff within the station range 539+00 to 576+00 flows to the Powder Springs Creek basin via a tributary to Powder Springs Creek, which crosses SR 92. Water quality will be provided within the Powder Springs Creek basin primarily by treatment with two wet detention ponds. Runoff within the station range 576+00 to 843+00 flows to the Pickett's Mill Creek basin. Water quality will be provided within the Pickett's Mill Creek basin by treatment with a combination of wet detention ponds, grassed channels, and perhaps some alternate BMPs such as enhanced swales, infiltration trenches, and underground sand filters.

Grassed Channels

Grassed channels are typically designed to provide conveyance and treatment of runoff and to contribute toward meeting runoff velocity targets. Grassed channels are well suited to treating runoff from roadways. Additional treatment and increased residence time in the channel will be attained by placing check dams across the channel downstream of inflow points and at various locations along the channel. These channels will be placed so that they may primarily serve as online treatment BMPs, which will discharge into existing streams or the proposed longitudinal storm infrastructure.

The grassed channels on the project will have 4 to 6 foot bottoms and will have a trapezoidal shape.

Wet Detention Ponds

Wet detention ponds were selected for this project because their designs can be customized to site specific elements such as water table elevation, soil types, rock presence, and topography. Pollutant removal capabilities are similar among the various types of wet ponds that may be implemented on this project. Types of wet ponds that may be implemented on the project include traditional wet ponds, wet extended detention (ED) ponds, and micropool ED ponds.

Each pond will have an outlet control structure designed to attenuate pond discharges such that the water release rate is less than or equal to the flows under pre-construction conditions. Where extended detention is required to achieve the required pollutant removal capability, the pond outlet structure will be sized so that the first 1.2 inches of precipitation of any given storm is detained and drawn down over a 24-hour period. All outlet controls will be designed to provide 24-hour drawdown of the channel protection storm event (1-year storm) and safe passage of the extreme flooding event (100-year storm). Security and protective fencing will be placed around all ponds in accordance with local and state ordinances and guardrail will be placed in front of ponds if they are considered obstructions within the clear zone. Ponds will be designed with 3H:1V or flatter side slopes.

Alternate Water Quality BMPs

If wet detention ponds are deemed to be infeasible due to excessive property impacts, consideration of additional grassed channels or other structural water quality BMPs appropriate for linear projects may be done. Water quality BMPs that may be considered as alternates to the above-mentioned BMPs are the following:

- Infiltration trenches
- Enhances swales
- Underground sand filters
- Proprietary structural controls (e.g., water quality treatment structure installed on-line with the longitudinal system)

Alternate BMPs such as these would have to be implemented as part of a treatment train where channel protection, overbank flood protection, and extreme flood protection would be provided by downstream wet ponds. The "Blue Book" grants credit for the water quality volume treated in the alternate BMPs, meaning this volume does not have to be duplicated in the wet ponds at the downstream end of the treatment train. This should allow for design of smaller wet ponds.

It should be noted that BMPs that use infiltration to treat the runoff for water quality are primarily suited for hydrologic group A and some group B soils. Location specific geotechnical investigations will be required within the footprint of BMPs to determine hydrologic soil group, elevation of the seasonally high water table, presence of rock, etc. There should be at least 4 feet between the bottom of an infiltration BMP and the elevation of the seasonally high water table.

The above listed alternate BMPs often require more frequent and more costly maintenance than ponds or grassed channels. Maintenance cost over the lifecycle of the BMP should be considered in addition to the right-of-way costs when doing a cost-benefit analysis of water quality treatment train options.

Table 1 at the end of this study provides preliminary hydrologic data for each BMP, denotes potential right-of-way impacts, and approximate area of right-of-way required for installation and maintenance of each BMP.

Property Displacements Caused By BMPs

Based upon a review of the TOPO survey and aerial mapping for the project, it appears that the installation of Ponds 6, 9, 12, and 13 will cause property displacements as described below.

Pond 6 would cause displacement of the residence at the NW corner of SR 92 and Kensley Way. This house is located in the Kensley Park subdivision. Installation of Pond 6 would require relocation of the subdivision signage.

Pond 9 would cause the displacement of the residence at 3412 Due West Rd and an adjacent residence to the northwest. Additional survey is required to obtain more terrain data in this area and to determine the proximity of Pond 9 to the adjacent residence.

Ponds 12 and 13 are on either side of a single residence located at 8219 Hiram Acworth Highway. While they do not impact usage of the driveway and building structures, they do significantly diminish the land area available for the residence and could alter use of the property. Displacement of this residence would allow the two ponds to be combined into one larger pond, which may be placed farther to the north.

Conclusion

The proposed water quality BMPs will provide treatment of stormwater runoff on a corridor where it is not currently being treated. Following completion of the project, the quality of roadway runoff discharged to the natural system should be significantly improved as compared to the existing condition.

Please see Table 1 below for a tabular presentation of the proposed BMPs on the project. The table includes BMP location, drainage area, pre- and post-construction impervious area, water quality volume (WQv), and approximated property impact areas. Calculations for WQv and peak water quality discharge (Q_{ww}) were performed per the Georgia Stormwater Management Manual (“Blue Book”).

Table 1. Proposed Water Quality BMP Drainage and Right-of-Way Table

BMP ID	Total Drainage Area (AC)	Pre-Dev Impervious Area (AC)	Pre-Dev % Impervious	Pre-Dev CN	Post-Dev Impervious Area (AC)	Post-Dev % Impervious	Post-Dev CN	WQv (ft ³)	Peak Water Quality Discharge (cfs)	Causes Displacement?	Approximate Right-of-Way Required (AC)
Pond 1	7.27	1.71	24%	73	4.59	63%	86	19,117	6.7	N	1.27
Pond 2	6.50	1.97	30%	75	5.25	81%	92	21,998	7.9	N	1.01
Pond 3	8.51	2.87	34%	76	5.16	61%	85	22,083	7.1	N	1.21
Pond 4	6.37	1.39	22%	72	4.69	74%	89	19,774	6.9	N	1.37
Pond 5	2.77	0.51	19%	71	2.12	76%	90	8,915	3.1	N	1.12
Pond 6	6.06	1.47	24%	73	5.05	83%	92	21,118	7.5	Y	1.64
Pond 7	4.62	1.00	22%	72	3.43	74%	90	14,453	5.0	N	1.47
Pond 8	7.72	1.34	17%	71	5.21	67%	87	22,107	7.3	N	1.32
Pond 9	10.79	1.91	18%	71	5.11	47%	81	22,384	6.1	Y	0.95
Pond 10	19.33	4.54	24%	73	15.74	81%	92	65,917	23.6	N	2.18
Pond 11	6.06	1.04	17%	71	4.21	69%	88	17,825	6.1	N	0.95
Pond 12	5.51	0.66	12%	69	3.37	61%	85	14,412	4.7	Y	0.63
Pond 13	5.66	1.67	29%	75	4.73	84%	93	19,776	7.1	Y	0.65
Channel 1	3.36	0.36	11%	69	2.22	66%	87	9,435	3.1	N	0.80
Channel 2	1.15	0.71	62%	85	1.06	92%	95	4,406	1.5	N	0.36
Channel 3	1.13	0.23	20%	72	0.86	76%	90	3,618	1.3	N	0.42
Channel 4	3.74	0.70	19%	71	1.95	52%	82	8,459	2.3	N	0.80
Channel 5	1.43	0.26	18%	71	0.88	61%	85	3,761	1.2	N	0.34
Channel 6	2.28	0.64	28%	74	1.26	55%	83	5,436	1.6	N	0.28
Channel 7	2.31	0.40	17%	71	1.23	53%	83	5,325	1.6	N	0.37
Channel 8	3.55	0.78	22%	72	2.14	60%	85	9,163	3.0	N	0.84
Channel 9	3.14	0.81	26%	74	1.43	46%	80	6,290	1.1	N	0.81
Total Right-of-Way required for BMP Installation & Maintenance =											20.78

Notes:

- 1.) The approximated right-of-way required for BMP installation & maintenance is the area of right-of-way additional to that which would be required to tie out the widened roadway cross section to existing ground if no BMP was installed.
- 2.) WQv is equal to volume of runoff resulting from the first 1.2 inches of rainfall of any given storm event. WQv and the peak discharge for the water quality storm event were computed using the methodology provided in Section 2.1.7 of the Georgia Stormwater Management Manual (Blue Book).
- 3.) Curve number (CN) values were computed using a CN = 98 for impervious areas and CN = 65 for pervious areas.

Attachment 11
Pavement Studies

PROJECT FILES

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENTAL CORRESPONDENCE

FILE CSSTP-0007-00(692)
Cobb/Paulding
PI No. 0007692
SR 92 Widening/Reconstruction

OFFICE Materials and Research
Forest Park, GA

DATE March 16, 2012

FROM  Georgene M. Geary, P. E., State Materials and Research Engineer

TO Bobby Hilliard, P. E., State Program Delivery Engineer
Attention: Jeremy T. Busby, Project Manager

SUBJECT Pavement Type Selection and Pavement Design Recommendation
SR 92 FM SR 120 to CR 473/ Cedarcrest Road

The Office of the Materials and Research (OMR) has completed the Pavement Type Selection (PTS) and Pavement Design Recommendation for the above referenced project.

Project Description and Location

The project is for the widening and reconstruction of SR 92 from SR 120 to CR 473/ Cedarcrest Road. Total length of the project is 8.44 miles. This project is located in Cobb and Paulding counties.

Pavement Design Alternatives Considered

The LCCA analyzed the costs of the project by comparing two alternative pavement types. Alternative 'A' uses full-depth Hot Mix Asphalt (HMA) pavement, while Alternative 'B' uses full-depth Portland Cement Concrete (PCC) pavement.

Pavement Type Recommendation

The PTS concludes that Alternative B - Full Depth Portland Cement Concrete pavement is the preferred alternative, considering the economics of construction costs, maintenance costs, pavement performance and other factors over the analysis period. This conclusion is contingent upon a pavement evaluation that requires full depth reconstruction.

The alternates are listed in Table 1 below:

Table 1: Pavement Design Alternatives

Design Alternates	Profile	Surface	Intermediate (Binder)	Base	Subbase
Alternate A, (Full-Depth HMA)	Mainline	12.5 mm Superpave (1.50")	19 mm Superpave (2.00")	25 mm Superpave (6.00")	Graded Aggregate Base (12.00")
Alternate B, (Full-Depth PCC)	Mainline	PCC (9.00")	19 mm Superpave (0.00)	---	Graded Aggregate Base (10.00")

The LCCA is based on the following:

- Staging costs and durations for staging were *not* considered.
- Discount Rate of 3 %.
- The analysis periods were 40 years and 50 years. Recommendations were based on the 40-year analysis.
- The service life prior to first major maintenance activities were as follows:
 - 10 years for Asphaltic Concrete Pavements (AC)
 - 20 years for Portland Cement Concrete Pavements (PCC)
- Deterministic approach to LCCA is based on the guidelines in the following document:
 - Federal Highway Administration Publication No. FHWA-SA-98-079, "Life-Cycle Cost Analysis in Pavement Design."
- Average Plant Production rates were determined from historical project information within the Georgia Department of Transportation. They are:
 - Asphalt Concrete plant production rate of 200 tons per hour.
 - Ready Mix Concrete plant production rate of 6000 square yards per day in addition to the following:
 - A 4000 linear feet of paving for a 12-foot wide lane
 - A 2500 linear feet of paving for a 24-foot wide lane

Tables 2 and 3 summarize the total Agency Costs and User Costs respectively.

Table 2: Agency Costs

Design Alternates	Agency Costs		Total Costs
	Initial Agency Costs (A)	Future Maintenance Costs (B)	(A)+ (B)
Alternate A, Full-Depth HMA	\$12,083,074	\$3,852,241	\$15,935,315
Alternate B, Full-Depth PCC	\$13,585,240	\$1,201,491	\$14,786,731

Table 3: User Costs

Design Alternates	User Costs		Total Costs
	Initial User * Costs (A)	Future User Costs (B)	(A) + (B)
Alternate A, Full-Depth HMA	0	\$2,855,983	\$2,855,983
Alternate B, Full-Depth PCC	0	\$204,411	\$204,411

** For analysis purposes the initial user cost has been set at zero because both pavement alternatives will have comparable impact.*

Table 4 summarizes the Total Scores and Ranking from the Decision Matrix. The scores were determined from the LCCA using a 40-year Analysis Period.

Table 4: Total Score

Design Alternates	Rank	Total Score
Alternate B, Full-Depth PCC	1	91.8
Alternate A, Full-Depth HMA	2	73.2

The detailed analysis is on file and available on request. If additional information is needed, please contact A. J. Jubran at (404) 608-4771 or Palliambil Geetha at (404) 608-4774.

GMG: PRG

Attachments

1. Flexible Pavement Design
2. Rigid Pavement Design
3. Decision Matrix

Copy: file

Rigid Pavement Design Analysis
Based on AASHO Interim Guide for Design of Pavement Structures

P.I. No.	*0007692	Project No.	CSSTP-0007-00(692)	County	Cobb/Paulding
Description	SR 92 FM SR 120 to CR 473 / Cedarcrest Road	Location	Cobb/Paulding	Type Section	JPCP
Begin Project	SR 120	End Project	CR 473 / Cedarcrest Road	Project Length	8.44 miles

Traffic Data

Begin Design Year	2017	Begin one way AADT, VPD	10100
End Design Year	2037	Ending one way AADT, VPD	17650
Total Truck %	5	Mean one way AADT, VPD	13875

Design Loading

Mean one way AADT		LDF		Volume, %		ESAL Factor		
13875	*	80	*	95	Vehicles	0.004	43	
13875	*	80	*	4	SU	0.500	222	
13875	*	80	*	1	MU	2.680	298	
Total Daily ESAL's							563	
Total Design Period ESALS							=	4,109,900

Design Data

Terminal Serviceability, (Pt)	2.5	Working Stress	450 psi	Soil Support Value	2
Subgrade Modulus, k	110	Subbase Modulus, k ₁	175	Subbase Modulus, k ₂	175
Trial Depth of PCC Pavement, inches		9.00	Calculated Stress from Equation, psi		433.8
% Understressed	3.6	% Overdesigned	3.7	Balanced Thickness	8.8

Recommended Rigid Pavement Structure

9 inches Plain Portland Cement with 1.25 inch diameter dowel bars
0 inches of 19 mm Superpave Asphaltic Concrete Interlayer
10 inches Graded Aggregate Base

Prepared By	<u>Palliambil Geetha</u>	Date	<u>10/8/2010</u>
Recommended By	<u>Office Head / District Engineer</u>	Date	<u> </u>
Approved By	<u>State Pavement Engineer</u>	Date	<u> </u>

DECISION MATRIX

Relative Importance	DECISION FACTOR										Total Score	Rank
	Initial Construction Agency Costs	Maintenance Costs (nominal / discounted)	Annualized Agency Costs (LCC)	Annualized User Costs (LCC)	Salvage Value	Expected Life (Rehabilitation Frequency)	Construction (production rate - initial days)	Ease of Repairing / Maintaining (production rate - rehab days)	Constructibility / Traffic Control (Lifts)	Proven Design in Agency		
	50%	25%	5%	5%	2%	2%	2%	2%	2%	5%		
ALTERNATIVE A-HMA Full Depth Mainline	1.00 50.0	0.31 7.8	0.93 4.6	0.07 0.4	0.00 0.0	0.50 1.0	1.00 2.0	0.47 0.9	0.75 1.5	1.00 5.0	73.2	2
ALTERNATIVE B-PCC Full Depth Mainline	0.89 44.5	1.00 25.0	1.00 5.0	1.00 5.0	0.00 0.0	1.00 2.0	0.66 1.3	1.00 2.0	1.00 2.0	1.00 5.0	91.8	1

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE CSSTP-0007-00(692)
Cobb and Paulding County
PI No. 0007692

OFFICE Materials

DATE December 10, 2012

G.E.F. for
FROM Charles A. Hasty, P. E., State Materials Engineer

TO Genetha Rice-Singleton, State Program Delivery Engineer
Attention: Jeremy Busby, Project Manager

SUBJECT Pavement Evaluation Summary
SR 92 Improvements from SR 120 to CR 473/Cedarcrest Road

As requested, we have prepared a pavement evaluation summary for the
aforementioned site. The results of this work are attached.

If additional information is needed, please contact Adebola Adelokun of the
Geotechnical Environmental Pavement Bureau at 404-608-4773.

CAH: AAA

Attachments

- Pavement Evaluation Summary
- Full Depth Design
- Mill and Overlay Design
- Project Location Map
- Pictures

Copy: file
Sheila Hines, State Bituminous Construction Engineer, Forest Park

PAVEMENT EVALUATION SUMMARY
For
CSSTP-0007-00(692) Cobb and Paulding County
PI No. 0007692

1. LOCATION / DESCRIPTION

This project is for the widening and reconstruction of State Route 92 from SR 120 to CR 473/Cedarcrest Road for a total of 6.42 miles. The existing roadway is a 2-lane section with 12 ft lanes and 4 ft grassed shoulders.

The proposed construction will widen SR 92 to a four lane section, two in each direction, with 12-foot lanes, 8.5-foot outside shoulders with a 5-foot sidewalk, and a 20-foot raised median. The project is located southwest of the city limits of Acworth in Cobb County and north of the city limits of Hiram in Paulding County within the following station limits:

<u>Mile Post</u>	<u>Location</u>
10.08± to 16.5±	SR 92 from SR 120 to Cedarcrest Road

2. PAVEMENT CONDITION SUMMARY

The existing pavement on SR 92/Hiram Acworth Highway is in fair condition based on our field investigation. Visual distresses were observed on this roadway during our site reconnaissance and field investigation on March 21, 2012 and November 8, 2012. These distresses were in the form of block and load cracking.

3. PAVEMENT RECOMMENDATION SUMMARY

Location	Construction Limits	Construction Recommendation	Description
SR 92	MP 10.08± to MP 16.5±	Full-depth construction	New Location for widening
SR 92	MP 10.08± to MP 16.5±	Mill & Overlay	Existing Roadway

4. FULL-DEPTH SECTIONS

The following full-depth pavement section is recommended for use on SR 92 for the widening areas from Mile Post 10.08 to Mile Post 16.5.

SR 92 – Widening and Reconstruction				
Pay Item Number	Material	Course	Thickness	Spread Rate
402-3130	12.5 mm Superpave	Surface	1.5 inches	165 lbs/yd ²
402-3190	19 mm Superpave	Binder	2 inches	220 lbs/yd ²
402-3121	25 mm Superpave	Asphalt Base	6 inches	660 lbs/yd ²
310-1101	Graded Aggregate Base	Base	12 inches	N/A

5. OVERLAY SECTIONS

We recommend a 1½ - inch mill and overlay of the current pavement structure on SR 92. After milling and immediately prior to overlaying, we recommend that the surface cracks be sealed with Type M crack sealant, as per Section 407 of the Standard Specifications. The following overlay pavement section is recommended for this project.

SR 92 – Mill & Overlay				
Pay Item Number	Material	Course	Thickness	Spread Rate
402-3130	12.5 mm Superpave	Surface	1.5 inches	165 lbs/yd ²
402-3190	19 mm Superpave	Binder	2 inches	220 lbs/yd ²

6. PAVEMENT DISTRESSES

Except for the following, no other distresses were encountered during the field investigation of this project:

Block/Transverse Cracking Levels 1 and 2 block/transverse distresses were observed on SR 92 around MP 12.5 in Paulding County.

Load Cracking Levels 1 and 2 load distresses were observed throughout SR 92 between MP 10 and MP 16. Level 1 load cracking was also observed in an isolated section directly above a drainage pipe close to the intersection of SR 92 and Cedarcrest Road.

7. CORES

Cores were recovered from 14 locations using a 4-inch bit in the travel lanes of this project to determine the thicknesses and condition of the existing pavement sections. The results of this work are attached.

Core Number	Location	Mile Post	Asphalt Core Length (inches)	Type of Distress (Level)	Core Condition	Underlying Material
1	SR 92 SB Lane	MP 16.4	8	None	GOOD	GAB
2	SR 92 SB Lane	MP 15.5	5.5	None	GOOD	GAB
3	SR 92 SB Lane	MP 14.4	5	None	GOOD	GAB
4	SR 92 SB Lane	MP 13.5	4.75	None	GOOD	GAB
5	SR 92 SB Lane	MP 12.5	5.5	None	GOOD	GAB
6	SR 92 SB Lane	MP 11.5	6	Level 2 Load Cracking	Core Cracked Top Down	GAB
7	SR 92 SB Lane	MP 10.5	6.5	None	GOOD	GAB
8	SR 92 NB Lane	MP 10	9.5	None	GOOD	GAB
9	SR 92 NB Lane	MP 11	6	None	GOOD	GAB

Core Number	Location	Mile Post	Asphalt Core Length (inches)	Type of Distress (Level)	Core Condition	Underlying Material
10	SR 92 NB Lane	MP 12	5	None	Delaminated 1.75 inches from the top	GAB
11	SR 92 NB Lane	MP 13	3.75	None	GOOD	GAB
12	SR 92 NB Lane	MP 14	14.25	None	Delaminated 10.75 inches from the top. Core is significantly thicker than other cores due to a recent full depth intersection replacement which included the pavement at this milepost.	GAB
13	SR 92 NB Lane	MP 15	4.75	None	GOOD	GAB
14	SR 92 NB Lane	MP 16	4.5	None	Delaminated 1.25 inches from the top	GAB

8. COPACES

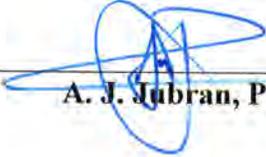
COPACES ratings are based on a visual survey of surface distresses of the pavement. The latest average rating for the roadways on this project are recorded below.

Roadway	Segment	Year	Average Rating
SR 92	MP 11.4 to MP 16.4	2000	77

9. OTHER INFORMATION

- The use of asphalt mixes recommended in this report meet the “Guidelines for Superpave and Other Mix Type Selection” established on March 18, 2011.
- We recommend the use of high-strength pavement reinforcement fabric over the cracks of the asphalt pavement, as per Section 446 of the Standard Specifications.
- We recommend milling the asphaltic concrete pavement, as per Section 432 of the Standard Specifications.
- Extra depth milling (2”) should be provided as needed and should be used at the discretion of the Engineer. An extra 10% of original milling quantities should be adequate for the extra depth milling using 19 mm Superpave.
- The pavement designs are based on traffic volumes that have been provided by the Office of Environment/Location and projected 2 years beyond the Management Let Year at the same rate as is implied by the approved traffic diagram.
- No Soil Survey Summary has been prepared for this project. The attached pavement designs use the typical design values for the county the project is located in.
- Design considerations for SR 92 are:
 - Curb and gutter
 - Number of travel lanes (in one-direction): 2

Reported By: Adebola Adelokun, E.I.T.

Reviewed By: 
A. J. Jubran, P. E.

Flexible Pavement Design Analysis

PI Number	0007692	County(s)	Cobb & Paulding
Project Number	CSSTP-0007-00(692)	Design Name	SR 92
Project Description	SR 92 from SR 120 to CR 473/Cedarcrest Road		

Traffic Data (AADTs are one-way)					Miscellaneous Data		
Initial Design Year	2017	Initial AADT, VPD	11,000	24 Hour Truck %	5.00	Lanes in one direction	2
Final Design Year	2037	Final AADT, VPD	15,750	SU Truck %	4.00	Curb & Gutter/Barrier	Yes
		Mean AADT, VPD	13,375	MU Truck %	1.00		

Design Data					
Lane Distribution Factor (%)	90.00	Soil Support Value	2.00	Single Unit ESAL	0.40
Terminal Serviceability Index	2.50	Regional Factor	1.80	Multiple Unit ESAL	1.50
		User Defined 18-KIP ESAL	0.00	Calculated 18-KIP ESAL	0.62
Non-Standard Value Comment					

Design Loading (Calculated 18-KIP ESAL)					
Mean AADT, VPD	LDF (%)	Vehicle Type	Volume (%)	ESAL Factor	Daily ESAL
13,375	90.00	Single Unit Truck	4.00	0.40	193
		Multi Unit Truck	1.00	1.50	181
Total Daily ESALs					374
Total Design Period ESALs					2,730,200

Proposed Flexible Full Depth Pavement Structure				
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value
Course 1	12.5 mm Superpave	1.50	0.4400	0.66
Course 2	19 mm Superpave	2.00	0.4400	0.88
Course 3	25 mm Superpave	1.00	0.4400	0.44
		5.00	0.3000	1.50
Course 4	Graded Aggregate Base	12.00	0.1600	1.92
Required SN	5.66	Proposed pavement is 4.53% Underdesigned		Proposed SN
				5.40

Design Remarks	FULL DEPTH DESIGN
-----------------------	-------------------

Prepared By	Adebola Adelakun, E.I.T., Pavement Design Engineer	10/9/2012 11:56 AM
		Date
Recommended By	Office Head	Date
Approved By	State Pavement Engineer	Date

Flexible Pavement Design Analysis

PI Number	0007692	County(s)	Cobb & Paulding
Project Number	CSSTP-0007-00(692)	Design Name	SR 92
Project Description	SR 92 from SR 120 to CR 473/Cedarcrest Road		

Traffic Data (AADTs are one-way)					Miscellaneous Data		
Initial Design Year	2017	Initial AADT, VPD	11,000	24 Hour Truck %	5.00	Lanes in one direction	2
Final Design Year	2037	Final AADT, VPD	15,750	SU Truck %	4.00	Curb & Gutter/Barrier	Yes
		Mean AADT, VPD	13,375	MU Truck %	1.00	Milling Depth (inches)	1.50

Design Data					
Lane Distribution Factor (%)	90.00	Soil Support Value	2.00	Single Unit ESAL	0.40
Terminal Serviceability Index	2.50	Regional Factor	1.80	Multiple Unit ESAL	1.50
		User Defined 18-KIP ESAL	0.00	Calculated 18-KIP ESAL	0.62
Non-Standard Value Comment					

Design Loading (Calculated 18-KIP ESAL)					
Mean AADT, VPD	LDF (%)	Vehicle Type	Volume (%)	ESAL Factor	Daily ESAL
13,375	90.00	Single Unit Truck	4.00	0.40	193
		Multi Unit Truck	1.00	1.50	181
Total Daily ESALs					374
Total Design Period ESALs					2,730,200

Proposed Flexible Overlay Pavement Structure				
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value
Overlay 1	12.5 mm Superpave	1.50	0.4400	0.66
Overlay 2	19 mm Superpave	2.00	0.4400	0.88
Existing 1	Asphaltic Concrete	2.00	0.3000	0.60
Existing 2	Asphaltic Concrete	4.00	0.3000	1.20
Existing 3	Graded Aggregate Base	8.00	0.1600	1.28
Required SN	5.66	Proposed pavement is 18.32% Underdesigned		Proposed SN
				4.62

Design Remarks	MILL & OVERLAY DESIGN: Mill 1.5 inches and Overlay 3.5 inches
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Prepared By _____ 12/10/2012 10:58 AM
Adebola Adelokun, E.I.T., Pavement Design Engineer Date

Recommended By _____
Office Head Date

Approved By _____
State Pavement Engineer Date

PI 0007692 - SR 92 from SR 120 to Cedarcrest Road





Core #1 – SR 92 SB Lane at Milepost 16.4



Core #2 – SR 92 SB Lane at Milepost 15.5



Core #3 – SR 92 SB Lane at Milepost 14.4



Core #4 – SR 92 SB Lane at Milepost 13.5



Core #5 – SR 92 SB Lane at Milepost 12.5



Core #6 – SR 92 SB Ln at MP 11.5 Top-Down Load Cracking



Core #7 – SR 92 SB Lane at Milepost 10.5



Core #8 – SR 92 NB Lane at Milepost 10



Core #9 – SR 92 NB Lane at Milepost 11



Core #10 – SR 92 NB at MP 12. Delaminated 1.75" from top.



Core #11 - SR 92 NB Lane at Milepost 13



Core #12 – SR 92NB at MP 14. Delaminated 10.75" from top.



Core #13 – SR 92 NB Lane at Milepost 15



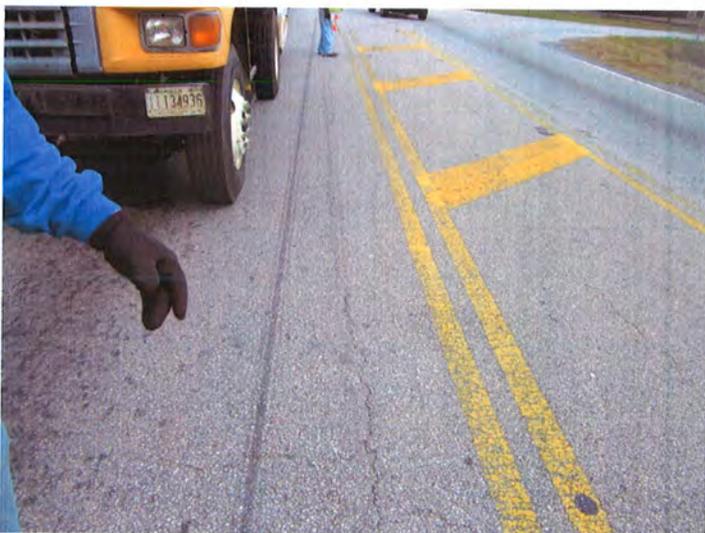
Core #14 – SR 92 NB at MP 16. Delaminated 1.25" from top.



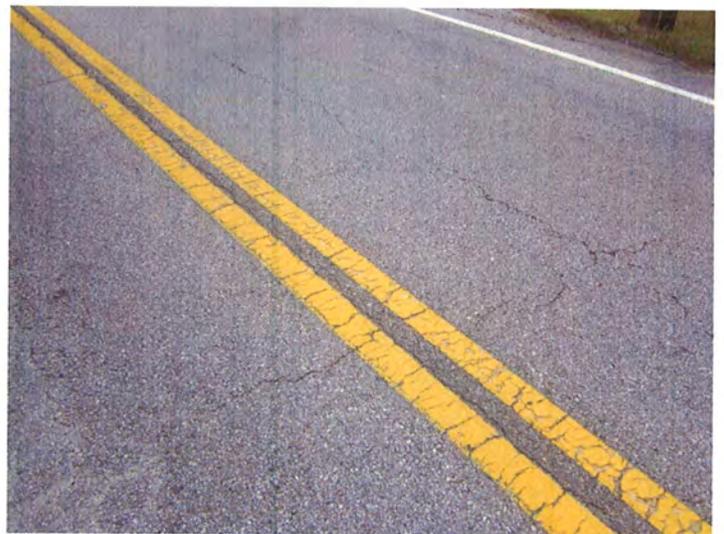
SR92 - Core hole at New Intersection for Core #12 at MP 14



SR 92 - End of New Intersection at MP 14

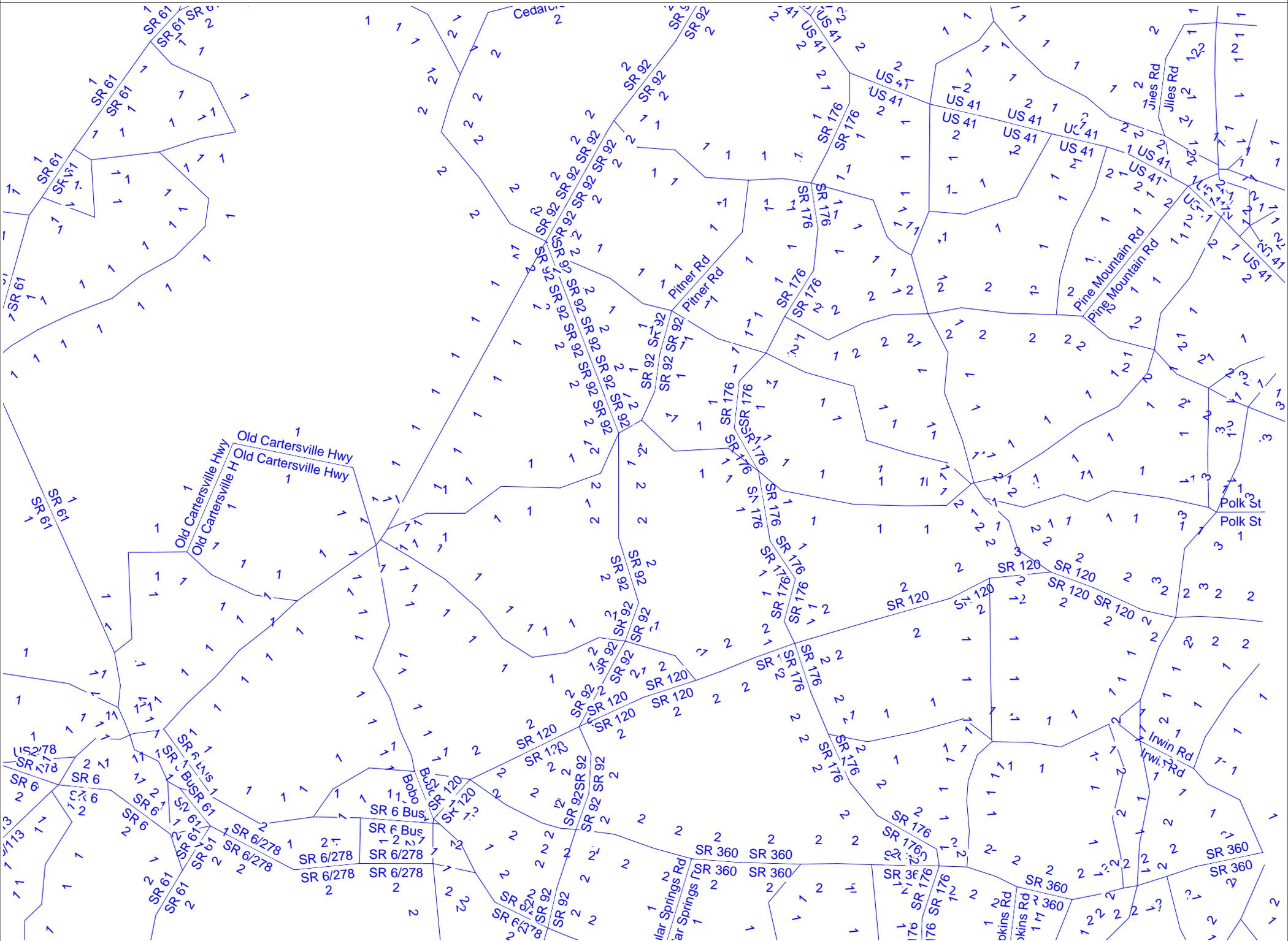


Level 1 Load Cracking on SR 92 SB Lane at MP 12.5



Level 1 Block Cracking on SR 92 NB Lane at MP 16

Attachment 12
Conforming Plan's Network Schematic Showing Through Lanes



Attachment 13
Minutes of Concept Meetings

CONCEPT DEVELOPMENT KICKOFF MEETING NOTES
PI#0007692, CSSTP-0007-00(692)
SR 92 WIDENING FROM SR 120 TO CR 473/CEDAR CREST ROAD
PAULDING & COBB COUNTIES

Date/Time: Friday, February 12, 2010; 8:30am
Place: One Georgia Center – GDOT-Environmental Services Conference Room
Attending: **GDOT-Program Delivery:** Jeremy Busby; **GDOT-Environmental Services:** Melanie Nable; **GDOT-Design Policy & Support:** Ken Thompson, Dave Peters, Dylan Eagleton

Jeremy Busby stated the purpose of the meeting. The purpose of the meeting was to discuss the general process for developing an approved concept for PI#0007692 before setting the project's schedule. Preliminary engineering field investigation notes; PI#s 621720, 0006857, and 0006866; environmental concerns/constraints; and potential right-of-way date were also discussed.

GDOT-Design Policy & Support

Dylan Eagleton discussed notes from a February 12, 2010, field investigation of the project corridor.

- The majority of development along both sides of SR 92 is residential.
- Improvements vertically and horizontally would be necessary to widen SR 92.
- A 55pmh posted speed limit was noted in a section of SR 92.
- Widening symmetrical with an appropriate typical section may be necessary to reduce displacements.
- PI#s 621720 & 0006857 proposed widening SR 92 to 4-lane w/ 20-ft. raised median.
- There are a few potential historic structures along SR 92. An official history survey and concurrence by SHPO would be needed.
- There are several potential streams and wetlands along SR 92. Ken Thompson commented about his conversation with Rich Williams (Ecology & Cultural Resources) about T&E species (Darter & Georgia Aster) in Paulding and Cobb Counties. The best time to check for the Darter is Summer and Fall for the Aster. Preliminary layouts and an ecology request should be submitted as soon as possible to take advantage of surveying for T&E species this year. Ken also stated that all ecology surveys with 2011 right-of-way dates will be tasked out. The right-of-way date for this project is currently proposed for 2014 so an ecology survey could be kept in-house.
- High voltage transmission lines were recently installed that zigzag SR 92. The price to relocate each pole is approximately \$150k - \$250k. An official utility cost estimate would be required.
- There may be a cemetery near CR 230/East Paulding Dr. that would need delineation.

GDOT-Environmental Services

Melanie Nable discussed potential environmental concerns that may affect the project's schedule based on the preliminary field investigation comments.

- This project involves two districts; Paulding County is in District 6 and Cobb County is in District 7. FHWA's Chetna Dixon manages District 6 and Jennifer Giresch manages District 7. A single FHWA contact may be assigned to this project.
- FHWA may question logical termini even though PI#s 621720 & 0006857 are currently proposed to also widen SR 92. The Office of Design Policy & Support was given a copy of the Logical Termini Justification report for PI#s 0006857 & 0006866. Melanie recommended asking Laura Rish (NEPA) about PI# 621720 and the opposite justification may work for this project. Ken Thompson commented that a Chief Engineer's memo stated that logical termini should be addressed during the planning phase of a project.
- The environmental document may be kept in-house if the schedule allowed. An Environmental Assessment/Finding of No Significant Impacts (EA/FONSI) is anticipated for this project.
- Due to potential T&E species, a biological document may be necessary and U.S. Fish & Wildlife would have 130 days to review the document.
- Pickett's Battlefield may require 4f evaluation for history and archeology. If it is a National Park, it may receive 6f funds and we would have to replace the exact amount of the impacted area. This would require coordination with the National Park Service. The 4f process would set the environmental schedule.
- The study area is mostly permanent residential housing so mobile homes parks may be an Environmental Justice issue. A strong Public Involvement process is recommended.
- A cemetery permit will be required for cemetery impacts.

GDOT-Program Delivery

Jeremy Busby discussed project activities that have taken place thus far and the potential project schedule based on the preliminary field investigation and environmental comments.

- Jeremy requested to be copied on correspondences.
- The traffic analysis was requested December 2009 and a task order was issued February 2010. Traffic counts are expected within a few months. Ken Thompson commented that if link volumes could be provided before the design traffic, it would give an idea on what type of typical section to propose. Dave Peters commented that there should be some traffic data due to the other projects in the area and asked if SR 92 was a designated bike route. Melanie stated that URS conducted the traffic analysis for PI#s 0006857 & 0006866. SR 92 is not a designated bike route to anyone's knowledge (confirmed by GDOT maps).
- The Need & Purpose Statement is will not be available until traffic is complete.
- PE funds have been authorized for this project (\$500k).
- It is anticipated that this project could take advantage of 2014 right-of-way funding. Melanie commented that it would take approximately 2 years to get an EA/FONSI approved. That would leave approximately 2 years to get an approved concept that corresponds with the environmental document.
- A VE Study is recommended before the concept meeting to avoid submitting a revised Concept Report if VE Study recommendations are implemented.

The following recommendations/commitments were made after discussion:

- Jeremy Busby will provide a copy of the project scope spreadsheet to the Office of Design Policy & Support and request traffic link volumes.
- The Office of Design Policy & Support will complete the registration of recent aerial photography (dated 01-27-2010) of the study area.
- The Office of Design Policy & Support will meet internally as well with the Office of Environmental Services to determine a timeframe to complete conceptual development activities based on anticipated environmental activities.
- The Office of Design Policy & Support will provide preliminary layouts to request history and ecology surveys.
- A final project schedule will be determined for this project.

Eagleton, Dylan L.

From: Busby, Jeremy T.
Sent: Tuesday, June 22, 2010 8:43 AM
To: Eagleton, Dylan L.; Williams, Gabrielle; Workman, Mick; Deems, Jennifer; bmasseng@agresources.com; Hood, Greg; kstallard@paulding.gov; Mertz, Kaycee; jjohnson@paulding.gov; kraley@colpipe.com; sswaffor@colpipe.com; Raad, M. Nabil; Nable, Melanie; Lobdell, Mike; Chetna.Dixon@dot.gov; kelley.whitson@dot.gov; Stovall-Dixon, Krystal E.; Thompson, Ken; Peters, Dave; Corson, Dee
Cc: Comer, DeWayne
Subject: PI#0007692 ICTM Minutes
Attachments: ICTM Attendees.PDF; ICTM Minutes.docx
Categories: Important

Attached are the meeting minutes for the ICTM that was held for this project on June 9th. If you have any questions, please contact me.

Thanks,
Jeremy T. Busby, PE
Georgia Department of Transportation
Office of Program Delivery
600 West Peachtree Street
25th Floor
Atlanta, GA 30308
404-631-1154/Office
404-309-1269/Mobile
404-631-1588/Fax
jbusby@dot.ga.gov

CSSTP-0007-00(692)
SR92 from SR120 to CR472/Cedarcrest Rd.
PI#0007692, Cobb/Paulding Counties
Initial Concept Team Meeting

Location: District 6 Office
Date: June 9, 2010 at 10am

Attendees:

Dylan Eagleton, GDOT – ODPS
Jeremy Busby, GDOT – OPD
Gabrielle Williams, GDOT – ODPS
Mick Workman, GDOT – D6 ROW
Jennifer Deems, GDOT – D6 Utilities
Ben Massengill, AGL
Greg Hood, GDOT – D6
Kathy Stallard, Paulding County DOT
Kaycee Mertz, GDOT – Planning
Joseph Johnson, PCPS
Kevin Raley, Colonial Pipeline
Scott Swafford, Colonial Pipeline
Nabil Raad, GDOT – Traffic Ops
Melanie Nable, GDOT – Environmental
Mike Lobdell, GDOT – D7
Chetna P. Dixon, FHWA
Kelley Whitson, FHWA
Krystal Stovall-Dixon, GDOT – OPD
Ken Thompson, GDOT – ODPS
Dave Peters, GDOT – ODPS
Dee Corson, GDOT – D6 Traffic Ops

Minutes:

- Jeremy Busby kicked off the meeting with welcome and introductions
- Dylan Eagleton gave a detailed overview of the project.
- Dylan said that the known utility companies at this time were AGL, Georgia Power, and Colonial Pipeline
- Dylan reviewed traffic and accident data
- Dylan indicated that there were no bridges on the project and the double 8'x7' culvert at Pickett's Creek (ID#223-0030-0) had a sufficiency rating of 92.5 and probably would not need to be replaced. There are also two unidentified culverts at a Powder Springs Creek tributary and a tributary from Wofford Lake to Pickett's Mill Creek.

- Kathy Stallard asked about the transmission lines along the project, indicating they were recently installed and should be avoided. All agreed they would be avoided as much as possible.
- Kathy also said that there is bad sight distance near Due West Rd. Paulding County recently completed a signal installation project there.
- Dylan asked if the District has existing SR92 plans. He was directed to contact the Area Office.
- Nabil Raad asked for the 85 percentile speed for the corridor. This information is not known at this time, but the posted speed on the project is 45, 50, and 55 mph.
- Mike Lobdell pointed out that SR92 had bad safety record
- Jeremy Busby asked about bicycle accommodations. Kathy said that she would need to verify if SR92 is a Paulding County bike route. Dylan said that the adjacent projects do not have bike lanes. Kathy said that an 8' multi-use path is the preferred bicycle accommodation on this corridor.
- Melanie Nable pointed out that the impacts at the battlefield could open up a 4f evaluation that could add up to a year to the schedule.
- Jeremy said that the conceptual design will minimize impacts to all resources.
- Mike Lobdell suggested exploring if a 16' raised median could be used on the project to minimize the footprint, or a 24' raised median for better sight distance.
- Kathy said that Paulding County is working on a project to extend the right turn lanes on East Paulding Drive, and asked about logical termini in reference to SR92 and project PI#621720.
- Jeremy said logical termini is still being determined on the south end of the project and coordination is taking place between Environmental, Planning, and the Project Managers on the 2 projects to determine logical termini.
- Chetna Dixon asked when the project would be ready to submit to FHWA for termini. Melanie said it depends on the time it takes internally to make a decision. Jeremy expressed that he thought it may take a couple of months.
- Dylan emphasized that the preferred design speed needs to be determined.
- Melanie Nable suggested exploring the possibility of holding multiple PIOH's since the project affects so many residences.
- Ken Thompson said a PIOH shouldn't be held until the historic resource boundaries are confirmed and a vertical analysis completed. Kathy Stallard and Krystal Stovall-Dixon both mentioned that a PIOH was held on PI#621720 on January 29, 2004.
- Colonial Pipeline representatives indicated a minimum of 5' of fill is required over their facilities. He said that there are 3 pipes at this location (10", 12", and 16").
- Kathy said that Paulding County would prefer an urban typical section on this project with a design speed of 45 mph. It was agreed that this should be the typical section for continuity within the corridor.

INITIAL CONCEPT MEETING

June 9, 2010

PI# 0007692

CSSTP-0007-00(692)

Paulding & Cobb Counties

SR 92 Improvements

Please PRINT names!

NO.	NAME	ORGANIZATION	PHONE	EMAIL
1	Dylan Eagleton	GDOT-DP&S: Conceptual Design	404-699-4460	deagleton@dot.ga.gov
2	Jeremy Busby	GDOT - Program Delivery	404-631-1154	jbusby@dot.ga.gov
3	APRIL WILKINS	GDOT-DP&S: CONCEPTUAL DESIGN	(4) 699-4460	AWILKINS@DOT.GA.GOV
4	MICK WORKMAN	GDOT D6 R/W	770-387-3658	MWORKMAN@DOT.GA.GOV
5	Jennifer Deems	GDOT D6 Utilities	770-387-3666	jdeems@dot.ga.gov
6	Ben Massengill	AGL	404-584-3238	bmasseng@agresources.com
7	GREG HOOD	GDOT DP&E D6	770-387-3634	GHOOD@DOT.GA.GOV
8	Kathy Stallard	Paulding Co. DOT	770-445-4759	Kstallard@paulding.gov
9	Kaycee Mertz	GDOT - Planning	404-317-0215	kmertz@dot.ga.gov
10	JOSEPH JOHNSON	PCPS	678-224-4083	JJOHNSON@PAULDING.GOV
11	Kevin Kraly	Colonial Pipeline Co.	706-891-7584	kraley@colpipe.com
12	Scotty Swafford	Colonial Pipeline Co.	678-723-5379	sswaffore@colpipe.com
13	Nabil Raad	Traffic OP.	404-635-8126	nraad@dot.ga.gov
14	Melanie Nable	GDOT - Off. Env. Svcs.	404-631-1174	mnable@dot.ga.gov
15	Mike Lobdell	GDOT D5 Precon	770-986-1257	mlobdell@dot.ga.gov
16	Chetna P. Dixon	FHWA	415-62-3655	Chetna.dixon@dot.ga.gov
17	Kelley Whitson	FHWA	404-500-3144	kelley.whitson@dot.ga.gov
18	Krystal Stovall-Dixon	GDOT - Office of Program Delivery	404-631-1572	Kstovall-dixon@dot.ga.gov
19	Kew Thompson	GDOT - ODPS/LOCATION BUREAU		
20	Dave Peters	GDOT-ODPS/LOCATION Bur.	404-699-4453	dpeters@dot.ga.gov
21	Dee Corson	GDOT DIST 6 TRAFFIC OPS	770-387-3637	dcorson@dot.ga.gov
22				
23				
24				

CONCEPT DEVELOPMENT TYPICAL SECTION MEETING NOTES

PI#0007692, CSSTP-0007-00(692) SR 92 WIDENING FROM SR 120 TO CR 73/OLD BURNT HICKORY ROAD PAULDING & COBB COUNTIES

Date/Time: Wednesday, July 20, 2011; 1:30pm
Place: One Georgia Center – Office of Program Delivery 25CR2L2
Attending: **GDOT-Program Delivery:** Jeremy Busby; **GDOT-Design Policy & Support:** Dave Peters, Kim Phillips & Dylan Eagleton

Jeremy Busby stated the purpose of the meeting. The purpose of the meeting was to discuss and determine the proposed typical section during further conceptual development. Three typical section alternatives for PI# 0007692 were discussed. The typical sections as proposed in the latest approved Concept Reports for PI#s 621720- and 0006857 were also discussed.

GDOT-Design Policy & Support

Dylan Eagleton discussed the latest changes to the preliminary alignment as of July 20, 2011. Three preliminary roundabouts were added to the same alignment shown at the Initial Concept Meeting based on recommendations from District 6 Traffic Engineer (May 13, 2011). The three preliminary roundabout locations considered were located: 1,700 feet north of CR 6/Antioch Road, CR 466/Due West Road (Paulding), and CR 73/Old Burnt Hickory Road. Additional roundabout locations were recommended by the District, but have not been studied due to other projects proposed and/or completed.

Other comments made included:

- The current preliminary alignment is based on a typical section with four 12 foot lanes, 20 foot raised median, and 16 foot urban border areas. The 16 foot urban border areas would include 10 foot multiuse paths. Impacts to developed areas and high voltage transmission lines along SR 92 were also taken into consideration. Other potential typical section alternatives for PI# 0007692 included:
 - 11 foot inside lanes, 12 foot outside lanes, 18 foot raised median, and 14 foot urban border areas. The 14 foot urban border areas would include 8 foot multiuse paths. The *AASHTO Guide for the Development of Bicycle Facilities 1999* recommends 8 foot multiuse paths as the minimum.
 - 11 foot inside lanes, 12 foot outside lanes, 4 foot designated bicycle lanes, 18 foot raised median, and 12 foot urban border areas.
- The 18 foot raised median would still allow for designated left-turn lanes, but would reduce the median crossover refuge area.
- SR 92 is classified as an urban minor arterial in the project area.
- The proposed design speed is 45mph. However the posted speed limit is 45mph-55mph along SR 92.
- PI# 621720- proposes a typical section with four 12 foot lanes, 20 foot raised median, and 13.5 foot urban border areas. PI# 0006857 proposed a typical section with 11 foot inside lanes, 12 foot outside lanes, 20 foot raised median, and 12 foot urban

border areas. At this time, neither project accommodates bicycles based on the Paulding County's proposed bicycle routes.

- The conceptual alignment can be refined once Phase I ecology surveys have been conducted and received.
- A peer review of the roundabouts may be needed prior to approval of the Concept Report.

GDOT-Program Delivery

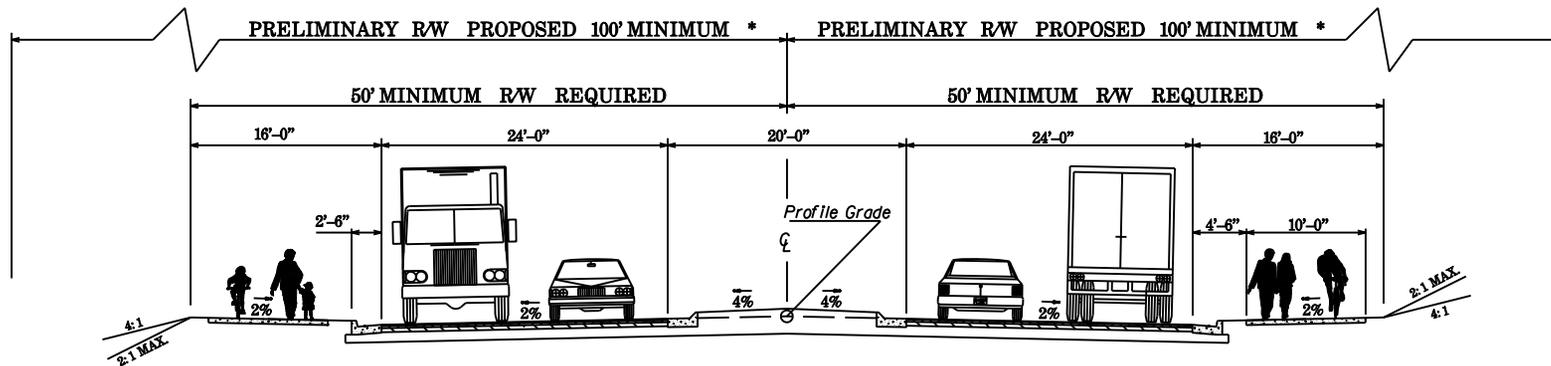
Jeremy Busby reviewed the three typical section alternatives for PI# 0007692 and compared them to the proposed typical sections for PI#s 621720- and 0006857.

- It is Jeremy's understanding that Paulding County prefers multiuse paths versus designated bicycle lanes.
- The preferred typical section is 11 foot inside lanes, 12 foot outside lanes, 18 foot raised median, and 14 foot urban border areas. The 14 foot urban border areas would include 8 foot multiuse paths.
- Atkins (Ecology Consultant) has received Notice to Proceed to begin Phase I ecology surveys. They are aware that stream and wetland delineations/preliminary impacts are needed as soon as possible to determine if a Practical Alternative Review (PAR) is required.
- A Value Engineering Study is preferred once Phase I ecology is complete and a feasible concept has been determined and refined.
- A peer review of the roundabouts is preferred after concept development unless determined to be necessary earlier.

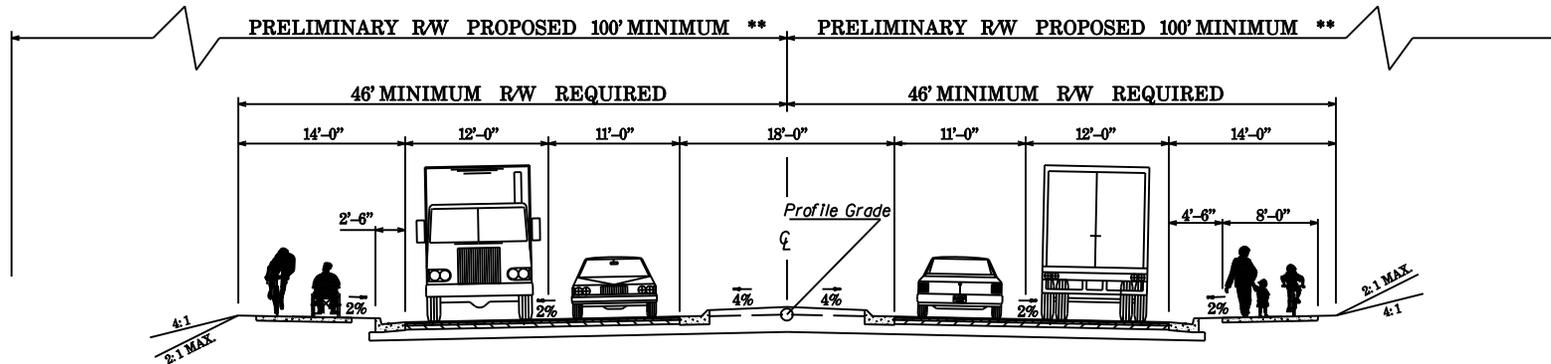
The following recommendations/commitments were made after discussion:

- The Office of Design Policy & Support will use the preferred typical section during further concept development once Phase I ecology has been received.
 - It was later decided for concept purposes to also ensure a 5 foot total buffer between the edge of pavement and multiuse path as recommended in the *AASHTO Guide for the Development of Bicycle Facilities 1999*. A 4.50 foot buffer was shown; which included a 2.50 foot curb & gutter and 2.00 foot grass/concrete strip between the curb & gutter and multiuse path.
- The Office of Design Policy & Support will provide preliminary layouts and MicroStation DGN files as requested to begin Phase I ecology surveys.
- The Office of Design Policy & Support will study additional preliminary roundabout(s) at the CR 466/Due West Road (Paulding), CR 2839/Due West Road (Cobb), and Due West Street (Due West Estates Subdivision) locations as recommended by the District.
- Jeremy Busby will continue encouraging Atkins to provide stream and wetland delineations as soon as possible for PAR determination.

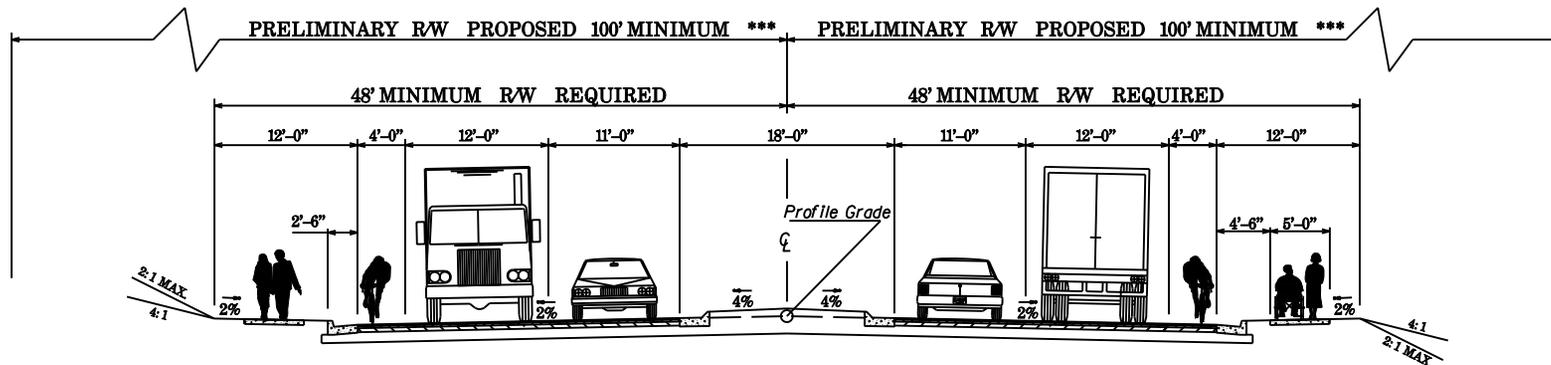
PI#0007692 - PAULDING & COBB COUNTIES PRELIMINARY TYPICAL SECTION ALTERNATIVES



* Allows for 4:1 foreslopes assuming up to 10 feet of cut/fill due to terrain and substandard geometry.
Actual preliminary right-of-way will be dependent upon symmetrical widening vs. holding existing west/east right-of-way and further preliminary engineering and environmental studies.



** Allows for 4:1 foreslopes assuming up to 11 feet of cut/fill due to terrain and substandard geometry.
Actual preliminary right-of-way will be dependent upon symmetrical widening vs. holding existing west/east right-of-way and further preliminary engineering and environmental studies.



*** Allows for 4:1 foreslopes assuming up to 10-11 feet of cut/fill due to terrain and substandard geometry.
Actual preliminary right-of-way will be dependent upon symmetrical widening vs. holding existing west/east right-of-way and further preliminary engineering and environmental studies.

NOT TO SCALE



Final Meeting Minutes – Concept Team Meeting, GDOT PI # 0007692

MEETING DATE: December 5, 2013, 10:00 am
GDOT, District 6 - Conference Room

**SR 92 Widening and Reconstruction segments 3 and 4, from East Paulding Drive to Cedarcrest Road
GDOT PI 0007692
Paulding and Cobb County**

I. Project Team Introductions/Sign in Sheet

Jeremy Busby	GDOT OPD	jbusby@dot.ga.gov
Sonja Thompson	GDOT OPD	sthompson@dot.ga.gov
Ken Werho	GDOT TO-TMC	kwerho@dot.ga.gov
Robbie Rokoritz	City of Hiram	rrokovitz@hiram.ga.gov
Corey Coats	Paulding County - Water	ccoats@paulding.gov
Erica Parish	Paulding County - DOT	eparish@paulding.gov
Gary M. Pevehouse	Cobb County Water	gary.pevehouse@cobbcounty.org
Curtis Powell	GDOT – D6 – Traffic Ops	cpowell@dot.ga.gov
Charles Smith	GDOT – D6 – Traffic Ops	chsmith@dot.ga.gov
Kerry Bonner	GDOT District Utilities	kbonner@dot.ga.gov
Kellee Newman	AGL	knewman@aglresources.com
BJ Martin	URS	bj.martin@urs.com
Sean Pharr	URS	sean.pharr@urs.com

II. Introductions

Jeremy Busby welcomed the attendees to the Concept Team Meeting for this segment of SR 92, GDOT PI 0007692, noting that the likely project limits in terms of Logical Termini for this segment of SR 92 are south of East Paulding Drive to Old Burnt Hickory Road.

The current programmed milestone dates are June 2014 for Concept Approval, June 2016 for R/W with authorization September 2016, and construction in 2019.

III. Review of Agenda Items(Agenda Attached)

BJ Martin walked through the project layout presented at the Public Meeting Open House. Noting the key intersections, MS4/water quality ponds and swales, major utilities along the corridor (including water mains, gas pipelines, overhead power transmission lines), and described the culvert crossing at Pickett’s Mill Creek.

Discussion also included the design alternative for multi-lane roundabouts at Due West Road (north

and south legs) with SR 92. The two Due West intersections are closely spaced and will require design variances for intersection spacing. Roundabouts at the two intersections eliminate left turn conflicts and mitigate the impacts of the closely spaced intersections.

Environmentally Sensitive Area's (ESA's) were noted including; Pickett's Mill Battlefield, the Cherokee Darter, Griffin Farm, the pink lady slipper and Georgia aster.

An overview of the typical section was presented; a four (4) lane urban section with raised median, curb and gutter and sidewalks. A landscape buffer separates the outside travel lane from a sidewalk on one side of the SR 92 and a multi-use path on the other side. The multi-use path is has 5 to 6 feet of clear width per AASHTO's bike ped recommendation for clear width of such type facility.

Retaining walls are located along the corridor to limit fill slopes and avoid ESA's.

A roundabout option at Old Burnt Hickory was also discussed, however a triple lane roundabout would be needed in the design year, therefore this configuration has been discounted at this time.

Sean Pharr and **Ken Werho** discussed having a meeting with Scott Zengraff to look at an Old Burnt Hickory roundabout options in greater detail.

Ken Werho noted that adding paths and trails is a form of mitigation and should be noted in the environmental document and concept report.

Ken Werho questioned where in the project the right of way proposed was 700-feet. **Sean Pharr** responded that was more than likely a typo and will be checked.

Sean Pharr made a comment that Pickett's Mill Creek will require a "natural bottom" because of the presence of engendered darters. While the biological opinion has not been issued by Fish and Wildlife, it is anticipated a natural bottom will be requested.

Ken Werho noted that the sufficiency rating of the existing box culvert for Pickett's Mill Creek is an 89 and questioned whether it was possible to leave in place.

Sean Pharr responded stating that it would be difficult to stage, and that since it is anticipated a "natural bottom" be stipulated in the biological opinion; providing a sunken culvert (or bottomless arch) on new alignment from the existing culvert would be the easiest to stage, and provide the best hydraulic opening. URS studied the crossing and concluded the following; 1) the existing culvert could be extended, however an supplemental pipe or culvert will be required as the existing culvert would need to be filled in with natural substrate, 2) a sunken box culvert or a bottomless culvert are viable options, 3) the existing culvert will need to be maintained for staging purposes during construction.

Sean Pharr questioned the group if other projects than those listed in the draft concept report were known at this time. **Erica Parish** responded that no other projects were noted within the project limits.

Robbie Rokoritz noted that the City of Hiram is welcome to roundabouts on the corridor and questioned if the schedule could be improved for this segment, and questioned the status of the other portions of SR 92 in design.

Jeremy Busby responded that due to the large # of parcels that need to be acquired as well as the time required for environmental for the various project segments, it will be difficult to expedite the schedule. The GDOT widening projects in the vicinity are also in the environmental stage.

Ken Werho stated that a maintenance agreement would be needed for lighting and trails. **Jeremy Busby** responded Paulding County was going to provide.

Erica Parish questioned if logical termini was an issue with this segment of SR 92. **Sean Pharr** responded that is may be, however a submittal to FHWA establishing logical termini at Old Burnt Hickory and East Paulding was forthcoming. **Jeremy Busby** noted is was possible FHWA will request the remaining segments of SR 92 not under construction be combined in one environmental document.

Charlsie Smith expressed concern with the speed limit being lowered to 45 mph, as a large portion of the corridor is currently posted at 55 mph.

Brandon Stephens questioned what the impact to utilities are expected.

BJ Martin noted that distribution (power, water, telecomm, and gas) may be impacted.

Kellee Newman relayed that AGL has a 12" high pressure steel main south of Old Burnt Hickory crossing SR 92 on easement and if impacted will require a force account.

Ken Werho questioned what size and depths were the colonial pipeline gas trunk lines. **Sean Pharr** responded the SUE did not pick up the exact details and this information would be requested from the SUE consultant. **BJ Martin** commented that the profile of the proposed road was near grade or would require minimal fill and not expected to impact the trunk lines. A comment from (unknown) stated that they believed the pipes to be 10' to 12' below existing grade.

Erica Parish made a request for Paulding County that Fiber Optic interconnect be installed (96" fiber), **Ken Werho** suggested that Paulding County provide funding for this if added to the project.

Ken Werho asked if there were any schools in the project limits; the group noted there were not.

Ken Werho made a statement that rapid flashing beacons be considered at unsignalized street intersections or midblock locations so residents could access the path which is proposed only on one side of the roadway.

Jeremy Busby thanked the attendees and the meeting was adjourned.

These meeting minutes are compiled from short hand notes and from memory and do not represent direct quotes from attendees but more of a summary of topics and comments discussed during the meeting.

Attachments:

- 1. CTM Agenda**
- 2. Sign-in sheet**

Attachment 14
Minutes of Any Meetings that Show
Support or Objection to the Concept

Paulding County Coordination Meeting
October 4, 2012

Draft Meeting Minutes SR 92 GDOT/ Paulding County Coordination Meeting

MEETING DATE: October 4, 2012 9:30 am
 Paulding County Board of Commissioners Meeting Room

I. Project Team Introductions/Sign in Sheet

Krystal E. Stovall Dixon - GDOT	kstovall-dixon@dot.ga.gov
Peter Emmanuel – GDOT	pemmanuel@dot.ga.gov
Jeremy Busby – GDOT	jbusby@dot.ga.gov
Suzanne Dunn – GDOT	sdunn@dot.ga.gov
Walt Taylor - GDOT	wtaylor@dot.ga.gov
Paulette Braddock – Ga. House of Representatives	paulettehouserep@gmail.com
David Austin – Paulding County Commission	commissioners@paulding.gov
Scott Greene - PCDOT	sgreene@paulding.gov
Kathy Stallard - PCDOT	kstallard@paulding.gov
Andrew Posner – PCDOT	aposner@paulding.gov
George Jones – PCDOT	gjones@paulding.gov
Erica Parish – PCDOT	eparish@paulding.gov
Bryce Coyle – PC Engineering	bcogle@paulding.gov
Tommie Graham – Paulding County	tgraham@paulding.gov
Corey Coats – PC Water System	cocoats@paulding.gov
Ken Elsberry – PCSD	kelsberry@paulding.k12.ga.us
Billy Freeman – PCSD	bgfreeman@paulding.k12.ga.us
Lt. Patrick Banks - PC Sheriff's Office	pbanks@paulding.gov
Robbie Rokovitz – City of Hiram	rrrokovitz@hiram.gov
Jody Palmer – City of Hiram	jpalmer@hirma-ga.gov
Justin Bansen – KIA	jbansen@kittleson.com
Erick Fry – URS	erick.fry@urs.com
Sean Pharr– URS	sean.pharr@urs.com
Nick Castronova - URS	nick.castronova@urs.com
Joe Tiernan – URS	joe.tiernan@urs.com

II. Introductions

Scott Greene introduces of the elected officials, county staff, and city staff.

David Austin welcomes and thanks everyone for their hard work on helping to make the vital SR 92 corridor a reality.

Sean Pharr introduces the GDOT and URS staff.

III. GDOT PI# 621720

Krystal E. Stovall Dixon provided an overview of the project and discussed the schedule and the environmental challenges on the project.

Walt Taylor discussed the design layout for the project.

Draft Meeting Minutes SR 92 GDOT/ Paulding County Coordination Meeting

Tommie Graham questioned if a median opening is being provided Rosedale Drive?

Walt Taylor answered a median opening at Rosedale Drive is currently not provided because of the distance to 278 and that it is proposed as a right in right out.

Ken Elsberry noted that there is a worn path between east Paulding middle school and east Paulding high school, and asked about a pedestrian crossing in front of east Paulding middle school

Krystal E. Stovall Dixon asked if it was practical for people to cross there for a due to the heavy traffic volumes and high speeds on SR 92.

Ken Elsberry answered that he wasn't sure.

Walt Taylor noted that GDOT could do pedestrian counts at that location to check if hawk signals are warranted at that location.

Scott Greene asked if there was curb & gutter and sidewalk along the proposed project.

Walt Taylor answered yes.

Scott Greene asked if the complete streets manual was being followed.

Walt Taylor answered that if it meant widening the footprint of the roadway that it would be very difficult due to the advanced stage of the environmental process, and he will look into the complete street policy, and section of the GDOT design manual

Scott Greene asked if a grass strip would be provided.

Walt Taylor answered that there was a 2' grass strip for the majority of the project, and in some areas the sidewalk narrows down to 6' with no grass strip in areas of ROW and environmental constraints.

George Jones asked if there would be fiber optics installed for signals.

Walt Taylor answered that is yet to be determined, the final traffic design begun.

Jody Palmer asked if any downtown Hiram roads would be shifted.

Walt Taylor answered no.

Scott Greene asked if the grass strip would require a maintenance agreement.

Krystal E. Stovall Dixon answered that yes it would be needed and asked if Paulding County had a preference for either stamped concrete or grass which requires a maintenance agreement?

Scott Greene answered that they prefer grass and a maintenance agreement is not a problem.

Sean Pharr asked if corridor wide Paulding County wants grass and would agree to a maintenance agreement.

Draft Meeting Minutes SR 92 GDOT/ Paulding County Coordination Meeting

Scott Greene said that Paulding county wants grass and generally agrees to maintenance agreements, He also said that Paulding County would prefer mulch and landscaping and something more than sod.

Jody Palmer asked if continuous acceleration and deceleration lanes would be provided, and noted that their existence on 278 improves traffic flow.

Walt Taylor said no due to the increased ROW that would be needed, and also noted that the median opening on US 278 to the shopping center southwest of the intersection would be closed due to its distance to the intersection of US 278 and SR 92.

Scott Greene noted that losing median openings at both Rosedale Drive and the shopping center southwest of the intersection may hurt access to businesses. Scott Greene also noted that the City and Wal-Mart worked together to get the existing traffic signal installed.

Walt Taylor answered he understands Wal-Mart is a big traffic generator and would look at alternatives.

Krystal E. Stovall Dixon noted that any addition in ROW would delay the environmental document.

Scott Greene noted that the traffic signal may be a public involvement issue and asked if U-turns would be able to accommodate that much traffic and noted that he knew that the environmental document is a sensitive issue.

Walt Taylor noted that Railroad Street adjacent to the railroad under the bridge may need to be taken out to provide room for another track and that this would necessitate buying out two residences who would no longer be accessible.

Krystal E. Stovall Dixon noted that with the environmental document the main issue is an endangered bat and this is the first time EPD is doing this type of report and it's taking more time.

Scott Greene noted that it is best to solve the design issues before environmental issues because any additional ROW footprint after environmental will delay the project.

Robbie Rokovitz asked if a culvert at the silver comet crossing would be sufficient

Krystal E. Stovall Dixon answered that we'll look at that.

Scott Greene asked if the county could coordinate with GDOT to discuss median breaks.

Walt Taylor answered that yes we could and questioned if traffic backs up on Rosedale Drive during existing conditions

Tommie Graham answered that yes traffic does back up right there and also noted that local traffic avoids the US 278/ SR 92 intersection right now and uses local streets instead.

Walt Taylor answered that GDOT's traffic office could be requested to look at this area in more detail.

Draft Meeting Minutes SR 92 GDOT/ Paulding County Coordination Meeting

Scott Greene said that he was concerned about truck traffic in the area, and noted that if there were an accident the US 278/ SR 92 intersection traffic would have no option but to go through downtown Hiram, and asked about additional median openings.

Walt Taylor answered that they could look at additional median openings, but that if U-turns were allowed they would need eyebrows, possibly requiring additional ROW.

Scott Greene asked if Maxwell Road would be blocked off.

Walt Taylor answered that it would be blocked off at SR 92 because there is not much traffic on it.

Scott Greene noted that the SR 92 widening may force abandonment issues and asked that if the road gets overtaken does it become GDOT's road.

Jeremy Busby answered yes.

Scott Greene asks what happens with abandonments.

Krystal E. Stovall Dixon answers that she would look into it and ask the ROW department for an answer.

Bruce Coyle asked if the project was connecting to the existing storm sewer system at the K-Mart and noted that it also drains other parcels in the area.

Walt Taylor answered he would check on the storm sewer system at K-Mart and the detention facility.

Scott Greene said the schedule and delays on this project.

Walt Taylor answered the main reason for delay on the project was due to environmental issues.

Krystal E. Stovall Dixon added that preliminary design had been done for a while, and the environmental document is the main issue.

Scott Greene asked when ROW would be bought?

Krystal E. Stovall Dixon answered that the ROW authorization date would be based on the environmental document and that the date for that approval was unknown.

IV. GDOT PI# 0007691

Peter Emmanuel provided an overview of the project, discussed the schedule, and discussed the design layout for the project. He noted that Value Engineering was completed back in July 2012 and his goal for ROW authorization is October 2012. Peter's goal to start construction is in November 2015.

Draft Meeting Minutes SR 92 GDOT/ Paulding County Coordination Meeting

Scott Greene asked if the project would be approved for public interest determination.

Peter Emmanuel answered that GDOT knows that not doing a PID on this project with 20 utility facilities along the corridor would be risky. GDOT has tentatively approved partial PID.

Scott Greene asked if GDOT could initiate the request without a hardship request.

Peter Emmanuel answered that the request would be needed.

Scott Greene asked about the ROW progress on Phase 1,2, and 3.

Peter Emmanuel answered that GDOT was on schedule for ROW by October 2013, certification by April 2014, and letting by June 2014.

Patrick Smith noted that this project and Krystal's project both have need for environmental mitigation credits and that we need to make sure that there is no failure to get a 404 permit.

Peter Emmanuel answered that ARC is paying for the Environmental Mitigation as a part of Preliminary Engineering.

Erick Fry added that he thought that Patrick meant that there might be a problem with the availability of Stream Credits

Patrick Smith further clarified that most of the projects are within one stream basin.

Krystal E. Stovall Dixon answered that GDOT could pull Environmental Mitigation Credits from outside the basin.

Peter Emmanuel added that attainment of Environmental Mitigation Credits would not be a problem and that GDOT would find them when needed. Peter Emmanuel said that he would ask EPD about the availability of Environmental Mitigation Credits for the planned projects along the corridor.

Scott Greene noted that it certainly doesn't hurt to keep an eye on it.

V. Roundabout Operational Presentation QA

Justin Bansen presented on roundabouts with key points on roundabout safety and roundabout operations near schools. Justin noted that roundabouts in series tend to feed off of each other and that a roundabout very close to a signal does not tend to operate well. Justin noted that roundabout should be designed so drivers don't have to switch lanes within the roundabout itself. Justin showed pictures on ways to educate the public, including going into schools and showing students how to safely walk around a roundabout. Justin said that the typical vehicle limit on a single lane roundabout is 20,000-25,000 ADT and on a 2 lane roundabout it is about 40,000 ADT.

Scott Greene asked how a lone roundabout on an isolated corridor works and how it's safety is when the roundabout is on a crest.

Draft Meeting Minutes SR 92 GDOT/ Paulding County Coordination Meeting

Justin Bansen answered that roundabouts make people slow down, while a signal makes people come to complete stops and that a roundabout can increase the safety of an intersection on a crest if it is designed correctly with vertical elements in the center of the roundabout and splitter islands that extend far enough to slow down traffic.

Ken Elsberry asked about how a roundabout would handle high school traffic if a signal normally takes about 30 to 40 minutes queue for everyone to leave.

Justin Bansen answered that a roundabout is typically designed to flush traffic through an intersection, with a design lane configuration to handle capacity. But you don't want a 3 lane roundabout just to handle a 30 minute peak period and that you may want to scale back to a 2 lane roundabout. Justin thinks that the roundabout may be able to handle traffic faster than a signal, but that the main benefit to a roundabout would be it's off peak operation when at a signal vehicles may need to stop at the red light, but for a roundabout they would just need to yield if there were traffic coming within the roundabout.

Scott Greene asked if a roundabout could accommodate buses.

Justin Bansen answered that roundabouts are designed for a design vehicle, aka the largest vehicle the intersection is expected to handle, and so a roundabout in front of a school, would be designed to handle buses. Justin added that educating bus drivers how to operate within a roundabout could be done.

Paulette Braddock asked how does a roundabout effect gaps in traffic.

Justin Bansen answered that gaps will be smaller, but more often. Justin asked if there were any questions on the law enforcement side of things.

Sheriff Patrick Banks answered that people typically adjust to change over time.

VI. GDOT PI#0007692

Jeremy Busby provided an overview of the project and discussed the schedule and the environmental challenges on the project.

Joe Tiernan discussed the design layout for the project.

Sean Pharr discusses the possible direct access to the roundabout at Burnt Hickory Road.

Justin Bansen notes that the entrance to East Paulding Middle School works without a signal.

Ken Elsberry asks that a crosswalk or some way for students to cross the road be looked at.

Jeremy Busby asks if the maintenance agreements for the roundabouts are a problem.

Scott Greene answers that it would not be an issue to get a maintenance agreement. He also asks about alternatives with Due West Rd and Due West NW being so close together.

Justin Bansen answers that he would suggest either going with two roundabouts or two traffic signals because a roundabout so close to a signal would probably not operate well.

Draft Meeting Minutes SR 92 GDOT/ Paulding County Coordination Meeting

Scott Greene asks if a roundabout would work well at the intersection of SR 120 and SR 92.

Justin Bansen answers that maybe if you throw in a three lane roundabout with bypass lanes it might work, but it would probably be best just to start with a few two land roundabouts at other locations first.

VII. GDOT PI#0006857

Suzanne Dunn provided an overview of the project and discussed the schedule.

Sean Pharr noted that the project does not currently have bike accommodations.

Scott Green asks about the Paulding County Wood Yard and the big trucks doing U-turns to get there.

Sean Pharr answered that he would look at shifting the Crossroads Drive median opening.

Scott Greene noted that Old Stilesboro Road will be connected to make a through road and to investigate the feasibility of a roundabout.

PID

Sean Pharr noted that the project is close to PFPR.

Ken Elsberry – Roadway crossing skeptics at the elementary school



Sign In Sheet

October 4, 2012

SR 92 Coordination Meeting - Sign in sheet

PI #'s 0007692,0009692,621720, 0006857

Name	Organization Project Role	Email Address	Phone
Jeremy Busby	GDOT - OPD	jbusby@dot.ga.gov	404-631-1269
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Krystal Stovall-Dixon	GDOT- OPD	Kstovall-dixon@dot.ga.gov	
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Attachment 15
VE Implementation Letter

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: CSSTP-0007-00(692) Paulding/Cobb **OFFICE:** Engineering Services
P.L. No.: 0007692
SR 92 Widening SR120 to CR 473 **DATE:** March 19, 2013

FROM: Lisa L. Myers, State Project Review Engineer *llm*

TO: Genetha Rice-Singleton, State Program Delivery Engineer
Attn.: Jeremy Busby, P.E.

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

The VE Study for the above project was held January 28-31, 2013. Responses were received on March 18, 2013. Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. The Project Manager shall incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project. Please note, if the implementation of a VE recommendation requires a Design Exception and/or Design Variance, the DE or DV must be requested separately.

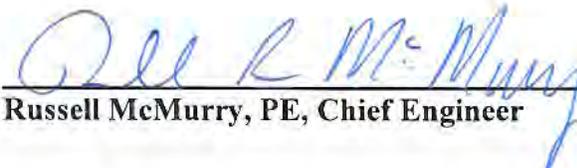
ALT #	Description	Potential Savings/ LCC	Implement	Comments
R-1.0	Use 11' lane widths in lieu of 12' for all lanes on SR92.	\$678,000	No	R-1.1 was chosen to be implemented instead, due to the 5.0% 24-hour truck ratio and the 35,200 ADT volumes on this State Route. The additional one foot of width in the outside lanes will allow the trucks to maneuver more efficiently.
R-1.1	Use 11' wide inside lanes and 12' outside lanes on SR92.	\$339,000	Yes	This will be done.
R-2.0	Reduce median width from 20' to 16'.	\$205,594	No	GDOT's design policy manual (Section 6.8.2) requires a 20' raised median for arterials with design year ADT's greater than 24,000. There is no compelling operational benefit to reducing the median so adhering to the 20-ft median would eliminate the need to acquire a design variance.
R-3.0	Use 10' wide multi-use trail on west side of SR92 with 5' sidewalk on the east side.	\$638,485	Yes	This will be done.

R-3.1	Use 8' wide multi-use trails on both sides of SR92 in lieu of 10' multi-use trail. Reduce 5' grass strips in front and behind trails to 3' widths.	\$824,886	No	R-3.0 was chosen as the preferred alternative to be implemented.
R-3.2	Use asphalt in lieu of concrete for 10' wide multi-use trail.	\$300,800	Yes	This will be done.
R-5.0	Eliminate construction of the Antioch Road Spur and the associated roundabout with SR92.	\$1,320,415	Yes	This will be done.
R-5.1	Use 11' lane widths in lieu of 12' on Antioch Road Spur.	\$16,350	No	The relocation of Antioch Road has been eliminated by the implementation of VE Alternative R-5.0.
R-5.2	Eliminate paved shoulders on Antioch Road Spur.	\$32,800	No	The relocation of Antioch Road has been eliminated by the implementation of VE Alternative R-5.0.
R-5.3	Reduce the required R/W width from 120' to 80' on the Antioch Road Spur.	\$64,500	No	The relocation of Antioch Road has been eliminated by the implementation of VE Alternative R-5.0.
R-6.0	Reduce R/W widths to only include what is required for construction.	\$4,599,000	No	R-6.1 was chosen as the preferred alternative to be implemented.
R-6.1	Use a maximum 120' R/W corridor with easements as necessary beyond the R/W limits.	\$5,547,000	Yes	This will be done.
R-7.0	Use a signalized intersection at the Antioch Road Spur in lieu of the multi-lane roundabout.	\$199,000	No	The relocation of Antioch Road has been eliminated by the implementation of VE Alternative R-5.0.
R-8.0	Use a signalized intersection at Old Burnt Hickory Road in lieu of the multi-lane roundabout.	\$199,000	No	A feasibility study was performed at this intersection that confirmed a partial multi-lane roundabout as a feasible alternative. During off-peak hours, the roundabout reduces the likelihood of vehicles being required to stop during low volume conditions as required with signals. This provides both operational and environmental benefits. From 2006-2009, 9 crashes were reported for the existing two-way stop control. This includes 5 injury crashes that resulted in 14 injured persons. From a benefit/cost standpoint, the benefit associated with the reduction in severe/injury crashes outweighs the \$199,000 in construction cost savings by utilizing a signalized intersection.

R-9.0	Relocate roundabout at Due West Road (south) to the south to allow greater separation between roundabouts and minimize construction over Colonial Pipeline facilities located at approximate Station 706+00.	\$2,500,000	No	Roundabouts can maintain their operational performance even with closer spacing. This benefit is documented in NCHRP Report 672. Moving the Due West approach far enough to the south to realize a significant reduction would seriously impact the residences between Due West Road and SR92. Such impacts may require additional displacements to modular homes which impacting them may invite environmental justice concerns potentially adding to the required efforts to acquire more environmental permits.
R-9.1	Relocate intersection at Due West Road (south) to the south and change to a signalized intersection in lieu of a multi-lane roundabout to allow greater separation between intersections and minimize construction over Colonial Pipeline facilities.	\$2,674,000	No	Roundabouts can maintain their operational performance even with closer spacing. A feasibility study identified that the roundabout is the preferred alternative from an operations perspective based on lower delays and vehicle queue lengths than the signalized alternative. During off-peak hours, the roundabout reduces the likelihood of vehicles being required to stop during low volume conditions as required with signals. This provides both operational and environmental benefits. From 2006-2009, 44 total crashes were reported for the existing two-way stop control. This included 16 injury crashes that resulted in 23 injured persons. The crashes included 34 angle and 4 head-on collisions which are all correctable with implementation of a roundabout. From a benefit/cost standpoint, the benefit associated with the reduction in severe/injury crashes outweighs the \$199,000 in construction cost savings by utilizing a signalized intersection.
R-11.0	Reduce cut for new vertical alignment from Station 568+00 to Station 576+00 to meet 45 mph design speed.	\$49,592	Yes	This will be done.
R-13.0	Follow existing horizontal alignment from Station 720+00 to Station 740+00.	\$314,380	Yes	This will be done.
R-16.0	Relocate or eliminate pond locations where causing displacements.	\$555,000	Yes	This will be done.

R-18.0	Utilize grassing at roundabouts and eliminate landscaping.	\$174,920	No	Utilizing vertical landscape materials within the central island of the roundabout is important for providing drivers with visual cues of the approaching intersection. The vertical landscape elements create a "terminal vista" that helps drivers to recognize the roundabout and begin to slow down as they approach the intersection. This is further discussed in the landscaping chapter of NCHRP Report 672. A variety of different plant material options could be selected. These include slower growing varieties that require less frequent trimming and maintenance.
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The Office of Engineering Services concurs with the Project Manager's responses.

Approved:  Date: 3/25/13
Russell McMurry, PE, Chief Engineer

LLM/RLR/MJS
Attachments

- c:
- Joe Carpenter/Paul Liles
 - Genetha Rice-Singleton/Albert Shelby/Jeremy Busby
 - Frank Scott
 - Marc Mastronardi
 - Patrick Bowers/Bill Dungan
 - Ken Werho
 - Robert Reid Jr. /Matt Sanders

Attachment 16
Practical Alternatives Report

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
OFFICE OF ENVIRONMENTAL SERVICES**

**PRACTICAL ALTERNATIVES REPORT
(FOR REVIEW)**

**SR 92/HIRAM-ACWORTH HIGHWAY
CSSTP-0007-00(692)
PI # 0007692
PAULDING AND COBB COUNTIES
September 13, 2013**

Attached is a copy of the Practical Alternatives Report for your review and comment.

General Project Description

The proposed project consists of the widening and addition of travel lanes to State Route (SR) 92/Hiram-Acworth Highway from SR 120/Marietta Highway to County Rd (CR) 473/Cedarcrest Rd in Paulding and Cobb Counties. Roundabouts will be constructed along SR 92 for the purpose of improving safety at the intersections with Burnt Hickory Rd, CR 2839/Due West Rd, and CR 466/Due West Rd. The total length of the project will be approximately 5.67 miles, as measured along SR 92.

The existing roadway consists of two 12 ft travel lanes, one in each direction. Right and left turn lanes exist sporadically throughout the corridor.

The proposed project will widen the existing roadway to provide additional travel lanes and a variable-width raised median. The proposed typical cross-section from SR 120/Marietta Highway to CR 473/Cedarcrest Rd would consist of one 11 ft inside lane and one 12 ft outside lane in each direction, with a 20 ft raised median. The left urban shoulder would be 23.5 ft in width; consisting of curb, gutter, and a 10 ft multi-use path. The right urban shoulder would be 18.5 ft in width; consisting of curb, gutter, and a 5 ft sidewalk. Twelve-foot (12 ft) right and left turn lanes will be provided as needed.

The project segment from SR 120 to approximately Hardy Circle (North) is being designed and constructed under PI number 621720. This segment will match and tie into the project being implemented under PI 0007692.

The existing SR 92 corridor cuts through an area that is primarily suburban or rural in nature.

Need and Purpose

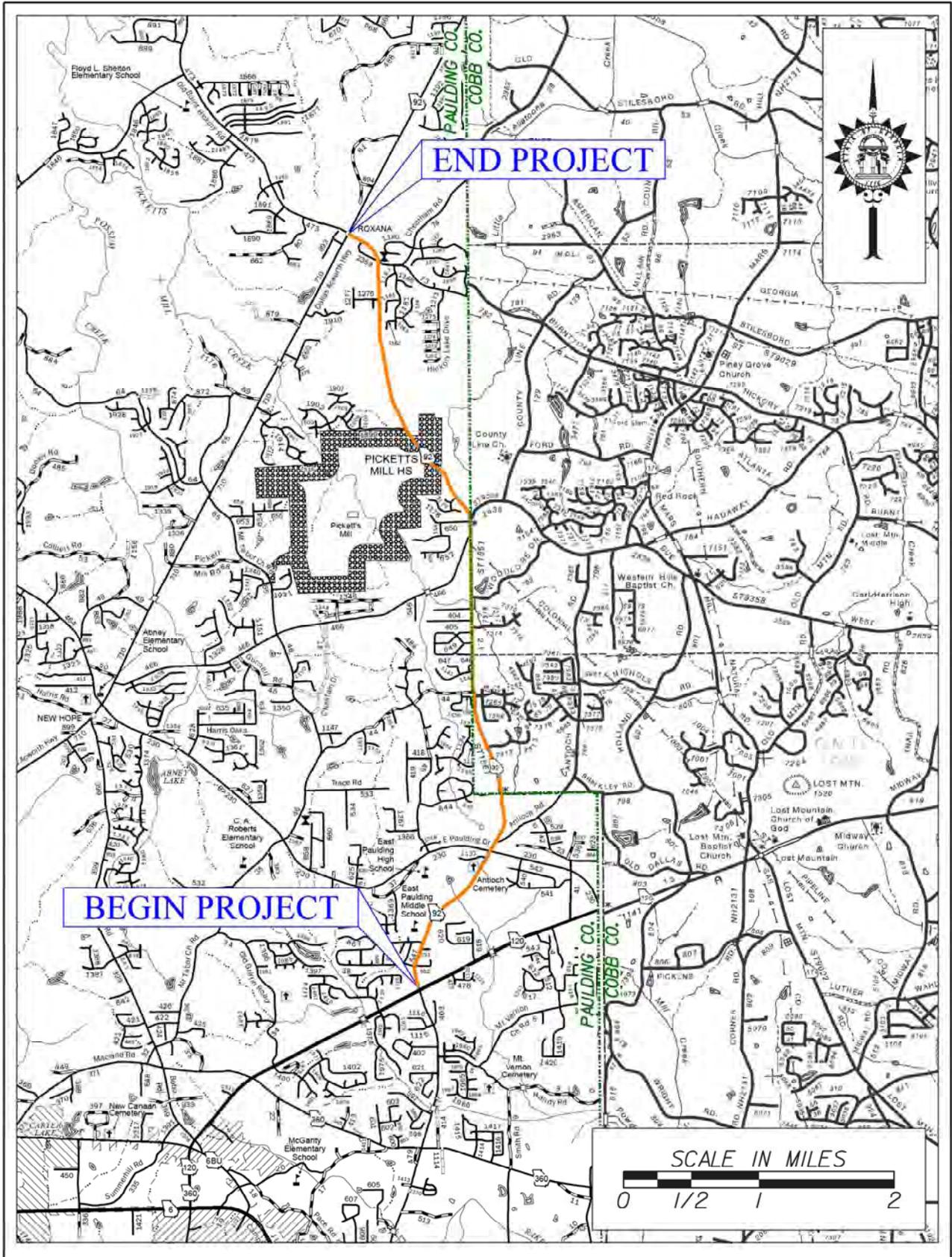
A detailed analysis of crash records on SR 92 revealed that the project area's crash and injury rates are greater than the statewide average on urban minor arterials for the past three years of data. The most common type of crash on the corridor is "rear-end", which could be a symptom of congestion and may be improved by adding capacity to the roadway. Angle crashes (the second most common crash type) mostly occurred near the SR 92 intersections with Due West Road and SR 120.

Traffic conditions along SR 92 between SR 120/Marietta Highway and CR 473/Cedarcrest Rd are projected to operate at Level of Service (LOS) "E" in the year 2017 and are projected to decline to LOS "F" by 2037, which represents unacceptable traffic conditions. A widening project is needed to increase capacity and reduce congestion along the corridor. It is anticipated that widening would also improve safety of the corridor.

To increase the LOS, the corridor will be widened from 2 lanes to 4 lanes with left and right turn lanes where needed, the speed limit will be reduced from 55 MPH to 45 MPH and three roundabouts will be constructed at the intersections of SR 92 and Burnt Hickory Rd, CR 2839/Due West Rd, and CR 466/Due West Rd.

Distribution:

Jeremy Busby, GDOT PM
Katherine Freas, USACE
Frank Scott, GDOT NEPA
Eugene Hopkins, GDOT ECB
Lisa Westberry, GDOT Mitigation
Catherine Samay, GDNR EPD (w/ attachment)
Pete Pattavina, USFWS (w/ attachment)
Mark LaRue, USEPA (w/ attachment)
Chetna Dixon, FHWA (w/ attachment)
Anna Yellin, GAWRD (w/ attachment)



PROJECT LOCATION MAP
SR 92 FROM SR 120 TO CR 473/OLD BURNT HICKORY

EXISTING ROADWAY DESCRIPTION

Existing Typical Section

The Paulding County and Cobb County sections of the SR 92 corridor vary, but the normal section consists of 2 travel lanes, an approximate 8 ft shoulder (2 ft of the shoulder is paved), with left and right turn lanes at various locations.

Existing Width of Right-of-Way (ft)	30	40	45-50	50	60	80	90-100	100	125	300
Mainline										
SR 92/Hiram-Acworth Hwy								X		
Cross Street										
SR 120/Marietta Highway									X	
Hardy Circle (S)			X							
Brenda Ln				X						
Diane Ct.				X						
Hardy Circle (N)				X						
Etowah Dr					X					
East Paulding Dr								X		
Antioch Rd					X					
Meryton Dr					X					
Sayre Dr				X						
Kensley Way				X						
Wyndham Lakes Dr					X					
Holland Rd						X				
Viola Dr					X					
Presidential Dr					X					
Wiscasset Pkwy					X					
Womack Avenue				X						
Paige Street				X						
Woodlore Dr NW						X				
Due West Rd (W)					X					
Due West St					X					
Due West Rd at Due West St						X				
Abby Ln				X						
Pine Bluff Dr					X					
Battle Gate Ln				X						
Old Burnt Hickory Rd					X					
Whitworth Church Loop				X						
Dallas-Acworth Hwy								X		
Cedarcrest Rd						X				

S designates the south Hardy Circle side road.

N designates the north Hardy Circle side road.

W designates the segment of Due West Rd on the west side of SR 92.

EXISTING ROADWAY DESCRIPTION (CONTINUED)

Existing Posted Speed Limits →	25 mph	30 mph	35 mph	40 mph	45 mph	55 mph	Not Posted
Mainline							
SR 92/Hiram-Acworth Hwy						X	
Cross Street							
SR 120/Marietta Highway						X	
Hardy Circle (S)	X						
Brenda Ln	X						
Diane Ct.	X						
Hardy Circle (N)	X						
Etowah Dr	X						
East Paulding Dr			X				
Antioch Rd							X
Meryton Dr	X						
Sayre Dr	X						
Kensley Way	X						
Wyndham Lakes Dr	X						
Holland Rd	X						
Viola Dr	X						
Presidential Dr	X						
Wiscasset Pkwy	X						
Womack Avenue	X						
Paige Street	X						
Woodlore Dr NW	X						
Due West Rd (W)				X			
Due W St	X						
Due West Rd at Due West St				X			
Abby Ln	X						
Pine Bluff Dr	X						
Battle Gate Ln	X						
Old Burnt Hickory Rd				X			
Whitworth Church Loop	X						
Dallas-Acworth Hwy					X		
Cedarcrest Rd					X		

S designates the south Hardy Circle side road.

N designates the north Hardy Circle side road.

W designates the segment of Due West Rd on the west side of SR 92.

EXISTING ROADWAY STRUCTURES TO BE AFFECTED

The below table summarizes the existing cross drains, 36 inches in diameter and larger, to be impacted by the project.

Station No.	Existing Culvert Size		Diameter (in.)	Material	Stream ID	Comments
	Box Width (ft.)	Box Height (ft.)				
556+50	6	6		CONC	PS3	Unnamed tributary to Powder Springs Creek
680+80	8	7		CONC	PS20	Double Box Pickett's Mill Creek
680+93	8	7		CONC	PS20	
684+60	4	4		CONC	PS22	
699+98	5	6		CONC	PS25	Double Box
700+05	5	6		CONC	PS25	
757+35			36	CONC	EC30	
776+30			36	CONC	EC31	
818+83			36	CONC	none	

The existing double barrel 8 ft wide x 7 ft high box culvert at approximately Sta. 680+80 conveys Pickett's Mill Creek (Resource no. PS20). This culvert is to be replaced with a precast concrete arch culvert (24 ft wide x 6 ft high). This proposed arch culvert will provide for restoration of the stream bed and for fish passage at the crossing.

Other existing culverts and longitudinal pipes are to be lengthened or modified as necessary to meet current GDOT guidelines and requirements for hydraulic design.

There are no existing bridges on the project and no existing walls are expected to be impacted by the project.

PROPOSED ROADWAY DESCRIPTION

Proposed Design Speed	Proposed Typical Section	Proposed R/W Width
45mph	<ul style="list-style-type: none"> From SR 120/Marietta Highway to CR 473/Cedarcrest Rd: one 11 ft inside lane and one 12 ft outside lane in each direction, a 20 ft raised median, an 18.5 ft shoulder with curb and gutter, and a 5 ft sidewalk on the right side, and a 23.5 ft shoulder with curb and gutter, and a 10 ft multi-use path on the left side. 	Varies 160 – 290 ft

PROPOSED “BEST FIT” ALTERNATIVES ANALYSIS

Introduction

The goal of the alternatives analysis was to select a preferred alignment for widening SR 92. The preferred alignment should be the best balance of minimizing property displacements, minimizing impacts to environmental and Section 4(f) resources, and minimizing construction costs as much as practicable.

Minimizing impacts to major streams and Section 4(f) properties were considered priorities in terms of choosing a preferred alternative.

Pickett’s Mill Creek (PS20), its tributary (PS22) immediately to the north of it, and stream PS3, a tributary to Powder Springs Creek at Sta. 556+50, are the major streams on the project corridor. Major Section 4(f) resources on the project corridor include Pickett’s Mill Battlefield, Griffith Farm, and Antioch Cemetery.

Three alternatives for shifting the SR 92 alignment and widening the SR 92 roadway to the east, to the west, or symmetrically in relation to the existing SR 92 alignment were evaluated and two alternatives for diverting off of the existing SR 92 alignment and constructing a new alignment were evaluated.

Initial ecological field evaluations performed on September 22 and 26-30, and October 3-4, 2011, identified habitat potentially suitable for supporting the federally and state threatened dwarf sumac, the federal candidate and state threatened Georgia aster, and the state unusual pink lady’s slipper within the project corridor. A species-specific survey of the project corridor for GA aster and dwarf sumac was subsequently performed in October and November 2011 and for pink lady’s slipper in May, June, and July 2012. Three populations of Georgia aster and seven populations of pink lady’s slipper were confirmed in the project study area. Impacts would occur as a result of Alternatives 1 through 3 to both the pink lady’s slipper and the Georgia aster. Dwarf sumac was not observed during the species-specific field surveys on the project corridor. Additional coordination with the Georgia Department of Natural Resources will be necessary to address potential impacts to the species as a result of project construction.

In addition, select streams along the project corridor were determined to contain suitable habitat for the federally and state endangered Etowah darter and fine-lined pocketbook, as well as the federally and state threatened Cherokee darter. The survey for protected aquatic species was completed by CCR Environmental, Inc. in August 2011 and confirmed the presence of Cherokee darter in Pickett’s Mill Creek (PS 20) along the project corridor. The only target species found within the project area was the Cherokee Darter, which was found in stream PS20 just downstream of the project crossing. No suitable habitat was found for target species at stream PS3.

Impacts to streams, wetlands and ponds have been avoided or minimized to the extent practicable in this stage of the planning process. Impacts to ESAs will be further refined and coordinated with utility locations when utility information becomes available.

Each of the Alternatives 1 through 3 proposes to replace the existing double 8 ft X 7 ft concrete box culvert at Pickett’s Mill Creek (Resource No. PS 20, Sta. 680+80) with a natural bottom precast concrete arch culvert (420 ft long x 24 ft wide x 6 ft high). This type of arch culvert will allow for fish

passage at the crossing, which may improve the habitat for listed species of darter and mussels in the project area. At an estimated unit cost of \$2,500/linear ft., the total cost for construction of an arch culvert would be \$966,000.

As an alternate to a culvert, stream PS20 could be spanned with a pile bent bridge approximately 300 ft long and 90 ft wide. Because of the 61° skew at which SR 92 crosses stream PS20, the bridge bents would have to be approximately 185 feet in length. At an estimated unit construction cost of \$60/square ft., the total cost for constructing a pile bent bridge would be \$1.62 million.

An arch culvert was chosen as the preferred alternative for crossing stream PS20 for the following reasons:

- 1.) The arch culvert would provide an increase in hydraulic capacity for all storm events and would decrease backwater flooding as compared to the existing box culvert.
- 2.) The arch culvert would allow for a natural stream channel and fish passage, which would represent an improvement as compared to the existing box culvert.
- 3.) The improvements listed in items 1.) and 2.) above are similar to those that would be provided by a bridge, but at a cost that is approximately \$654,000 less than a bridge.
- 4.) Additional property displacements and impacts would occur as a result of bridge construction as compared to those occurring as a result of culvert installation. Those additional displacements and impacts are the following:
 - a) CR 404/Paige St would have to be realigned and connected to SR 92 at an alternate location,
 - b) Two property displacements would occur as a result of realigning CR 404/Paige St,
 - c) The north bridge abutment fill material would likely interfere with, and require relocation of, the pump station at Sta. 682+50.

Alternative 1 was selected as the preferred alignment for this project.

PROPOSED ALTERNATIVES DESCRIPTIONS

Alternative 1 – Widen Existing Alignment Symmetrically with Strategic East and West Shifts to Minimize Impacts (Preferred Alternative)

This alternative proposes symmetrical widening of the existing SR 92 alignment with strategic shifts to either the east or west over certain station ranges. The non-symmetrical shifts to the east or west of the existing alignment are implemented on key segments where impacts to resources can be avoided or minimized through such action. Although this alternative requires construction of more lane miles of pavement and requires the obliteration and disposal of some of the existing pavement to construct the raised grass median, the benefits derived from the reduction of right-of-way, ecological, and Section 4(f) impacts would offset these additional construction and demolition costs.

Following is a discussion of the proposed alignment and intermittent shifts and the impacts and relative benefits derived from this alternative as compared to alignment Alternatives 2 through 5 discussed in later sections.

- 1.) Approximately 11 displacements (10 residential, 1 commercial) would occur as a result of the

Alternative 1 alignment. Key property displacements that are avoided by Alternative 1 are the Antioch Cemetery at Sta. 577+75, the pump station at Sta. 682+50, the mobile home property at Sta. 690+00, and the power substation at Sta. 693+00. See the Alternatives Summary Table on page 17 for a comparison of displacements caused by each alternative. The existing corridor has a right-of-way width of 100 feet while a right-of-way width of 120 ft (60 feet to each side) is prescribed for the project. Whereas widening to one side would necessitate acquiring 30 additional feet of right-of-way on the widened side, widening symmetrically would require only 20 ft of additional right-of-way (10 ft on each side).

- 2.) Impacts to the Section 4(f) resource, Antioch Cemetery (located at Sta. 577+00 to Sta. 578+50), are greatly minimized by the combination of symmetrical widening of SR 92 and construction of a cut retaining wall on the west shoulder of proposed SR 92 to accommodate the proposed grade change without encroaching on the cemetery.
- 3.) Pickett's Mill Battlefield is a Section 4(f) resource, which straddles the existing SR 92 immediately south of Pine Bluff Dr. The proposed widening shifts to the east at Pickett's Mill Battlefield to minimize impacts to it. Approximately 1,900 linear feet (1.0 acres) of Pickett's Mill Battlefield frontage would have to be acquired as right-of-way for Alternative 1, which amounts to a net reduction of approximately 500 linear feet of impact as compared to Alternative 2.
- 4.) The proposed widening shifts to the west around Sta. 785+00 just north of Pickett's Mill Battlefield, to avoid the Section 4(f) resource, Griffith Farm. Griffith Farm is located on the east side of SR 92 from Sta. 789+00 to Sta. 802+50, approximately 0.25 miles south of the Battle Gate Lane side road. The westward shift continues to the proposed roundabout at Old Burnt Hickory Rd. This segment of the shift minimizes displacements and the amount of required right-of-way, since there are several more homes adjacent to the east side of SR 92 than the west.
- 5.) Station range 680+00 to 695+00:
This station range is a complex segment of the project which must cross over two buffered streams (PS20 and PS22) near their confluence (west side) while passing adjacent to a pump station site (east side), a mobile home property (west side), and a power substation property (west side).

Approximately 36,340 square ft (0.85 acre)/580 linear ft of Pickett's Mill Creek (Perennial Stream "PS" 20) and 7,205 square ft (0.17 acre)/165 linear ft of Pickett's Mill Creek's tributary (PS22) would be impacted by Alternative 1.

The existing double 8 ft X 7 ft concrete box culvert over which SR 92 crosses stream PS20 is to be replaced with a natural bottom precast concrete arch culvert (24 ft wide x 6 ft high). The proposed arch culvert will provide for restoration of the stream bed and allow for fish passage at the crossing, which may improve the habitat for listed species of darter and mussels in the project area. Please see the introduction to this section for a brief summary of the Protected Aquatic Species Survey Report for this project.

Alternative 1 is shifted to the east on this segment to minimize impacts to ESAs and certain properties that are adjacent to this segment of the project as discussed in the following items a)

through c):

- a) Minimizes impacts to the skewed portion of Pickett's Mill Creek that is almost parallel to SR 92 and avoids impacts to the confluence of Pickett's Mill Creek (Perennial Stream "PS" 20) and its tributary (PS22).
 - b) Avoids the potential for displacement of two or three mobile homes.
 - c) Avoids impacts to or the displacement of the power substation property.
- 6.) From the beginning of the project to approximately Sta. 560+00, Alternative 1 proposes to widen exclusively to the east to minimize impacts to Ephemeral Channel "EC" 4, PS1 and PS3. By shifting to the east, the stream crossings are spaced far enough apart that relatively short culverts can be installed or existing culverts can be extended. Conversely, on the west side, the streams meander and meet at a confluence within the footprint of the roadway. The presence of a confluence and parallel portion of PS1 on the west side would necessitate longer crossings and might require relocation and restoration of the stream channels.
- 7.) From Sta. 614+00 to Sta. 629+00, SR 92 widening will take place to the west. Although the westward shift does impact Intermittent Streams ("IS") 16 and 19 more than widening to the east over this segment, it would avoid impacts to a major transmission line that parallels the east side of the roadway. Relocation of this type of large transmission line would be costly in terms of the construction cost, utility coordination time, and property displacements that would likely occur. It was deemed preferable to cause more impacts to the streams over this segment than to cause transmission line relocations, property displacements, and unknown further stream impacts as a result of the transmission line relocation.
- 8.) The Georgia aster was found at three locations on the project. The impacted Georgia aster area is 959 square ft (53%) out of a total 1,795 square ft identified on the project corridor, 895 square ft of which is very near the centerline of the alignment and cannot be avoided.

The pink lady's slipper was found at eight locations on the project. The impacted pink lady's slipper area for Alternative 1 is 5,390 square ft (68%) out of a total 7,932 square ft identified on the project corridor. Impacts to the areas at Stations 544+90, 546+50, and 550+00 could be reduced or avoided by offsetting the alignment further to the west, however this would cause further Waters of the US impacts to stream PS20. The pink lady's slipper impact at Sta. 620+35 could be reduced or avoided by offsetting the alignment further to the east, however, this would cause displacement of a residence at that location.

Because shifting of the Alternative 1 alignment to avoid impacts to the Georgia aster and pink lady's slipper cause either greater property displacements or increased impacts to Waters of the US, it was chosen to not to change the Alternative 1 alignment.

- 9.) During field surveys of the project alignment along existing SR 92 in September and October of 2011, several white oak (*Quercus alba*) trees over three inches in diameter at breast height with exfoliating bark, cracks, and crevices were observed in second growth forested areas within the project study area. These trees were located in areas of dense canopy cover and were determined to not receive adequate sun exposure to provide suitable summer roosting habitat for Indiana bat maternity colonies. The project study area does contain wooded riparian corridors and utility right-of-ways, in addition to these second growth forested tracts, that could

provide suitable roosting habitat for bachelor and non-reproductive female Indiana bats as well as suitable foraging and commuting habitat for this species. Additional acoustic and mist netting surveys have been scheduled for an upcoming survey season to determine whether Indiana bats are utilizing this roosting, foraging, and commuting habitat. Therefore, impacts to the Indiana bat for this alternative alignment along existing SR 92 cannot be assessed at this time.

The total impacts to Waters of the United States were estimated to be 2,670 linear feet of streams, 0 acres of wetlands, and 0 acres of open waters for Alternative 1. This data is provided in tabular format on page 16.

As compared to Alternatives 2 through 5 discussed below, Alternative 1 is the preferred alternative. This is in terms of the benefit of preserving and reusing the existing roadway infrastructure with the cost of displacing adjacent properties and impacting ecological and Section 4(f) resources. Relative impacts and benefits are discussed in the specific section for each alternative.

Alternative 2 – Widen Existing Alignment to the West Only

The widening of SR 92 to the west throughout the corridor is a rational approach as only two additional through lanes would need to be constructed while the existing lanes can be retained, thus reducing construction costs.

Impacts resulting from a widening to the west are, however, significant, as described below.

- 1.) Approximately 32 displacements (31 residential, 1 commercial) would occur, which would include 2 or 3 mobile homes and a power substation at Sta. 693+00.
- 2.) The Antioch Cemetery, located from Sta. 577+00 to Sta. 578+50 left would be encroached upon by a west expansion of the roadway. This encroachment would require acquisition of more right-of-way from the cemetery and possible construction of a cut retaining wall with a permanent easement for wall maintenance. The Antioch Cemetery is a Section 4(f) resource and is eligible for inclusion in the National Register of Historic Places.
- 3.) Approximately 2,400 linear feet (1.75 acres) of Pickett's Mill Battlefield frontage would have to be acquired as right-of-way for the project. Pickett's Mill Battlefield is a Section 4(f) resource, which straddles SR 92 immediately south of Pine Bluff Dr.
- 4.) Alternative 2 is shifted far enough to the west such that it does not impact the Section 4(f) property, Griffith Farm. Griffith Farm is located on the east side of SR 92 approximately 0.25 miles south of the Battle Gate Lane side road.
- 5.) Station range 680+00 to 695+00:

This station range is a complex segment of the project which must cross over two buffered streams (PS20 and PS22) near their confluence (west side) while navigating near to a pump station site (east side), a mobile home property (west side), and a power substation property (west side).

Approximately 38,665 square ft (0.90 acre)/620 linear ft of Pickett's Mill Creek and 7,840 square ft (0.18 acre)/175 linear ft of Pickett's Mill Creek's tributary would be impacted by this alternative.

The existing double 8 ft X 7 ft concrete box culvert over which SR 92 crosses stream PS20 is to be replaced with a natural bottom precast concrete arch culvert (24 ft wide x 6 ft high). The proposed arch culvert will provide for restoration of the stream bed and allow for fish passage at the crossing, which may improve the habitat for listed species of darter and mussels in the project area. Please see the introduction to this section for a brief summary of the Protected Aquatic Species Survey Report for this project.

- 6.) The Georgia aster was found at three locations on the project. The impacted Georgia aster area is 895 square ft (50%) out of a total 1,795 square ft identified on the project corridor. All of this impacted area is very near the centerline of the alignment and cannot be avoided.

The pink lady's slipper was found at eight locations on the project. The impacted pink lady's slipper area for Alternative 2 is 3,255 square ft (41%) out of a total 7,932 square ft identified on the project corridor. All pink lady's slipper impacts are minimized except for the one at Sta. 620+35. Shifting the Alternative 2 alignment to the east could avoid the impact at Sta. 620+35, however, this would in turn cause displacement of a residence at that location. It was chosen to leave the Alternative 2 as is instead of causing this displacement.

- 7.) During field surveys of the project alignment along existing SR 92 in September and October of 2011, several white oak trees over three inches in diameter at breast height with exfoliating bark, cracks, and crevices were observed in second growth forested areas within the project study area. These trees were located in areas of dense canopy cover and were determined to not receive adequate sun exposure to provide suitable summer roosting habitat for Indiana bat maternity colonies. The project study area does contain wooded riparian corridors and utility right-of-ways, in addition to these second growth forested tracts, that could provide both suitable roosting habitat for bachelor and non-reproductive female Indiana bats as well as suitable foraging and commuting habitat for this species. Additional acoustic and mist netting surveys have been scheduled for an upcoming survey season to determine whether Indiana bats are utilizing this roosting, foraging, and commuting habitat. Therefore, impacts to the Indiana bat for this alternative alignment along existing SR 92 cannot be assessed at this time.

The total impacts to Waters of the United States were estimated to be 2,900 linear feet of streams, 0.05 acres of wetlands, and 0 acres of open waters for Alternative 2. This data is provided in tabular format on page 17.

Because the number of property displacements, impacts to Waters of the US, and impacts to Section 4(f) resources are greater for this Alternative 2 than Alternative 1, Alternative 2 was not selected as the preferred alternative.

Alternative 3 – Widen Existing Alignment to the East Only

As with Alternative 2, the widening of SR 92 to the east would realize a reduction in construction cost by retaining the two existing lanes, which would be utilized as southbound lanes. Two additional northbound lanes would be constructed per the typical section.

The major impacts resulting from a widening to the east are as described below.

- 1.) Approximately 18 displacements (17 residential, 1 commercial) would occur. More displacements could occur depending on the disposition of the final profile and the resultant grade changes.
- 2.) An east expansion would avoid encroachment upon the Antioch Cemetery, located from Sta. 577+00 to Sta. 578+50 left, which translates to avoidance of right-of-way acquisition from the cemetery and eliminates the need for a cut retaining wall and permanent easement for wall maintenance. The Antioch Cemetery is a Section 4(f) resource and is eligible for inclusion in the National Register of Historic Places.
- 3.) Approximately 1,900 linear feet (1.10 acres) of Pickett's Mill Battlefield frontage would have to be acquired as right-of-way for the project. Pickett's Mill Battlefield is a Section 4(f) resource, which straddles SR 92 immediately south of Pine Bluff Dr.
- 4.) Approximately 1,450 linear feet (1.05 acres) of the Section 4(f) Griffith Farm SR 92 frontage would have to be acquired as right-of-way for the project. Griffith Farm is located on the east side of SR 92 approximately 0.25 miles south of the Battle Gate Lane side road.
- 5.) Station range 680+00 to 695+00:
This station range is a complex segment of the project which must cross over two buffered streams near their confluence (west side) while passing adjacent to a pump station site (east side), a mobile home property (west side), and a power substation property (west side). The Alternative 3 alignment is offset to the east, which minimizes impacts to this segment.

Approximately 32,475 square ft (0.75 acre)/530 linear ft of Pickett's Mill Creek and 8,600 square ft (0.17 acre)/165 linear ft of Pickett's Mill Creek's tributary would be impacted by Alternative 3.

The existing double 8 ft X 7 ft concrete box culvert over which SR 92 crosses stream PS20 is to be replaced with a natural bottom precast concrete arch culvert (24 ft wide x 6 ft high). The proposed arch culvert will provide for restoration of the stream bed and allow for fish passage at the crossing, which may improve the habitat for listed species of darter and mussels in the project area. Please see the introduction to this section for a brief summary of the Protected Aquatic Species Survey Report for this project.

The displacement of mobile homes and displacement of the power substation are avoided by offsetting the Alternative 3 alignment to the east.

- 6.) The Georgia aster was found at three locations on the project. The impacted Georgia aster area is 959 square ft (53%) out of a total 1,795 square ft identified on the project corridor, 895 square ft of which is very near the centerline of the alignment and cannot be avoided.

The pink lady's slipper was found at eight locations on the project. The impacted pink lady's slipper area for Alternative 3 is 2,310 square ft (29%) out of a total 7,932 square ft identified on the project corridor. Impacts to the areas at Stations 544+90, 546+50, and 550+00 could be

reduced or avoided by offsetting the alignment further to the west, however this would cause further Waters of the US impacts to stream PS20.

- 7.) During field surveys of the project alignment along existing SR 92 in September and October of 2011, several white oak trees over three inches in diameter at breast height with exfoliating bark, cracks, and crevices were observed in second growth forested areas within the project study area. These trees were located in areas of dense canopy cover and were determined to not receive adequate sun exposure to provide suitable summer roosting habitat for Indiana bat maternity colonies. The project study area does contain wooded riparian corridors and utility right-of-ways, in addition to these second growth forested tracts, that could provide both suitable roosting habitat for bachelor and non-reproductive female Indiana bats as well as suitable foraging and commuting habitat for this species. Additional acoustic and mist netting surveys have been scheduled for an upcoming survey season to determine whether Indiana bats are utilizing this roosting, foraging, and commuting habitat. Therefore, impacts to the Indiana bat for this alternative alignment along existing SR 92 cannot be assessed at this time.

The total impacts to Waters of the United States were estimated to be 2,600 linear feet of streams, 0 acres of wetlands, and 0 acres of open waters for Alternative 3. This data is provided in tabular format on page 17.

Although the impacts to Waters of the United States on Alternative 3 are 70 linear feet less than on Alternative 1, because of the greater number of property displacements (7 more) and greater impacts to Section 4(f) resources (1.15 acres more) as compared to Alternative 1, Alternative 3 was not selected as the preferred alternative.

Alternative 4 – New Location (East of Existing SR 92)

With the aim of finding an alignment that would avoid or decrease overall impacts to properties and resources, a new location alignment to the east of the existing roadway was considered. The Alternative 4 new location alignment begins at a point approximately 400 feet north of the CR 44/Holland Rd intersection. This alignment would divert to the northeast, turn to the north, generally parallel the existing SR 92 for approximately 1,000-1,500 feet to the east of the existing SR 92, turn to the northwest and continue until it ties back to existing SR 92, approximately 2,500 ft north of Pine Bluff Rd. Alternative 4 crosses through a combination of undeveloped wooded terrain and residential subdivisions. Please see the Figure 1 Alternatives Map for a graphical representation of the Alternative 4 new location alignment considered in this report.

Alternative 4 would avoid impacts to the Section 4(f) resources, Pickett's Mill Battlefield and Griffith Farm. Due to the lack of a historic resource field survey along Alternative 4, it is not possible to determine the extent of impacts to Section 4(f) resources on this alternative and compare those impacts to the other alternatives.

A review of the National Wetlands Inventory revealed no wetlands impacts and no open waters impacts on Alternative 4. While Alternative 4 decreases impacts to Pickett's Mill Creek (PS20) and its tributary (PS22), it does still cross both of these streams upstream of the existing SR 92 crossings.

Alternative 4 adds the following impacts:

- 1.) Based on a review of aerial photography, it causes a total of 45 property displacements (44 residential, 1 commercial) because of the subdivisions that the new alignment segment crosses through. This is 44 more displacements than occur on Alternative 1.
- 2.) It adds a new stream crossing at Little Allatoona Creek.

The total impacts to Waters of the US on Alternative 4 was estimated to be 1,500 linear feet (45,000 square feet). Impacts to Waters of the US on Alternative 4 are based upon a desktop review of USGS topographic quadrangle maps (QUAD maps) and the National Wetlands Inventory. A ground survey for Waters of the US is required to determine actual impacts to streams, wetlands and open waters.

Due to a lack of field survey data for this offsite alternative alignment, no preliminary habitat assessment for Indiana bats can be provided and an accurate comparison of the potential impacts to the Georgia aster and pink lady's slipper cannot be done between Alternative 4 and Alternatives 1 through 3.

The Alternative 4 new location alignment is approximately 1,900 feet longer than Alternatives 1 through 3. Approximately 2.95 miles (half of the Alternative 4 length) would require construction of a full-depth pavement section across all four lanes as no existing pavement section is available for salvage on this segment. Additionally, a full 120 foot width of right-of-way would have to be purchased on the new alignment segment of Alternative 4 as opposed to the 20 or 30 ft additional right-of-way width required for Alternatives 1 through 3.

Because of the much greater increase in property displacements, increase in quantity of required right-of-way, and increase in pavement construction quantities as compared to Alternatives 1 through 3, Alternative 4 was not selected as the preferred alternative.

Alternative 5 – New Location (West of Existing SR 92)

With the aim of finding an alignment that would avoid or decrease property displacements, and impacts to environmental and Section 4(f) resources, an alternative alignment to the west of the existing roadway was considered. Beginning at a point approximately 620 feet north of the SR 120/Marietta Highway intersection, the Alternative 5 alignment would go off of the existing SR 92 alignment and continue to the northwest for approximately 0.65 mile until it curves more to the northwest and connects with the existing East Paulding Dr alignment. It would continue on East Paulding Dr for approximately 2.5 miles until it curves to the northeast along a new location alignment and merges into the existing SR 381/Dallas Acworth Highway alignment. It would then follow the existing SR 381 alignment for approximately 3.83 miles until it returns to the existing SR 92 alignment at the intersection of SR 92 and CR 473/Cedarcrest Rd. Alternative 5 is a total of approximately 7.1 miles in length and consists of 6.0 miles of widening on existing alignments and 1.1 miles of new alignments. This is 1.44 miles longer than Alternatives 1 through 3.

Full depth construction would be required across the entire typical section for the approximately 1.1 miles of new location segments of Alternative 5. The new location segments cross through a combination of suburban housing developments, retail developments, and undeveloped wooded terrain. See the Figure 1 Alternatives Map for a graphical representation of the Alternative 5 new location alignment considered in this report.

Alternative 5 is approximately 1.44 miles longer than Alternatives 1 through 3 and does nothing to

address the need and purpose of the project (i.e., increase the Level of Service and improve safety of the SR 92 corridor) between SR 120/Marietta Highway and CR 473/Cedarcrest Rd.

As an entirely different alignment than the existing SR 92, Alternative 5 would avoid most of the impacts that would occur on Alternatives 1 through 3. However, multiple new impacts would occur on Alternative 5 as listed below.

- 1.) Based on a desktop review of aerial photography, it causes a total of 37 property displacements (35 residential, 1 commercial, 1 institutional). This is a result of the increase in overall length of the project and the fact that approximately 1.1 miles of Alternative 5 is new location alignment. It appears that one of the properties impacted would be East Paulding Middle School, where one or two school buildings would be in the path of the corridor.
- 2.) Alternative 5 requires the acquisition of a new full 120' width of right-of-way corridor 1.1 miles in length as opposed to the 20 to 30 ft of additional width required for Alternatives 1 through 3.
- 3.) Six (6) crossings of Waters of the US, including Powders Spring Creek, Possum Creek, and Pickett's Mill Creek and three associated tributaries, are indicated by a review of the 2011 Lost Mountain, Dallas, and Burnt Hickory USGS topographic quadrangle maps. The total length of impacts to Waters of the US on Alternative 5 was estimated to be 2,000 linear feet (60,000 square feet), assuming each crossing is perpendicular to the stream.
- 4.) A review of the National Wetlands Inventory revealed no wetlands impacts and one open water impact (0.05 acres) on Alternative 5.

Due to the lack of a historic resource field survey along Alternative 5, it is not possible to determine the extent of impacts to Section 4(f) resources on this alternative and compare those impacts to the other alternatives.

Impacts to Waters of the US on Alternative 5 are based upon a desktop review of USGS topographic quadrangle maps (QUAD maps) and the National Wetlands Inventory. A ground survey for Waters of the US is required to determine actual impacts to streams, wetlands and open waters.

Due to a lack of field survey data for this offsite alternative alignment, no preliminary habitat assessment for Indiana bats can be provided and a comparison of the potential impacts to the Georgia aster and pink lady's slipper cannot be done between Alternative 5 and Alternatives 1 through 3.

Alternative 5 was not selected as the preferred alternative for the following reasons:

- 1) It causes more property displacements than Alternatives 1 through 4.
- 2) More right-of-way must be purchased for Alternative 5 than Alternatives 1 through 4.
- 3) More new pavement is required for construction as compared to Alternatives 1 through 4.
- 4) Alternative 5 does not improve the level of service on the SR 92 corridor, which is the primary need and purpose of the project, and may increase congestion on East Paulding Drive and SR 381.

ECOLOGICAL IMPACTS OF ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
Site Number	Wetland Area (acres)	Open Water Area (acres)	Stream Length (linear feet)
Perennial Stream	PS1		185
Wetland	W2	0	
Perennial Stream	PS3 (Trib to Powder Springs Creek)		235
Ephemeral Stream	EC4		260
Ephemeral Stream	EC5		0
Perennial Stream	PS6		0
Intermittent Stream	IS7		0
Wetland	W8	none	
Stream	EC9		0
Stream	EC10		0
Intermittent Stream	IS11		0
Stream	EC12		0
Open Water	OW13	none	
Stream	EC14		0
Stream	EC15		10
Intermittent Stream	IS16		215
Stream	EC17		450
Ephemeral Stream	EC18		0
Intermittent Stream	IS19		95
Perennial Stream	PS20 (Pickett's Mill Creek)		580
Perennial Stream	PS21		0
Perennial Stream	PS22 (Trib to Pickett's Mill Creek)		165
Open Water	OW23	none	
Wetland	W24	none	
Perennial Stream	PS25		430
Ephemeral Stream	EC26		40
Ephemeral Stream	EC27		0
Ephemeral Stream	EC28		5
Ephemeral Stream	EC29		0
Ephemeral Stream	EC30		0
Ephemeral Stream	EC31		0
Ephemeral Stream	EC32		0
TOTAL:	Wetland Area 0 acres	Open Water Area 0 acres	Streams 2,670 feet

*NOTE: URS Corporation, in its representations of preliminary concepts, strives to show, as nearly as possible, the route and right-of-way requirements of projects. Because of the preliminary nature of these location studies, certain information cannot be finalized until completion of the design stage of GDOT's project development process. In areas where existing facilities are to be improved and are in need of vertical and/or horizontal re-alignment, URS Corporation takes a conservative approach to quantifying impacts, in anticipation of a reduction of these impacts and right-of-way requirements at the detailed design stage.

See the below table for a list of impacts to various project resources for each alternative. A worst-case scenario approach was taken when conducting a desktop review of displacements and impacts on Alternatives 4 and 5.

ALTERNATIVES SUMMARY TABLE						
ALTERNATIVE ID →	1	2	3	4	5	
Length	5.67 miles	5.67 miles	5.67 miles	5.91 miles	7.1 miles	
Typical Section	4 lanes, 20 ft raised grass median					
Design Speed	45 MPH					
Displacements						
Residential	10 (approx.)	31 (approx.)	17 (approx.)	44 ⁽¹⁾	35 ⁽¹⁾	
Businesses	1 (approx.)	1 (approx.)	1 (approx.)	1 ⁽¹⁾	1 ⁽¹⁾	
Institutional	0	0	0	0 ⁽¹⁾	1 ⁽¹⁾	
Waters of the United States (streams)						
# of Impacts	12	11	11	5 ⁽²⁾	6 ⁽²⁾	
Total Length Impacted	2,670 feet	2,900 feet	2,600 feet	1,500 feet ⁽²⁾	2,000 feet ⁽²⁾	
Total Area Impacted	2.10 acres	2.28 acres	2.04 acres	1.04 acres ⁽²⁾	1.38 acres ⁽²⁾	
Wetlands						
# of Impacts	0	1	0	0 ⁽³⁾	0 ⁽³⁾	
Total Area Impacted	0 acres	0.05 acres	0 acres	0 acres ⁽³⁾	0 acres ⁽³⁾	
Open Waters						
# of Impacts	0	0	0	0 ⁽³⁾	1 ⁽³⁾	
Total Area Impacted	0 acres	0 acres	0 acres	0 acres ⁽³⁾	0.05 acres ⁽³⁾	

ALTERNATIVES SUMMARY TABLE (continued)						
ALTERNATIVE ID →	1	2	3	4	5	
Georgia Aster						
# of Impacts	2	2	2	unknown ⁽⁴⁾	unknown ⁽⁴⁾	
Total Area on Project	1,020 sq. ft.	1,020 sq. ft.	1,020 sq. ft.	unknown ⁽⁴⁾	unknown ⁽⁴⁾	
Total Area Impacted	959 sq. ft. (53%)	895 sq. ft. (50%)	959 sq. ft. (53%)	unknown ⁽⁴⁾	unknown ⁽⁴⁾	
Pink Lady's Slippers						
# of Impacts	5	5	4	unknown ⁽⁴⁾	unknown ⁽⁴⁾	
Total Area on Project	7,932 sq. ft.	7,932 sq. ft.	7,932 sq. ft.	unknown ⁽⁴⁾	unknown ⁽⁴⁾	
Total Area Impacted	5,390 sq. ft. (68%)	3,255 sq. ft. (41%)	2,310 sq. ft. (29%)	unknown ⁽⁴⁾	unknown ⁽⁴⁾	
Pickett's Mill Battlefield (Section 4(f) Resource)						
# of Impacts	1	1	1	0 ⁽⁵⁾	0 ⁽⁵⁾	
Total Area Impacted	1.0 acres	1.75 acres	1.10 acres	0 ⁽⁵⁾	0 ⁽⁵⁾	
Griffith Farm (Section 4(f) Resource)						
# of Impacts	0	0	1	0 ⁽⁵⁾	0 ⁽⁵⁾	
Total Area Impacted	0	0	1.05 acres	0 ⁽⁵⁾	0 ⁽⁵⁾	

- (1) Property displacements were estimated for Alternatives 4 and 5 based upon a desktop review of recent aerial photography.
- (2) Impact estimates for Waters of the United States on Alternatives 4 and 5 are based upon a desktop review of USGS topographic quadrangle maps (QUAD Maps).
- (3) Wetlands and Open Waters impact estimates for Alternatives 4 and 5 are based upon a desktop review of the National Wetlands Inventory (NWI) of the US Fish and Wildlife Service (USFWS), available at <http://www.fws.gov/wetlands/Data/Mapper.html>, and USGS topographic quadrangle maps (QUAD Maps).
- (4) It is necessary to conduct a field survey to determine impacts to the Georgia aster and pink lady's slipper on Alternatives 4 and 5.
- (5) It is necessary to conduct historic resource field surveys to determine the extent of impacts to Section 4(f) resources on Alternatives 4 and 5.

RECOMMENDATIONS: Alternative 1 is the recommended best alternative because it provides the needed additional capacity and improved safety while minimizing impacts to Section 4(f) resources, adjacent properties, and environmental resources.

ATTACHMENTS: Figure 1 – Alternatives Map
Dwg. No. 05-001 - Typical Section
Dwg. Nos. 13-001 through 13-022 – Project Plan Sheets
Figures 4a through 4j - Waters of the U.S. Location Maps

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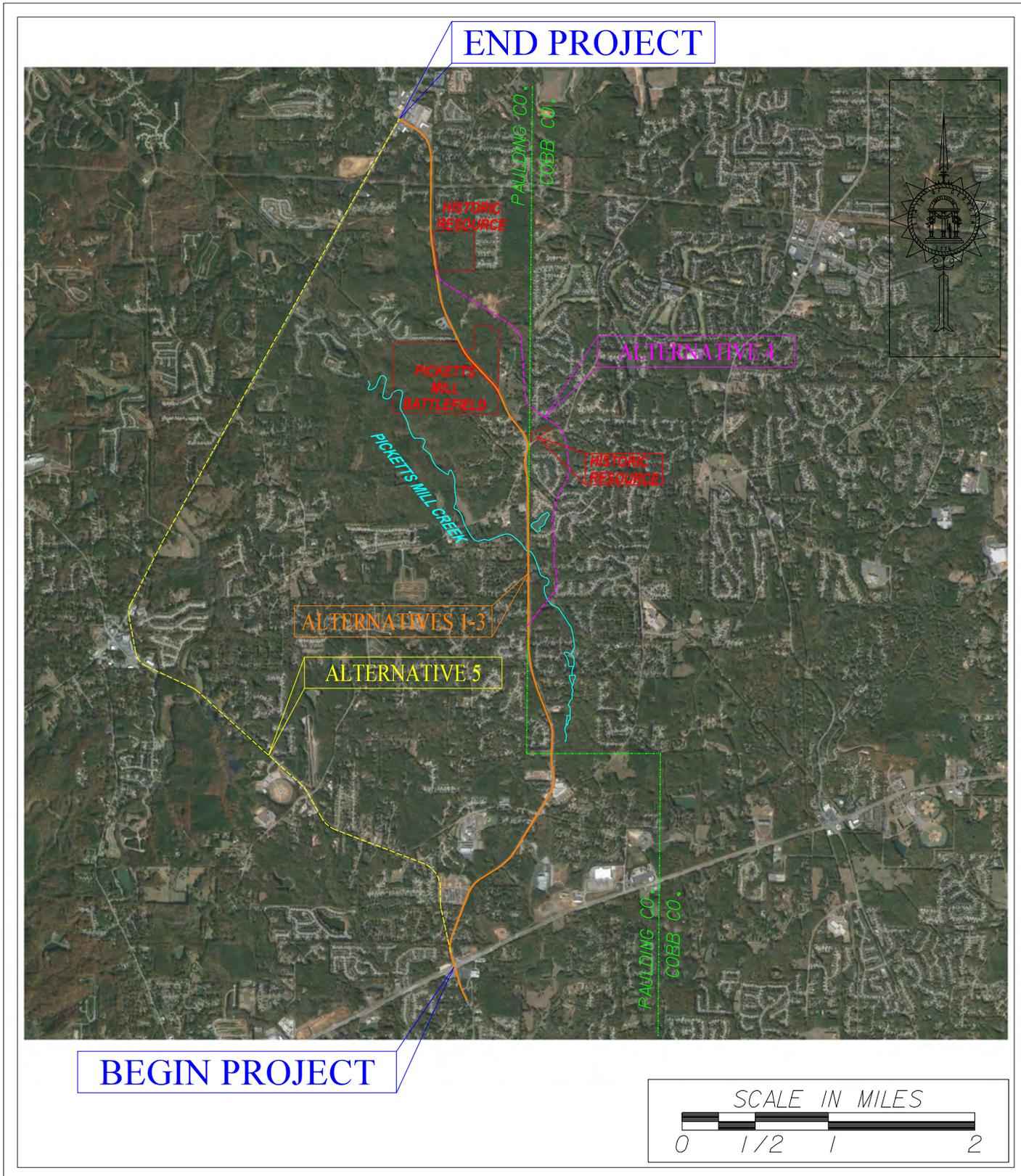


FIGURE 1

ALTERNATIVES MAP
 SR 92 From SR 120 To CR 473/ Old Burnt Hickory
 Project No. CSSTP-0007-00(692)
 PI No. 0007692