

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

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

FILE P.I. # 0009164 **OFFICE** Design Policy & Support
CSSTP-0009-00(164)
Cherokee County
GDOT District 6 - Cartersville **DATE** 5/15/2013
SR 20 from I-575 to CR 281/Scott Road

FROM *Keith Posey*
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

DISTRIBUTION:

Bobby Hilliard, Program Control Administrator
Genetha Rice-Singleton, State Program Delivery Engineer
Glenn Bowman, State Environmental Administrator
Cindy VanDyke, State Transportation Planning Administrator
Kathy Zahul, State Traffic Engineer
Angela Robinson, Financial Management Administrator
Lisa Myers, State Project Review Engineer
Charles "Chuck" Hasty, State Materials Engineer
Mike Bolden, State Utilities Engineer
Paul Tanner, Asst. State Transportation Data Administrator
Attn: Systems & Classification Branch
Ken Thompson, Statewide Location Bureau Chief
Andy Casey, State Roadway Design Engineer
Attn: David Ray, Design Group Manager
Dewayne Comer, District Engineer
Michael Haithcock, District Preconstruction Engineer
Kerry Bonner, District Utilities Engineer
Karyn Matthews, Project Manager
BOARD MEMBER - 11th Congressional District

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
PROJECT CONCEPT REPORT**

Project Type: <u>Widening</u>	P.I. Number: <u>0009164</u>
GDOT District: <u>6</u>	County: <u>Cherokee</u>
Federal Route Number: <u>None</u>	State Route Number: <u>20</u>

Widening of SR 20 from I-575 to CR 281/Scott Road

Submitted for approval: 12/17/2012

<u>Michael H. [Signature]</u> District 6 Preconstruction Engineer	<u>12-18-12</u> DATE
<u>[Signature]</u> Program Delivery Engineer	<u>12/20/2012</u> DATE
<u>[Signature]</u> GDOT Project Manager	<u>12-19-12</u> DATE

Recommendation for approval:

<u>GLENN BOWAN</u> *TJ Program Control Administrator	DATE <u>1/1/2013</u>
<u>LISA MYERS</u> *TJ State Environmental Administrator	DATE <u>1/3/2013</u>
<u>PATRICK ALLEN</u> *TJ Project Review Engineer	DATE <u>1/16/2013</u>
<u>KATHY ZAHUL</u> *TJ State Utilities Engineer	DATE <u>1/25/2013</u>
State Traffic Engineer	DATE

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Plan (RTP) and/or the State Transportation Improvement Program (STIP).

<u>Cynthia L. [Signature]</u> State Transportation Planning Administrator	<u>1-3-13</u> DATE
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** RECOMMENDATIONS ON FILE*

PROJECT LOCATION



PLANNING & BACKGROUND DATA

Project Justification Statement: This project originated in response to the commercial and residential development that is occurring around the I-575 @ SR 20 interchange. The development is currently being developed on SR 20 (along the south side of the corridor) between Scott Rd and I-575. The mixed-use development is underway and will contain 2.6 million square feet of office, commercial and medical space (including a new hospital), along with a maximum of 670 residential units. This project was broken out of an operational project (climbing lanes along SR 20), as this is a capacity adding project, in 2008 after meeting with District Six and FHWA.

Currently, the Average Annual Daily Traffic (AADT) is 25,590 on Cumming Highway/SR 20 between Scott Road and Interstate 575. The current Level of Service (LOS) ranges from F on the two lane segment of Cumming Highway from Governor's Walk to Scott Road to B on the four lane segment between I-575 and Governor's Walk. The future no build volumes are projected at 50,665 AADT and Level of Service E or worse, on the two lane section.

The crash rates for the section of SR 20 were above the statewide average, for a similar functional classification of road (Urban Principal Arterial), in 2009. However for 2008 and 2007 the crash rates were below the statewide average.

The Office of Planning recommends that the western project limit for this project be Governor's Walk. This is suitable because the project would tie into an existing four lane. The eastern terminus for the

project is proposed to terminate at Scott Road, to accommodate the Canton Place development to the west of Scott Road. Scott Road is proposed as a project limit, because it connects to a state route facility to the south (SR 140), is near the eastern limits of the mixed-use development, and is where land use transitions from mixed use to residential.

The goal of this project is to alleviate traffic congestion along SR20/Cumming Highway between Interstate 575 and Scott Road and to accommodate current and future travel demand as a result of development west of Scott Road.

Description of the proposed project: The proposed project will widen SR 20 to four lanes with a 20' raised median in central Cherokee County, partially in the City of Canton. The project begins 0.34 miles east of I-575 in the City of Canton and ends 0.15 miles east of CR 281/Scott Road.

Federal Oversight: Full Oversight Exempt State Funded Other

MPO: Atlanta TMA

MPO Project ID: CH-020A3

Regional Commission: Atlanta Regional Commission

RC Project ID: CH-020A3

Congressional District(s): 6

Projected Traffic:

Current Year (2012): 24,120 Open Year (2016): 29,950 Design Year (2036): 43,600

Functional Classification (Mainline): Urban Principal Arterial

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: Two separate locations have been designated as historical sites by the State of Georgia. Also, the recent completion of the interchange improvements at I-575 (outside the scope the current project) has required an air-quality review from the State of Georgia. (See Environmental Data).

This project was also designed in conjunction with Sembler Corp, who massively re-worked the south end on the western edge of the project before construction began, and the city of Canton, who has been involved in the streetscape of the newly widened interchange.

Context Sensitive Solutions: Both historical parcels will be left as undisturbed as possible and any disturbance will be mitigated in accordance with GDOT and State policy guidelines. A retaining wall has been placed on one of the parcels. (See Environmental Data).

The proposed R/W with Sembler Corp was set so that GDOT construction would not encroach upon newly built frontage on SR 20.

DESIGN AND STRUCTURAL DATA

Mainline Design Features:

Roadway Name/Identification: State Route 20/Cumming Hwy

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	4	4
- Lane Width(s)	12'	11'-12'	12'
- Median Width & Type	-	20' raised	20' raised
- Outside Shoulder Width & Type	10' grass & 12' paved w/ sidewalk	-	15' Curb & Gutter w/ sidewalk
- Outside Shoulder Slope	4:1 max	-	2:1 max
- Inside Shoulder Width & Type	-	-	-
- Sidewalks	-	5'	6'
- Auxiliary Lanes	12'	-	12'
- Bike Lanes	-	4'	-
Posted Speed	45		45
Design Speed	-	45	45
Min Horizontal Curve Radius	895'	711'	895'
Superelevation Rate		4%	4%
Grade		7%	6.23%
Access Control	By Permit	By Permit	By Permit
Right-of-Way Width	100' maximum	-	165' maximum
Maximum Grade – Crossroad		16%	14%
Design Vehicle		WB-62	WB-62

*According to current GDOT design policy if applicable

Side Road Design Features:

Roadway Name/Identification: Old Doss Road/CR 184

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	2	2
- Lane Width(s)	11'	11'-12'	12'
- Median Width & Type	0	-	12' raised
- Outside Shoulder Width & Type	4' maximum	8' overall 2' paved	8' overall 2' paved
- Outside Shoulder Slope	Constant Variation	2:1/4:1	2:1 max
- Inside Shoulder Width & Type	-	-	-
- Sidewalks	-	-	-
- Auxiliary Lanes	-	-	12'
- Bike Lanes	-	-	-
Posted Speed	25		25
Design Speed	-	35	35
Min Horizontal Curve Radius	566'	340'	340'
Superelevation Rate	-	6%	6%

Grade	6.25%	13%	10.71%
Access Control	By Permit	By Permit	By Permit
Right-of-Way Width	100' maximum	-	165' maximum
Maximum Grade – Crossroad		-	-
Design Vehicle		SU	

*According to current GDOT design policy if applicable

Roadway Name/Identification: Scott Road/CR 281

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	2	2
- Lane Width(s)	12'	11'-12'	12'
- Median Width & Type	0	-	0
- Outside Shoulder Width & Type	3'-4' unpaved	8' overall 2' paved	8' overall 2' paved
- Outside Shoulder Slope	4:1	2:1/4:1	2:1 max
- Inside Shoulder Width & Type	-	-	-
- Sidewalks	-	-	-
- Auxiliary Lanes	-	-	12'
- Bike Lanes	-	-	-
Posted Speed	35		35
Design Speed	-	35	35
Min Horizontal Curve Radius	566'	340'	340'
Superelevation Rate	-	6%	6%
Grade	6.25%	13%	6.47%
Access Control	By Permit	By Permit	By Permit
Right-of-Way Width	100' maximum	-	165' maximum
Maximum Grade – Crossroad		-	-
Design Vehicle		SU	

*According to current GDOT design policy if applicable

Major Structures: N/A

Major Interchanges/Intersections: Intersection with Scott Road will include the re-alignment of Scott Road to intersect at a 90 degree angle.

Intersection with Canton Marketplace Blvd will include the re-alignment of Old Doss Road to create a 90 degree four-way intersection.

Utility Involvements:

- Atlanta Gas Light – Natural Gas
- Cherokee County Water & Sewage – Water
- City of Canton – Water
- Comcast Communications – Cable
- Georgia Power Company – Electrical Distribution
- Windstream Communications - Telecom

Public Interest Determination Policy and Procedure recommended (Utilities)? YES NO

SUE Required: Yes No

Railroad Involvement: None

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

Warrants met: None Bicycle Pedestrian Transit

Right-of-Way:

Required Right-of-Way anticipated: YES NO Undetermined

Easements anticipated: Temporary Permanent Utility* Other

* Potential utility easements based on outcome of Public Interest Determination recommendation.

Anticipated number of impacted parcels: 57
 Anticipated number of displacements (Total): 3
 Businesses: 1
 Residences: 2
 Other: 0

Location and Design approval: Not Required Required

Off-site Detours Anticipated: No Yes Undetermined

Transportation Management Plan Anticipated: YES NO
 If Yes: Project classified as: Non-Significant Significant
 TMP Components Anticipated: TTC TO PI

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

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

Design Variances to GDOT standard criteria anticipated:

GDOT Standard Criteria	Reviewing Office	YES	Appvl Date (if applicable)	NO	Undetermined
1. Access Control	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Median Opening Spacing					
2. Median Usage & Width	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Intersection Skew Angle	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Lateral Offset to Obstruction	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Intersection Sight Distance	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Bike & Pedestrian Accommodations	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. GDOT Drainage Manual	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Georgia Standard Drawings	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. GDOT Bridge & Structural Manual	Bridge Design	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Roundabout Illumination	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Rumble Strips	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Safety Edge	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>

VE Study anticipated: No Yes Completed – Date: October 31, 2008

ENVIRONMENTAL DATA

Anticipated Environmental Document:

GEPA: NEPA: Categorical Exclusion EA/FONSI EIS

Air Quality:

Is the project located in a PM 2.5 Non-attainment area? No Yes
 Is the project located in an Ozone Non-attainment area? No Yes
 Is a Carbon Monoxide hotspot analysis required? No Yes

The current ARC Air Quality Model for SR 20 between I-575 and Scott Road shows four through lanes in the Network Year 2016.

Environmental Permits/Variations/Commitments/Coordination anticipated:

Permit/ Variance/ Commitment/ Coordination Anticipated	YES	NO	Remarks
1. U.S. Coast Guard Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Forest Service/Corps Land	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. CWA Section 404 Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Nationwide 14 needed for 0.033 acre of ephemeral stream impact.
4. Tennessee Valley Authority Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Buffer Variance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6. Coastal Zone Management Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. NPDES	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Needed for disturbing one acre or more of land.
8. FEMA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9. Cemetery Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Other Permits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11. Other Commitments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Please see the green sheet.
12. Other Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Is a PAR required? No Yes Completed – Date:

NEPA/GEPA: The first review of the consultant’s Draft Environmental Assessment (DEA) document was completed the week of April 23, 2012. The consultant is in the process of revising the DEA per GDOT comments. Re-submittal of the DEA is pending ecology update for Indiana bat and revised air and noise study reports (prepared in-house by OES) based on new traffic received in May 2012. Two historic resources are present within the project’s corridor; however, there is no 4f issue.

Ecology: Phase 1 and Phase 2 ecology surveys were completed. The result determined there would be 0.033 acre of ephemeral stream impact, requiring a Nationwide 14 Section 404 permit. In addition, no stream buffer or threatened/endangered species issues are present. An Ecology update is underway for the Indiana Bat survey, which was performed in August 2012.

History: Two eligible historic properties, the Judge Howell Brooke House and the Weaver House, exist within the project’s corridor on the north side of the roadway and opposite ends of the project. As the project’s design now stands it has been determined the project would have no adverse effect on either of these resources. The State Historic Preservation Officer (SHPO) concurred with these findings in letters dated February 8, 2012, and March 22, 2012. Any change in the project’s design will require a reassessment of effects to these resources.

Archeology: No archaeology sites present within the project’s corridor.

Air & Noise: A type 1 assessment for air and noise was completed for this project and the report approved on November 8, 2011. No mitigation measures are required. Update performed over the summer, revised reports pending.

Public Involvement: A public meeting has not been held for this project. A Public Hearing Open House (PHOH) will be held once the DEA has been approved.

Major stakeholders: Major stakeholders include the traveling public, businesses along the project’s corridor, and utility companies.

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: None

Early Completion Incentives recommended for consideration: No Yes

PROJECT RESPONSIBILITIES

Project Activities:

Project Activity	Party Responsible for Performing Task(s)
Concept Development	District 6 Design
Design	District 6 Design
Right-of-Way Acquisition	GDOT
Utility Relocation	GDOT Contractor
Letting to Contract	GDOT
Construction Supervision	GDOT
Providing Material Pits	GDOT Contractor

Providing Detours	N/A
Environmental Studies, Documents, & Permits	Dist. 6 Environmental, Consultant & GDOT In-house
Environmental Mitigation	GDOT
Construction Inspection & Materials Testing	GDOT

Lighting required: No Yes

Initial Concept Meeting: (N/A) Site transferred from PI: 632790 & concept split out.

Concept Meeting: None. PI: 632790 Concept Meeting was in 2007.

Other projects in the area: PI: 632790, SR 20 Truck Climbing Lanes; PI: 0003681, Widening SR20 from I-575 to SR 369.

Other coordination to date: Sembler Corp, 2008-10.

Project Cost Estimate and Funding Responsibilities:

	Breakdown of PE	ROW	Utility**	CST*	Environmental Mitigation	Total Cost
By Whom	GDOT	GDOT	GDOT	GDOT	GDOT	
\$ Amount	\$318,362.40	\$7,276,000	\$1,730,750	\$5,411,000	\$2,000 <i>T.J.</i> <i>\$5,000</i>	\$14,834,926.40 <i>T.J.</i> <i>\$14,837,926.40</i>
Date of Estimate	1/10/2012	2/2/2012	5/23/2012	1/28/2013	5/1/2012 <i>5/8/2013</i>	

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

** Utility Cost includes the cost if the City of Canton and Cherokee County Water & Sewer were to apply for utility assistance for the relocation of their facilities.

ALTERNATIVES DISCUSSION

Alternative selection: There were three alternatives considered. First was the truck climbing lanes, which was a part of a previous project. This alternative was abandoned when the Canton Marketplace Complex began construction and the alternative to widening to four lanes was discussed. The other is the no-build alternative.

Preferred Alternative: 4 lane widening				<i>\$14,837,926.40</i>
Estimated Property Impacts:	57	Estimated Total Cost:	\$14,834,926.40	<i>T.J.</i>
Estimated ROW Cost:	\$7,276,000.00	Estimated CST Time:	24 months	
Rationale: This will meet the needs of this developed area. The new development was built with set-backs for this a future 4-lane facility.				

Alternative 1: Truck Climbing Lanes			
Estimated Property Impacts:	58	Estimated Total Cost:	\$11,410,000.00
Estimated ROW Cost:	\$6,800,000.00	Estimated CST Time:	24 months
Rationale: This was the original plan as part of STP-012-1(107) PI: 632790 before the construction of the			

Canton Marketplace complex drastically changed the AADT & caused PI: 0009164 to be created to add the additional lanes.

No-Build Alternative: This alternative would have left things exactly as they are.			
Estimated Property Impacts:	0	Estimated Total Cost:	0
Estimated ROW Cost:	0	Estimated CST Time:	0
Rationale: <i>Leaving the road as is, was deemed an insufficient response due to the expected increase in the Current Year (2012) AADT of 24,120 vehicles to the Design Year (2037) AADT of 43,600 vehicles from both the I-575 interchange improvements and the construction of the Canton Marketplace development. With this increase in AADT expected in the next 25 years, construction was justified.</i>			

Comments: The concept for this site location was approved originally as part of STP00-0012-01(107), PI: 632790. With the project broken off on to its own section, this concept has been re-done to show the PI: 0009164 construction process. However, the Concept for PI: 632790 is a valuable reference resource as well.

Attachments:

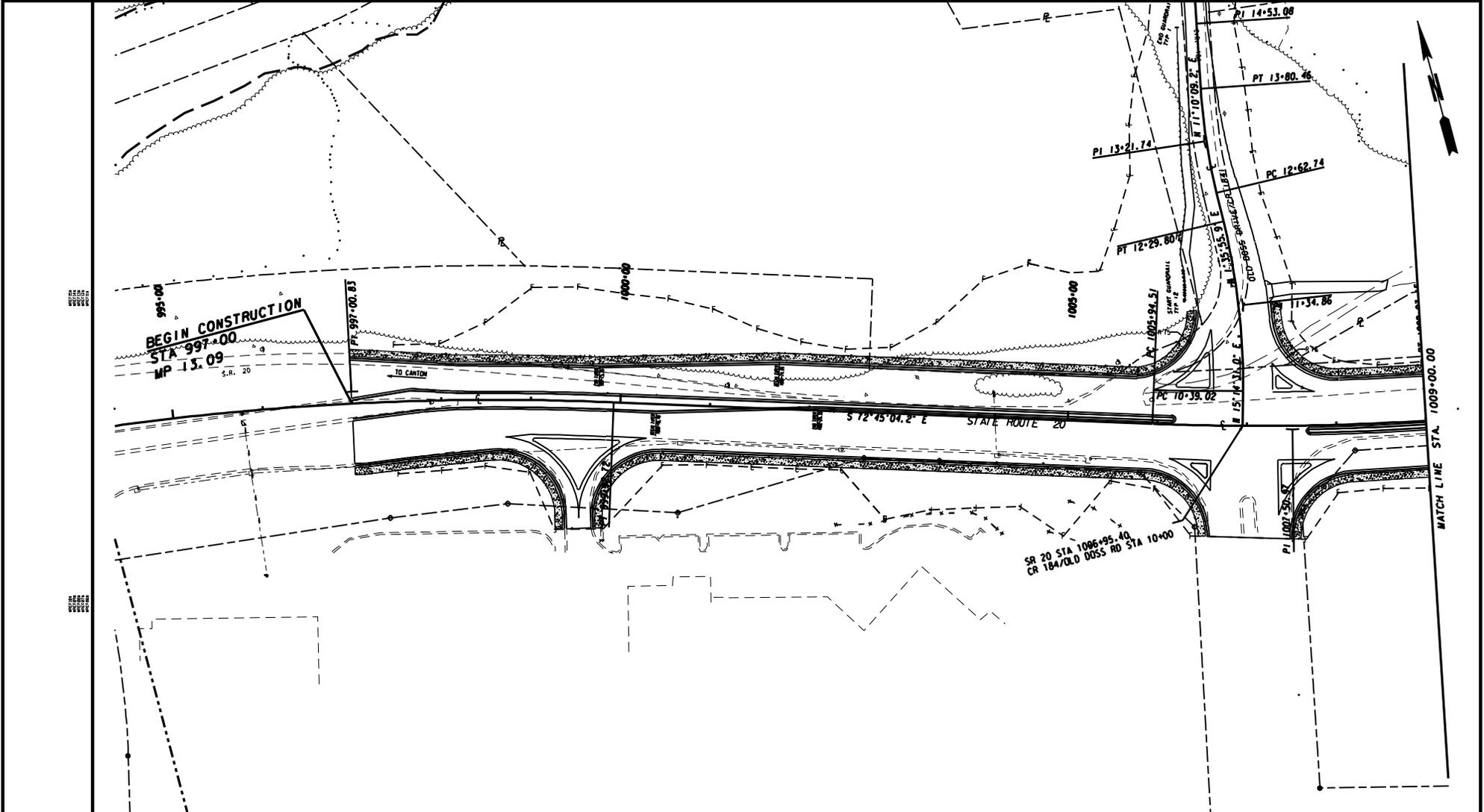
1. Concept Layout
2. Typical sections
3. Detailed Cost Estimates:
 - a. Construction including Engineering and Inspection
 - b. Completed Fuel & Asphalt Price Adjustment forms
 - c. Right-of-Way
 - d. Utilities
4. Traffic diagrams
5. Capacity analysis summary
6. Pavement studies
7. Conforming plan's network schematics showing thru lanes.
8. VE Study Implementation Letter

APPROVALS

Concur: *[Signature]* 4/16/13
Director of Engineering

Approve: *[Signature]*
Chief Engineer

5/13/13
Date



PROPERTY AND EXISTING R/W LINE ---R---
 REQUIRED R/W LINE ---C---
 CONSTRUCTION LIMITS ---F---
 EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES [Hatched Box]
 EASEMENT FOR CONSTR OF SLOPES [Cross-hatched Box]
 EASEMENT FOR CONSTR OF DRIVES [X-hatched Box]

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

GEORGIA
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 OF
 TRANSPORTATION

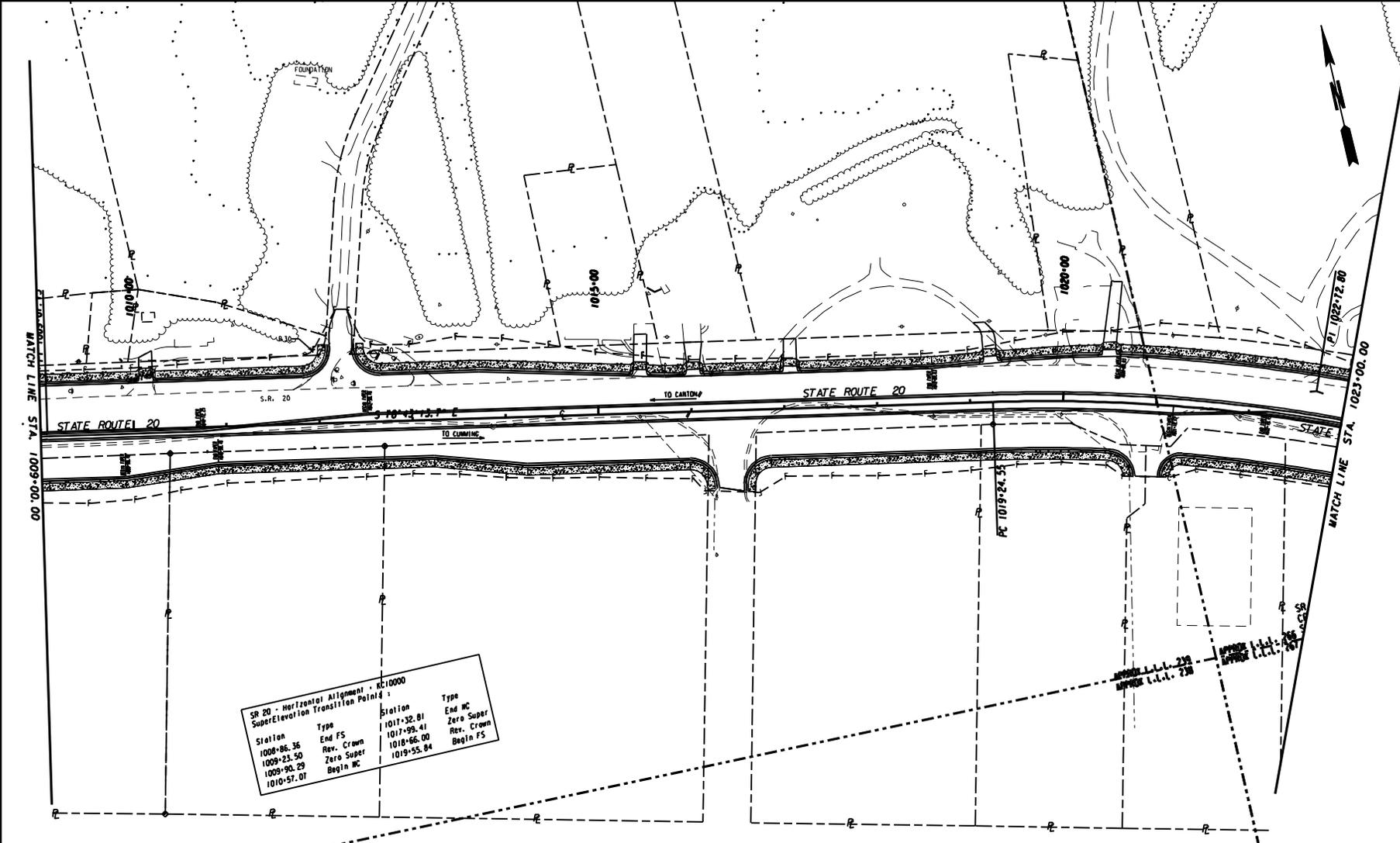


REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:

MAINLINE PLAN

DRAWING NO.
13-1



SR 20 - Horizontal Alignment - R=10000
 SuperElevation Transition Point 4

Station	Type	Station	Type
1008+86.36	End FS	1017+32.81	End MC
1009+23.50	Rev. Crown	1017+99.41	Zero Super
1009+90.29	Zero Super	1018+66.00	Rev. Crown
1010+57.01	Begin MC	1019+55.84	Begin FS

PROPERTY AND EXISTING R/W LINE ---P---
 REQUIRED R/W LINE ---R---
 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 ---M---

GEORGIA
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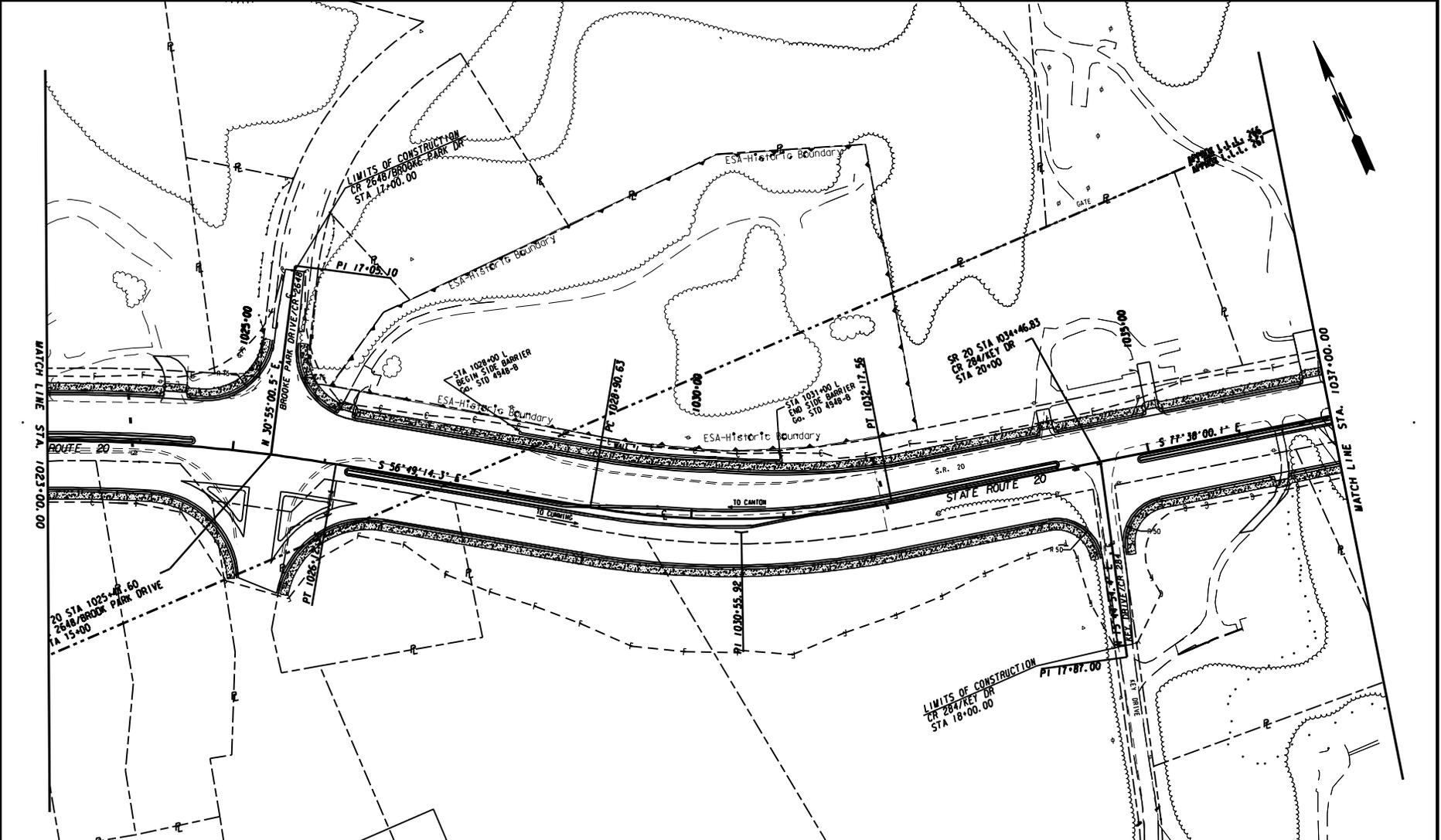


REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:

MAINLINE PLAN

DRAWING NO.
13-2



PROPERTY AND EXISTING R/W LINE --- R ---
 REQUIRED R/W LINE --- G --- F ---
 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 ---|---|

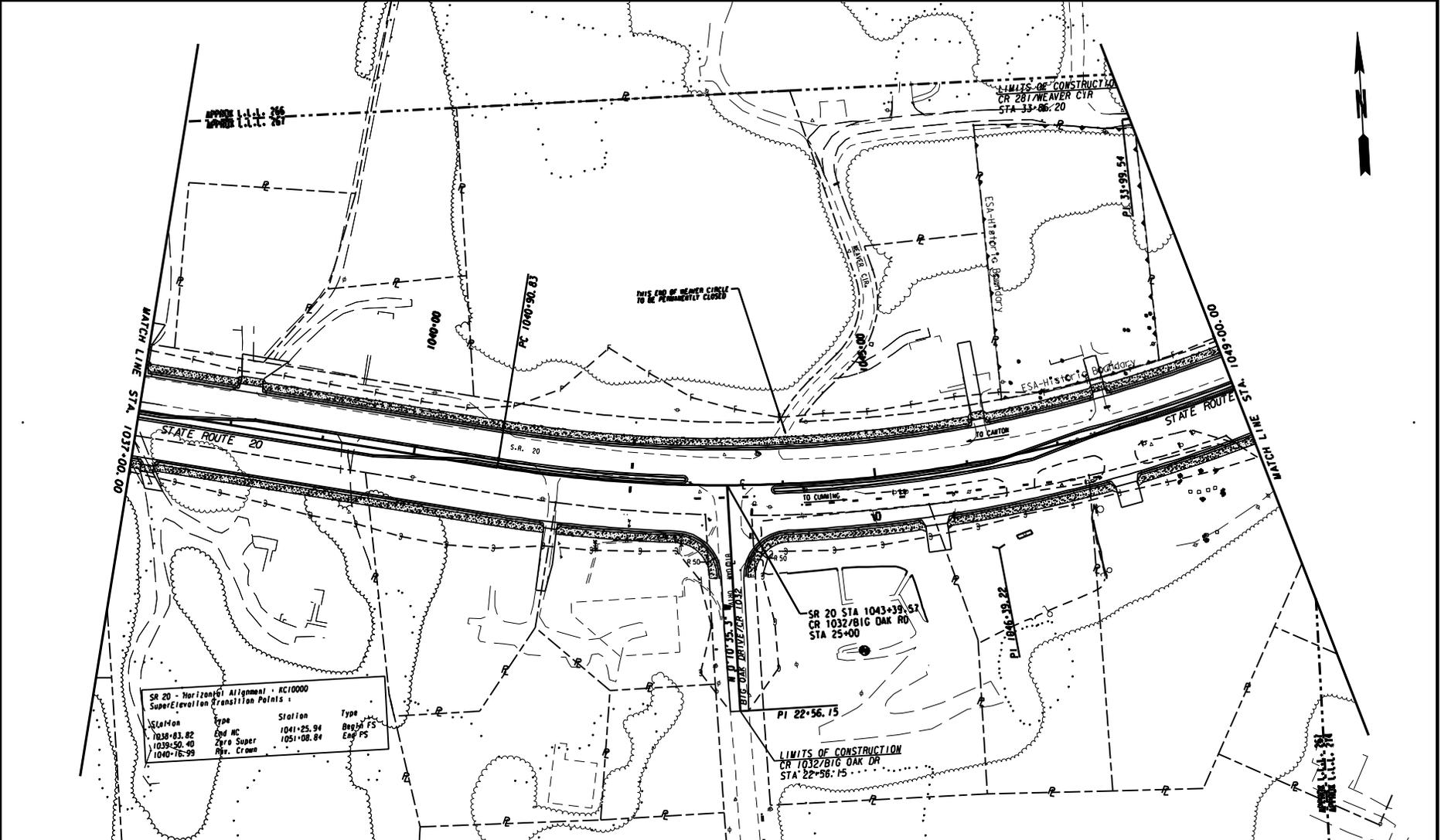
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REVISION DATES

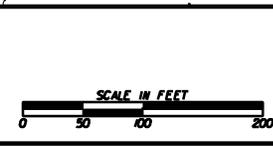
STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:
MAINLINE PLAN

DRAWING No.
13-3



PROPERTY AND EXISTING R/W LINE	---R---
REQUIRED R/W LINE	---R---
CONSTRUCTION LIMITS	---C---
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	---S---
EASEMENT FOR CONSTR OF SLOPES	---S---
EASEMENT FOR CONSTR OF DRIVES	---D---
BEGIN LIMIT OF ACCESS.....	BLA
END LIMIT OF ACCESS.....	ELA
LIMIT OF ACCESS.....	LA
REQ'D R/W & LIMIT OF ACCESS	---R---

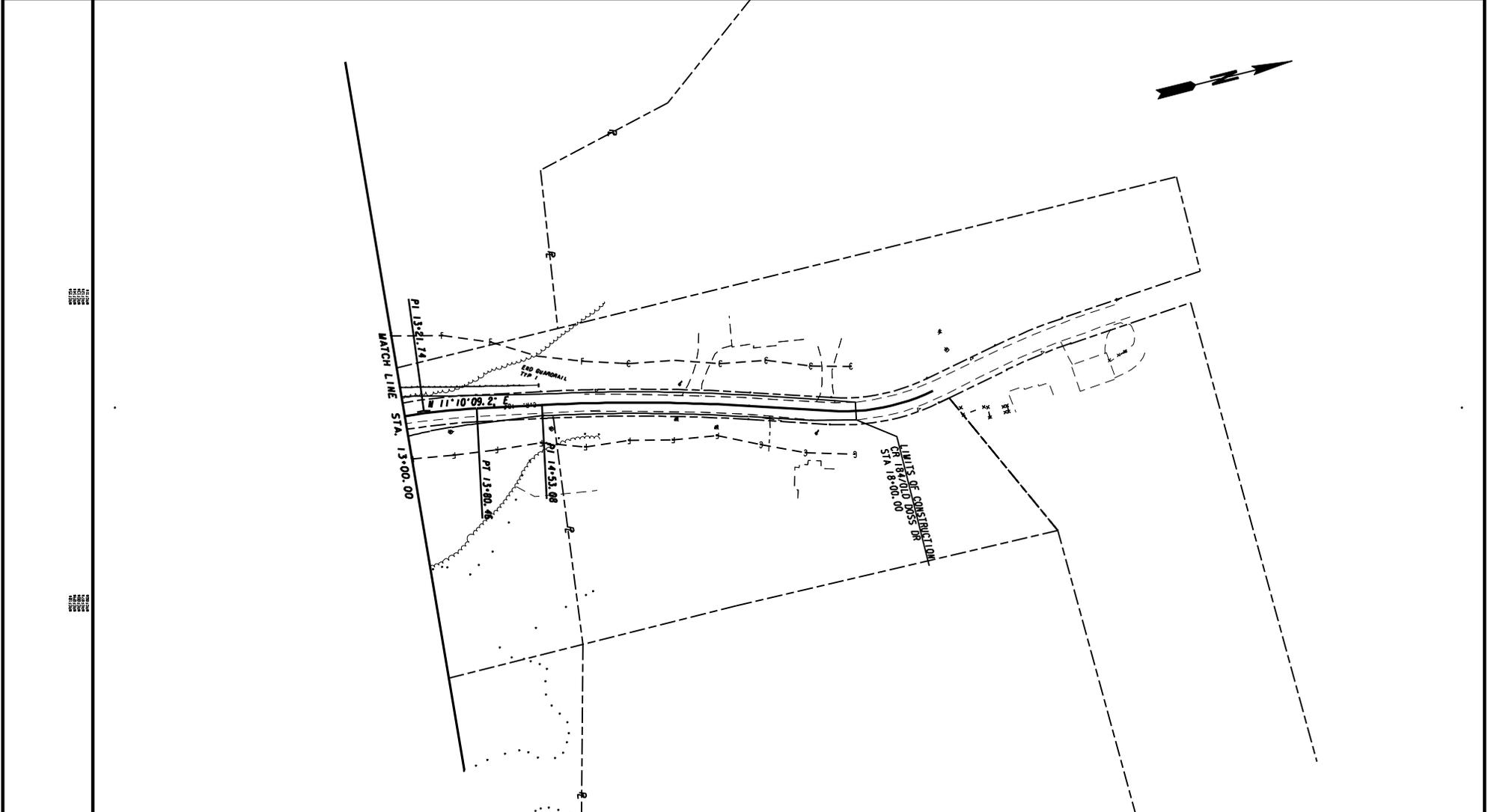
GEORGIA
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REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: **MAINLINE PLAN**

DRAWING NO. **13-4**



PROPERTY AND EXISTING R/W LINE ---R---
 REQUIRED R/W LINE ---C---F---
 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---||---

GEORGIA
 DEPARTMENT
 OF
 TRANSPORTATION

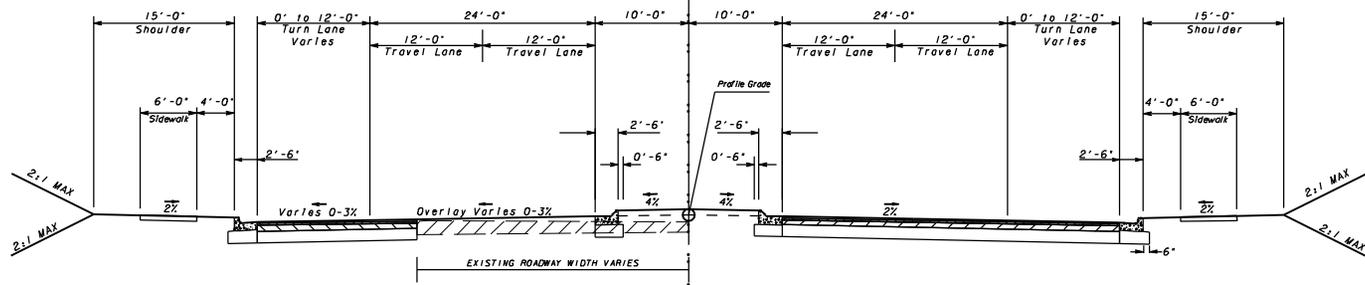


REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:

CROSSROAD PLAN

DRAWING NO.
14-1



PRELIMINARY TYPICAL SECTION

GEORGIA
DEPARTMENT
OF
TRANSPORTATION

REVISION DATES		

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: DISTRICT 6/ROAD DESIGN
TYPICAL SECTIONS

SR 20/CUMMING HWY

DRAWING No. 5-

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE PROJECT No. CSSTP-0009-00(164) , **OFFICE** District 6

Widening of SR 20 from I-575 to CR 281/Scott Road

DATE Jan. 28, 2013

P.I. No. 0009164

FROM C. DeWayne Comer, P.E., District Engineer

TO Lisa L. Myers, Project Review Engineer

SUBJECT REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER Karyn Matthews

MNGT LET DATE Apr-15

MNGT R/W DATE Apr-13

PROGRAMMED COST (TPro W/OUT INFLATION)

CONSTRUCTION \$ 5,400,000.00

RIGHT OF WAY \$ 7,276,000.00

UTILITIES \$ 345,000.00

LAST ESTIMATE UPDATE

DATE 06/01/2012

DATE 06/01/2012

DATE 06/01/2012

REVISED COST ESTIMATES

CONSTRUCTION* \$ 5,411,000.00

RIGHT OF WAY \$

UTILITIES \$

* Costs contain 5 % Engineering and Inspection

REASON FOR COST INCREASE

CONTINGENCY SUMMARY

Construction Cost Estimate:	\$ 4,700,000.00	(Base Estimate)
Engineering and Inspection:	\$ 235,000.00	(Base Estimate x 5 %)
Total Liquid AC Adjustment	\$ 475,466.98	(From attached worksheet)
Construction Total:	\$ 5,411,000.00	

REIMBURSABLE UTILITY COST

Utility Owner

Reimbursable Cost

Attachments

DETAILED COST ESTIMATE



Job: 0009164A

JOB NUMBER: 0009164A

FED/STATE PROJECT NUMBER CSSTP-0009-00(164)

SPEC YEAR: 01

DESCRIPTION: SR 20 FROM I-575 TO CR 288/SCOTT ROAD

ITEMS FOR JOB 0009164A

10 - ROADWAY QUANTITIES

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0015	150-1000	1.000	LS	\$106,250.00000	TRAFFIC CONTROL - CSSTP-0009-00(164)	\$106,250.00
0020	153-1300	1.000	EA	\$73,182.01000	FIELD ENGINEERS OFFICE TP 3	\$73,182.01
0030	210-0100	1.000	LS	\$1,413,500.00000	GRADING COMPLETE - CSSTP-0009-00(164)	\$1,413,500.00
0035	310-5120	2790.000	SY	\$18.55000	GR AGGR BS CRS 12IN INCL MATL	\$51,754.50
0040	402-1812	1220.000	TN	\$70.00000	RECYL AC LEVELING,INC BM&HL	\$85,400.00
0045	402-3121	16400.000	TN	\$59.33000	RECYL AC 25MM SP,GP1/2,BM&HL	\$973,012.00
0050	402-3130	5860.000	TN	\$66.42000	RECYL AC 12.5MM SP,GP2,BM&HL	\$389,221.20
0055	402-4514	4100.000	TN	\$62.71000	RECYL AC 19 MM SP,GP 1OR2,INCL PMBM&HL	\$257,111.00
0060	413-1000	3760.000	GL	\$2.25000	BITUM TACK COAT	\$8,460.00
0064	441-0016	400.000	SY	\$30.76505	DRIVEWAY CONCRETE, 6 IN TK	\$12,306.02
0065	441-0104	11325.000	SY	\$19.85000	CONC SIDEWALK, 4 IN	\$224,801.25
0070	441-0204	1350.000	SY	\$30.27000	PLAIN CONC DITCH PAVING, 4 IN	\$40,864.50
0075	441-0301	3.000	EA	\$1,589.70000	CONC SPILLWAY, TP 1	\$4,769.10
0080	441-6740	25600.000	LF	\$9.92286	CONC CURB & GUTTER/ 8"X30" TP7	\$254,025.22
0085	500-3201	310.000	CY	\$393.26106	CL B CONC, RET WALL	\$121,910.93
0090	550-1180	5140.000	LF	\$27.31000	STM DR PIPE 18",H 1-10	\$140,373.40
0095	550-1240	907.000	LF	\$43.32000	STM DR PIPE 24",H 1-10	\$39,291.24
0100	550-1300	157.000	LF	\$49.94973	STM DR PIPE 30",H 1-10	\$7,842.11
0105	550-1360	176.000	LF	\$63.45815	STM DR PIPE 36",H 1-10	\$11,168.63
0110	550-1420	111.000	LF	\$76.48323	STM DR PIPE 42",H 1-10	\$8,489.64
0115	550-2180	200.000	LF	\$27.81727	SIDE DR PIPE 18",H 1-10	\$5,563.45
0120	550-3618	11.000	EA	\$406.12057	SAFETY END SECTION 18",SD,6:1	\$4,467.33
0125	550-4218	1.000	EA	\$479.06694	FLARED END SECT 18 IN, ST DR	\$479.07
0130	550-4224	3.000	EA	\$565.20917	FLARED END SECT 24 IN, ST DR	\$1,695.63
0135	550-4230	1.000	EA	\$688.94692	FLARED END SECT 30 IN, ST DR	\$688.95
0150	634-1200	128.000	EA	\$115.00000	RIGHT OF WAY MARKERS	\$14,720.00
0155	641-1200	270.000	LF	\$18.72871	GUARDRAIL, TP W	\$5,056.75
0160	641-5001	1.000	EA	\$625.83766	GUARDRAIL ANCHORAGE, TP 1	\$625.84
0165	641-5012	1.000	EA	\$1,985.00000	GUARDRAIL ANCHORAGE, TP 12	\$1,985.00
0170	643-8200	900.000	LF	\$1.46792	BARRIER FENCE (ORANGE), 4 FT	\$1,321.13
0175	668-1100	48.000	EA	\$2,021.00000	CATCH BASIN, GP 1	\$97,008.00
0180	668-1200	6.000	EA	\$2,426.60000	CATCH BASIN, GP 2	\$14,559.60
0185	668-2200	1.000	EA	\$2,344.45262	DROP INLET, GP 2	\$2,344.45
0190	668-4300	1.000	EA	\$1,644.74556	STORM SEW MANHOLE, TP 1	\$1,644.75
0195	668-5000	3.000	EA	\$1,774.35000	JUNCTION BOX	\$5,323.05
SUBTOTAL FOR ROADWAY QUANTITIES:						\$4,381,215.75

20 - EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0210	700-6910	10.000	AC	\$1,000.00000	PERMANENT GRASSING	\$10,000.00
0215	700-7000	70.000	TN	\$17.83808	AGRICULTURAL LIME	\$1,248.67
0220	700-8000	22.000	TN	\$450.00000	FERTILIZER MIXED GRADE	\$9,900.00
0225	700-8100	1500.000	LB	\$2.30000	FERTILIZER NITROGEN CONTENT	\$3,450.00
0240	716-2000	20900.000	SY	\$1.24000	EROSION CONTROL MATS, SLOPES	\$25,916.00
SUBTOTAL FOR EROSION CONTROL:						\$50,514.67

DETAILED COST ESTIMATE



Job: 0009164A

30 - TEMPORARY EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0245	163-0232	5.000	AC	\$600.00000	TEMPORARY GRASSING	\$3,000.00
0250	163-0240	300.000	TN	\$250.00000	MULCH	\$75,000.00
0255	163-0300	4.000	EA	\$1,200.00000	CONSTRUCTION EXIT	\$4,800.00
0265	165-0101	4.000	EA	\$700.00000	MAINT OF CONST EXIT	\$2,800.00
0275	167-1000	2.000	EA	\$500.00000	WATER QUALITY MONITORING AND SAMPLING	\$1,000.00
0280	167-1500	24.000	MO	\$500.00000	WATER QUALITY INSPECTIONS	\$12,000.00
0285	171-0030	11700.000	LF	\$3.00000	TEMPORARY SILT FENCE, TYPE C	\$35,100.00
SUBTOTAL FOR TEMPORARY EROSION CONTROL:						\$133,700.00

40 - TRAFFIC

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0290	636-1020	610.000	SF	\$17.00000	HWY SGN,TP1MAT,REFL SH TP3	\$10,370.00
0295	636-2070	1152.000	LF	\$8.00000	GALV STEEL POSTS, TP 7	\$9,216.00
0300	647-1000	1.000	LS	\$60,000.00000	TRAF SIGNAL INSTALLATION NO - CSSTP-0009-00(164)	\$60,000.00
0305	652-0091	20.000	EA	\$54.60000	PVMT MARKING, SYMBOL, TP 1	\$1,092.00
0310	652-0094	20.000	EA	\$44.50000	PVMT MARKING, SYMBOL, TP 4	\$890.00
0315	652-3501	2.000	GLM	\$300.00000	SKIP TRAF STRIPE, 5 IN, WHITE	\$600.00
0320	653-0110	2.000	EA	\$70.00000	THERM PVMT MARK, ARROW, TP 1	\$140.00
0325	653-0120	28.000	EA	\$75.00000	THERM PVMT MARK, ARROW, TP 2	\$2,100.00
0330	653-0170	2.000	EA	\$100.00000	THERM PVMT MARK, ARROW, TP 7	\$200.00
0335	653-0210	3.000	EA	\$125.00000	THERM PVMT MARK, WORD , TP 1	\$375.00
0340	653-1502	13000.000	LF	\$0.47000	THERMO SOLID TRAF ST, 5 IN YEL	\$6,110.00
0345	653-4501	3.000	GLM	\$1,000.00000	THERMO SKIP TRAF ST, 5 IN, WHI	\$3,000.00
0350	653-6004	990.000	SY	\$3.00000	THERM TRAF STRIPING, WHITE	\$2,970.00
0355	653-6006	130.000	SY	\$3.25000	THERM TRAF STRIPING, YELLOW	\$422.50
SUBTOTAL FOR TRAFFIC:						\$97,485.50

TOTALS FOR JOB 0009164A

ITEMS COST:	\$4,662,915.92
COST GROUP COST:	\$0.00
ESTIMATED COST:	\$4,662,436.85
CONTINGENCY PERCENT:	0.00
ENGINEERING AND INSPECTION:	0.00
ESTIMATED COST WITH CONTINGENCY AND E&I:	\$4,662,436.85

PROJ. NO. CSSTP-0009-00(164) **CALL NO.**
P.I. NO. 0009164
DATE 12/17/2012

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Dec-12	\$ 3.276
DIESEL		\$ 3.997
LIQUID AC		\$ 568.00

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)				469963.2	\$ 469,963.20
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	908.80	
Monthly Asphalt Cement Price month project let (APL)			\$	568.00	
Total Monthly Tonnage of asphalt cement (TMT)				1379	

ASPHALT	Tons	%AC	AC ton
Leveling	1220	5.0%	61
12.5 OGFC		5.0%	0
12.5 mm	5860	5.0%	293
9.5 mm SP		5.0%	0
25 mm SP	16400	5.0%	820
19 mm SP	4100	5.0%	205
	27580		1379

BITUMINOUS TACK COAT

Price Adjustment (PA)				\$ 5,503.78	\$ 5,503.78
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	908.80	
Monthly Asphalt Cement Price month project let (APL)			\$	568.00	
Total Monthly Tonnage of asphalt cement (TMT)				16.14957947	

Bitum Tack

Gals	gals/ton	tons
3760	232.8234	16.1495795

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)				0	\$ -
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	908.80	
Monthly Asphalt Cement Price month project let (APL)			\$	568.00	
Total Monthly Tonnage of asphalt cement (TMT)				0	

Bitum Tack

	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf. Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0

TOTAL LIQUID AC ADJUSTMENT \$ 475,466.98

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

Date: 2/2/2012 Project: CSSTP-0009-00(164)
 Revised: County: Cherokee
 PI: 0009164

Description: SR 20 from I-575 to SR 281
 Project Termini: SR 20 from I-575 to SR 281

Existing ROW: Varies
 Required ROW: Varies

Parcels: 57

Land and Improvements \$6,139,049.25

Proximity Damage	\$505,000.00
Consequential Damage	\$300,000.00
Cost to Cures	\$83,500.00
Trade Fixtures	\$0.00
Improvements	\$2,395,000.00

Valuation Services \$122,500.00

Legal Services \$375,975.00

Relocation \$129,000.00

Demolition \$25,000.00

Administrative \$484,000.00

TOTAL ESTIMATED COSTS \$7,275,524.25

TOTAL ESTIMATED COSTS (ROUNDED) \$7,276,000.00

Preparation Credits	Hours	Signature

Prepared By: Lashone Alexander CG#: 286999 02/02/2012
 Approved By: Lashone Alexander CG#: 286999 02/02/2012

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

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: CSSTP-009-00(164); Cherokee Co.
P.I. No. 0009164

OFFICE: Cartersville

FROM:  Kerry D. Bonner, District Utilities Engineer

DATE: May 23, 2012

TO: Karyn Matthews, P.E., Project Manager

SUBJECT: PRELIMINARY UTILITY COST ESTIMATE

We are furnishing you with a Revised Utility Cost estimate for each utility with facilities potentially located within the project limits.

FACILITY OWNER	NON- REIMBURSABLE	REIMBURSABLE
GA Power – Dist.		\$ 345,000.00
Atlanta Gas Light Company	\$ 641,310.00	
Cherokee County Water & Sewer*	\$ 414,000.00	
City of Canton*	\$ 971,750.00	
Comcast Communications	\$ 55,550.00	
Windstream Communications	\$ 179,930.00	
Totals	\$2,262,540.00	\$ 345,000.00

Total Preliminary Utility Cost Estimate: \$2,607,540.00

* The reimbursable amount could increase by \$1,385,750.00 if the City of Canton and Cherokee County Water & Sewer were to apply for utility assistance for the relocation of their facilities.

If you have any questions, please contact Stan McCarley at 770-387-3751.

KDB/sm

C: Jeff Baker, P. E., State Utilities Engineer
File/Estimating Book

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. 0009164 **OFFICE** Environmental Services
DATE April 8, 2013
FROM *GB/ac*
Glenn Bowman, P.E., State Environmental Administrator
TO Karyn Matthews, Project Manager
SUBJECT Preliminary Mitigation Cost Estimate

As requested by your office, we are furnishing you with a preliminary cost estimate for the subject project. The project is located on SR 20 east of I-575 in Cherokee County. After reviewing the plans and based on the information provided, wetlands will be impacted by the proposed project. The estimated cost for mitigation is \$5,000.00.

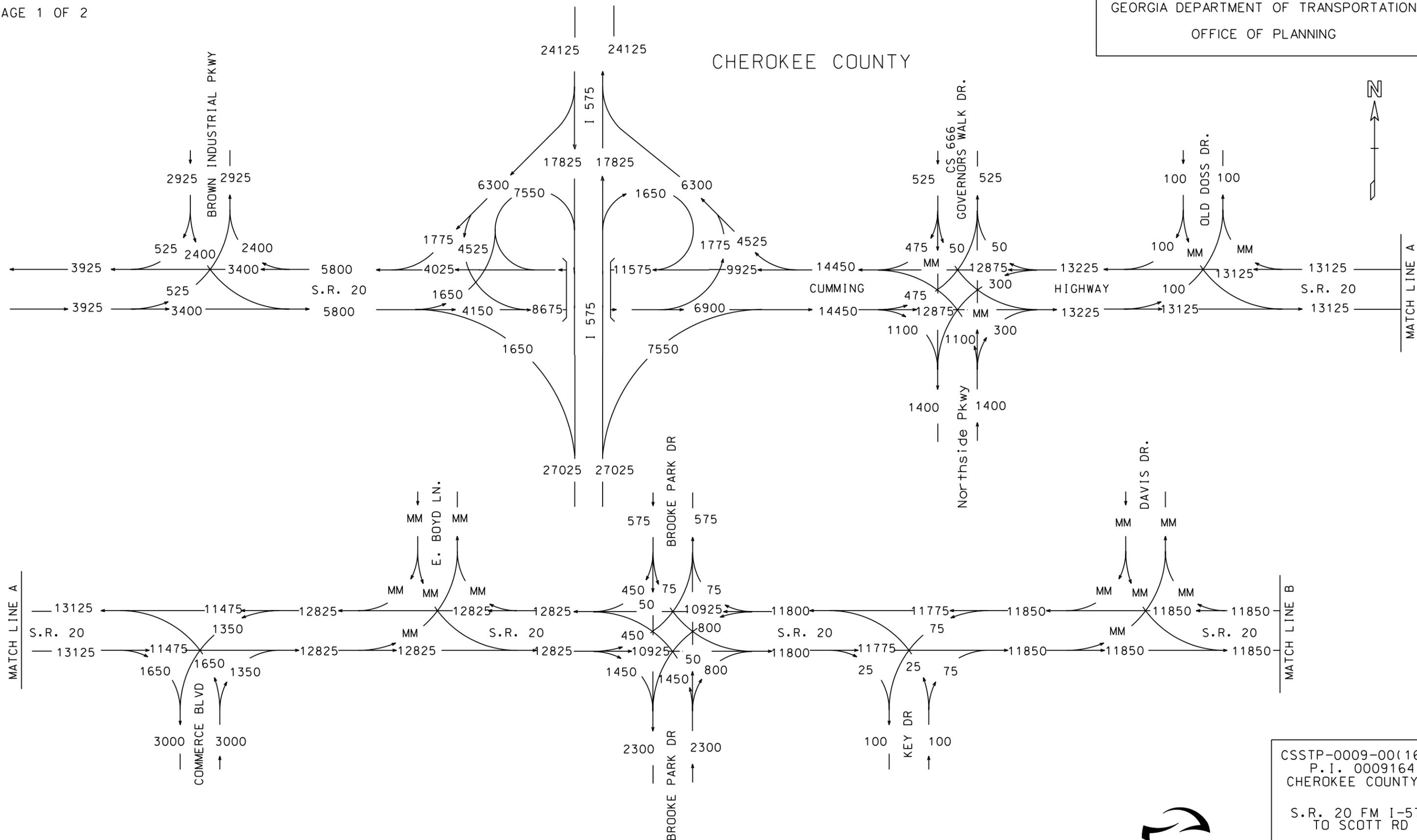
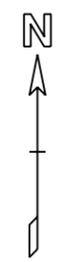
DISCLAIMER: This information is based on the field verification of jurisdictional resources. The estimate may be more or less depending on the market availability of wetland credits at the time of purchase.

Thank you for your cooperation and expeditious handling of this matter. If you have any questions or need additional information, please contact Lisa Westberry (404) 631-1772 of our office.

GB/HDC/lmw

cc: General File

CHEROKEE COUNTY



MATCH LINE A

MATCH LINE B



GRICE CONSULTING GROUP

CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY

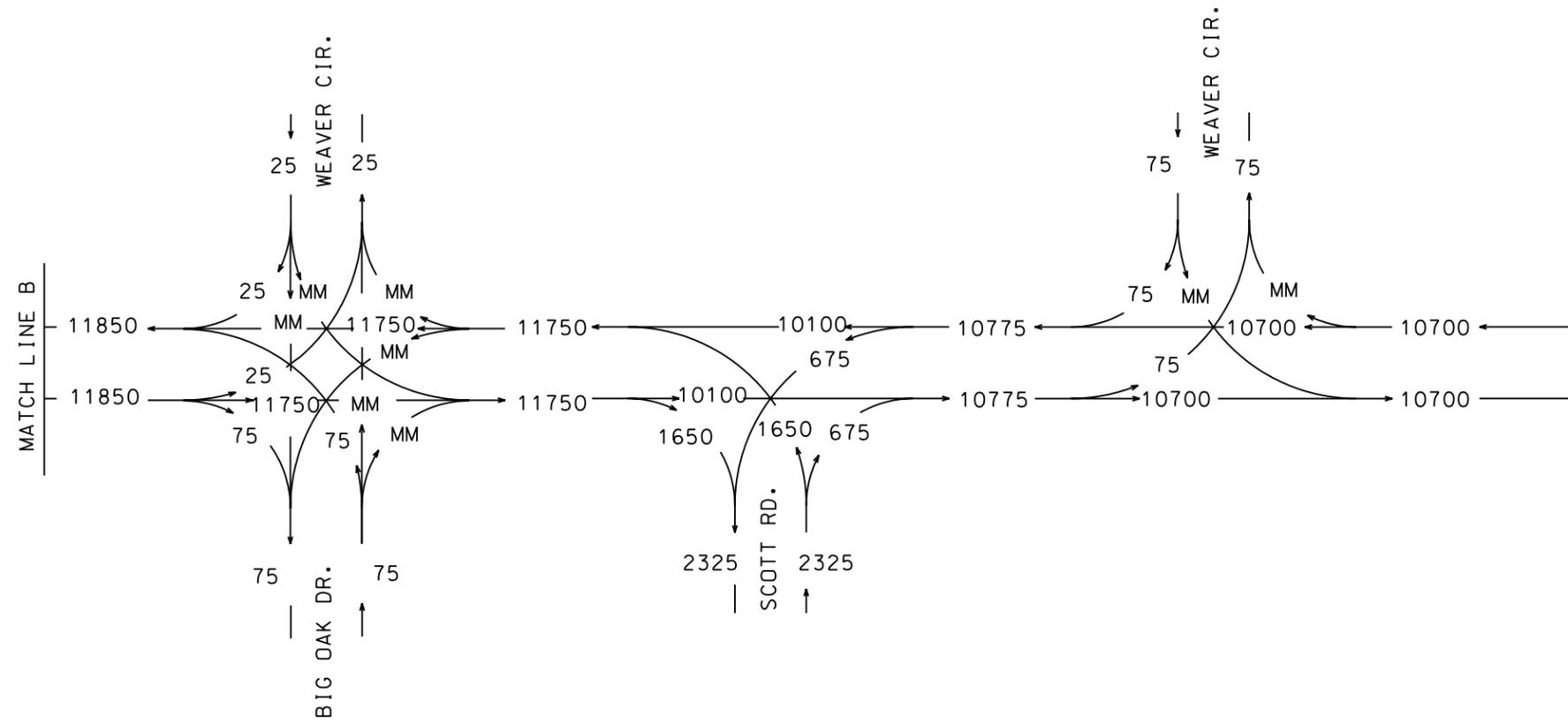
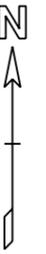
S.R. 20 FM I-575
TO SCOTT RD

2011 ADT

24 HOURS T = 6%
S.U. = 4%
COMB. = 2%

HF
3/12

CHEROKEE COUNTY



CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY

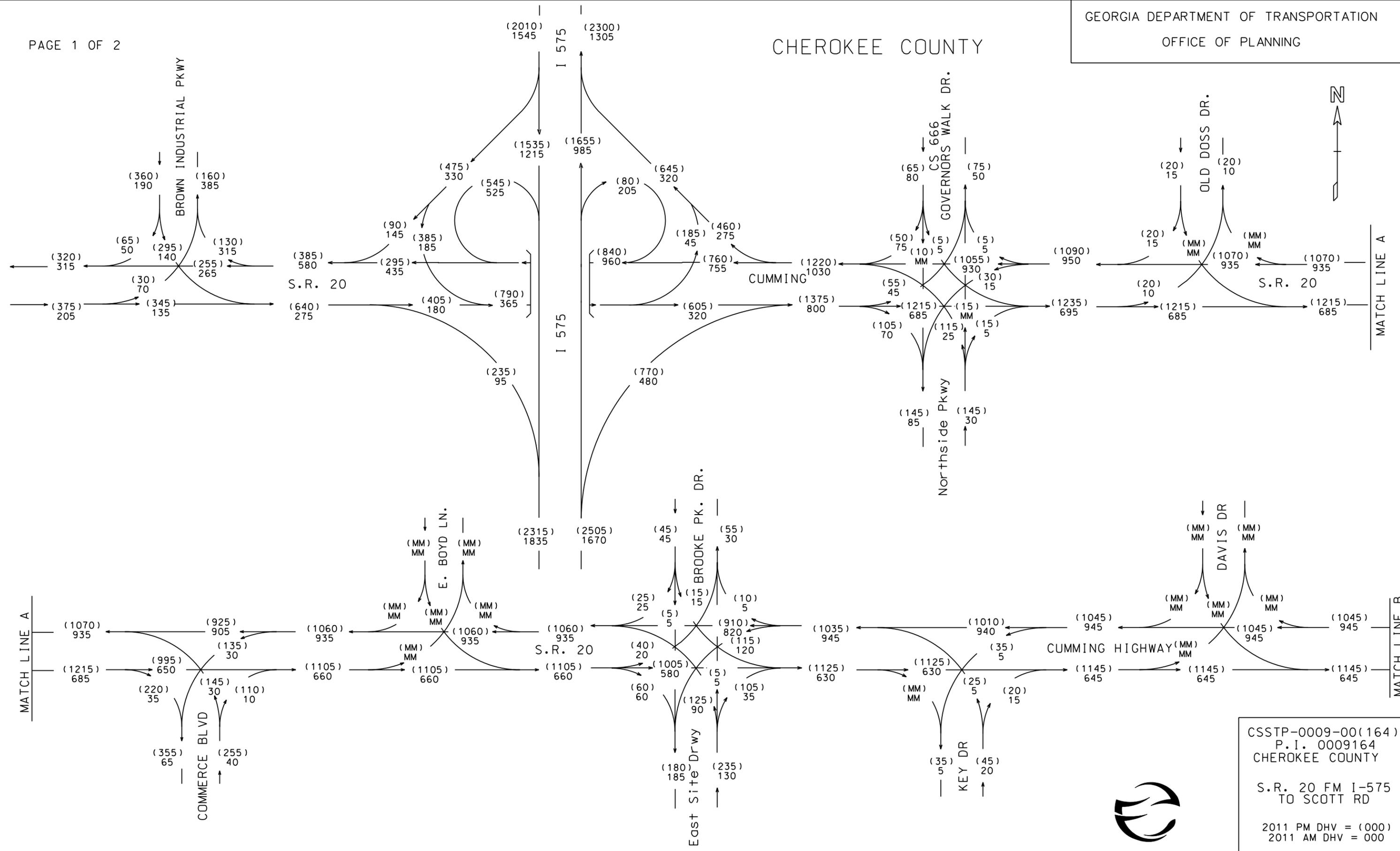
S.R. 20 FM I-575
TO SCOTT RD

2011 ADT

24 HOURS T = 6%
S.U. = 4%
COMB. = 2%

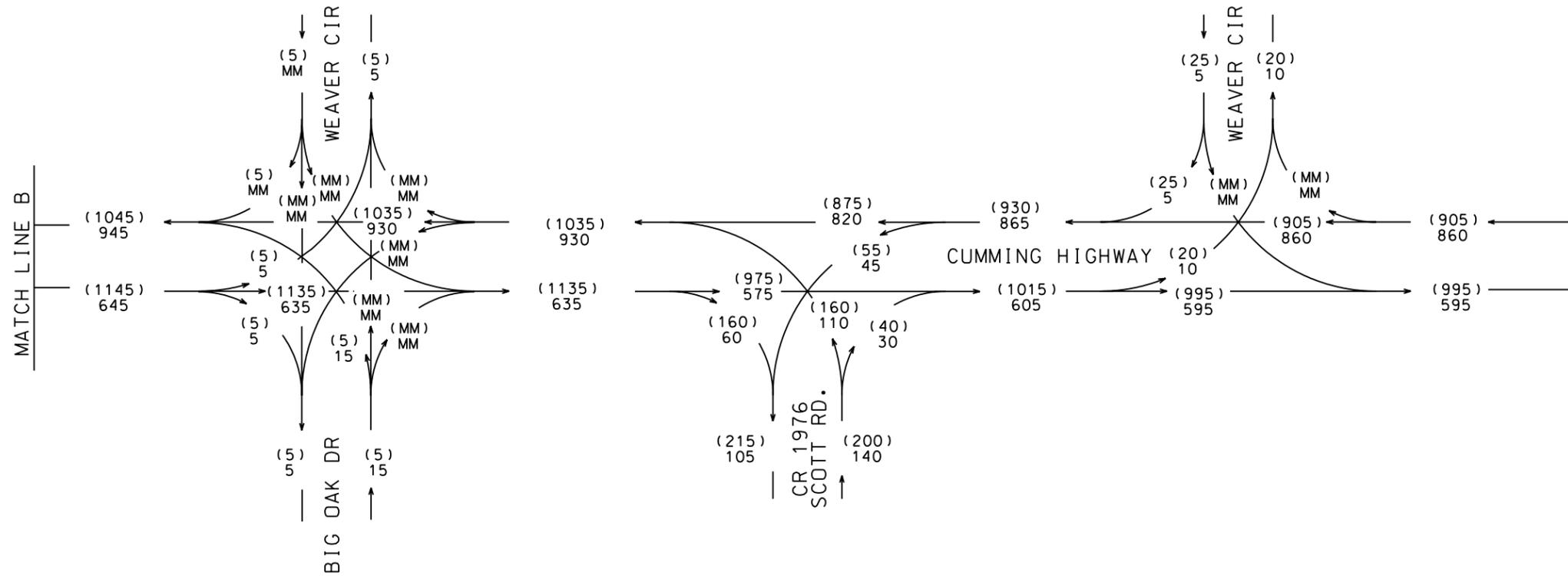
HF
3/12

CHEROKEE COUNTY



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CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY
S.R. 20 FM I-575
TO SCOTT RD
2011 PM DHV = (000)
2011 AM DHV = 000
T = 4% HF
S.U. = 3%
COMB. = 1% 3/12



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CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY

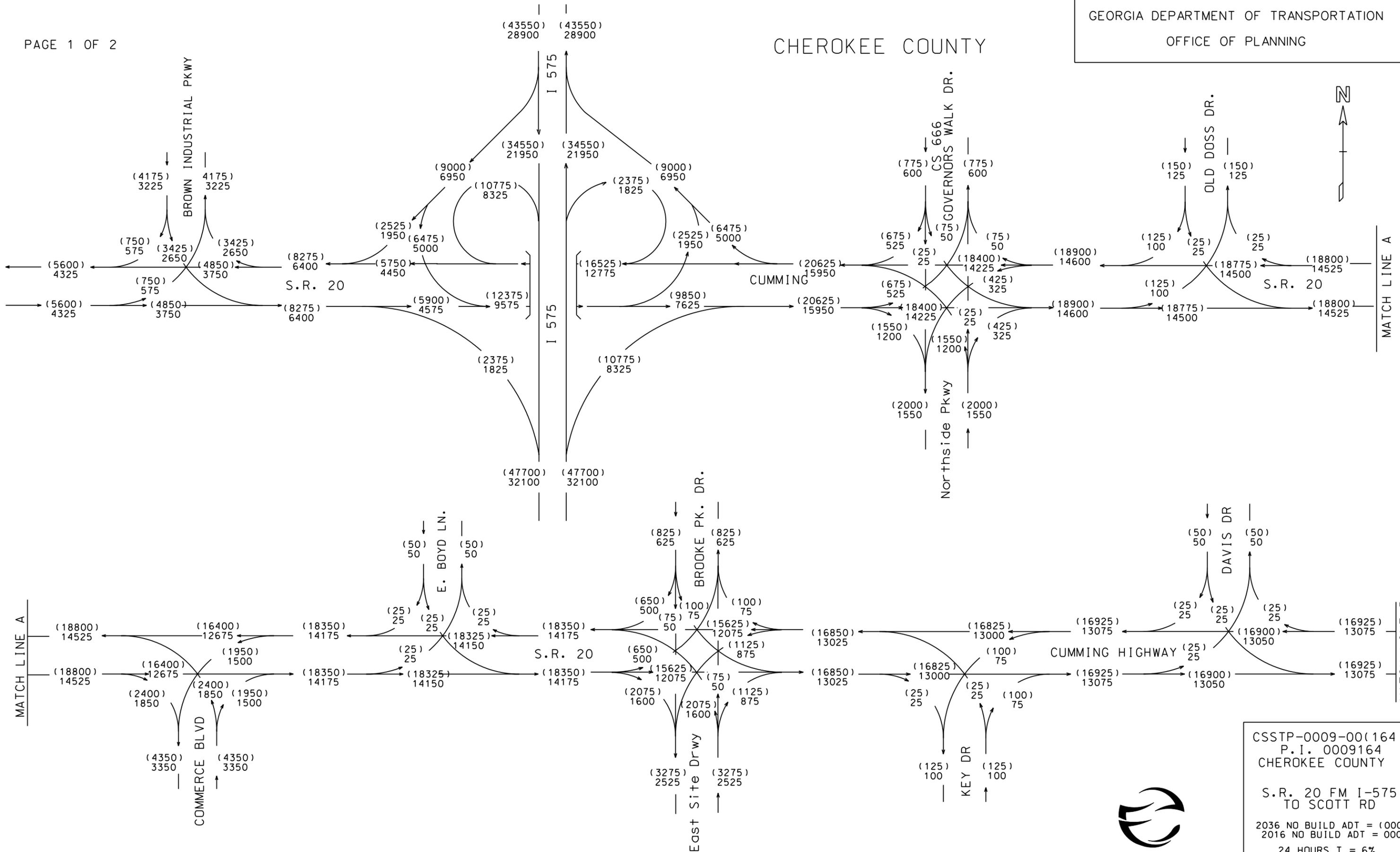
S.R. 20 FM I-575
TO SCOTT RD

2011 PM DHV = (000)
2011 AM DHV = 000

T = 4% HF
S.U. = 3%
COMB. = 1% 3/12

CHEROKEE COUNTY

GEORGIA DEPARTMENT OF TRANSPORTATION
OFFICE OF PLANNING



MATCH LINE A

MATCH LINE A

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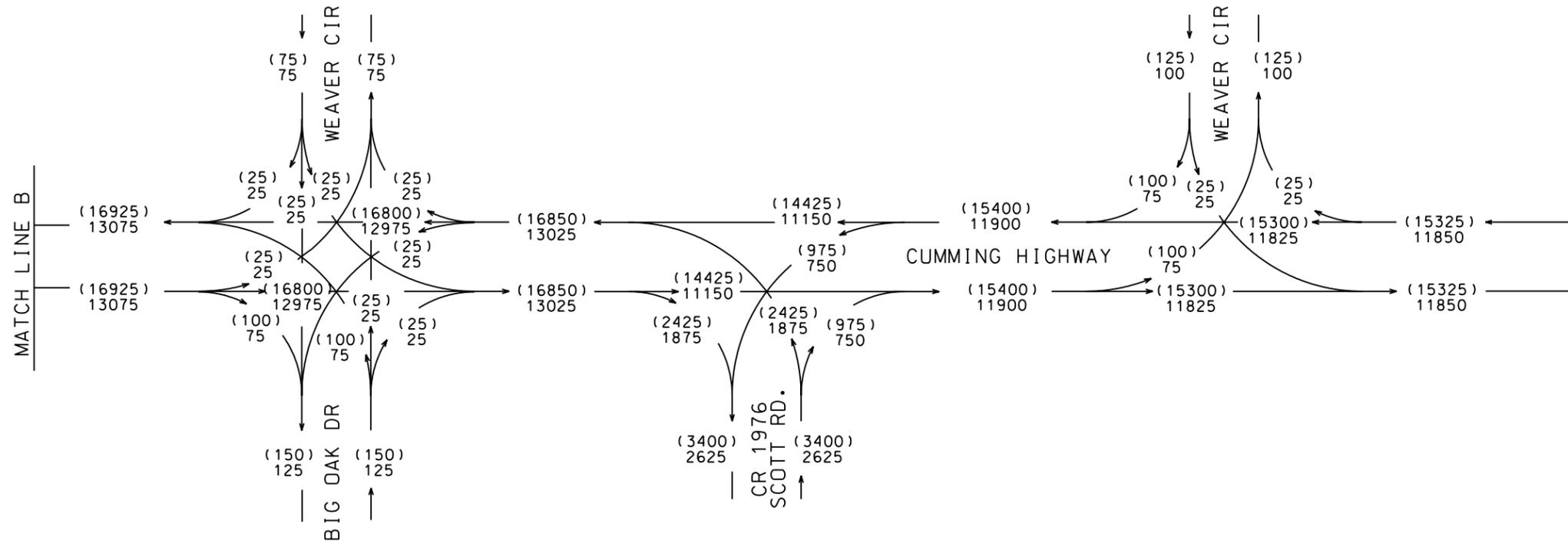
CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY

S.R. 20 FM I-575
TO SCOTT RD

2036 NO BUILD ADT = (000)
2016 NO BUILD ADT = 000

24 HOURS T = 6%
S.U. = 4%
COMB. = 2%





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CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY

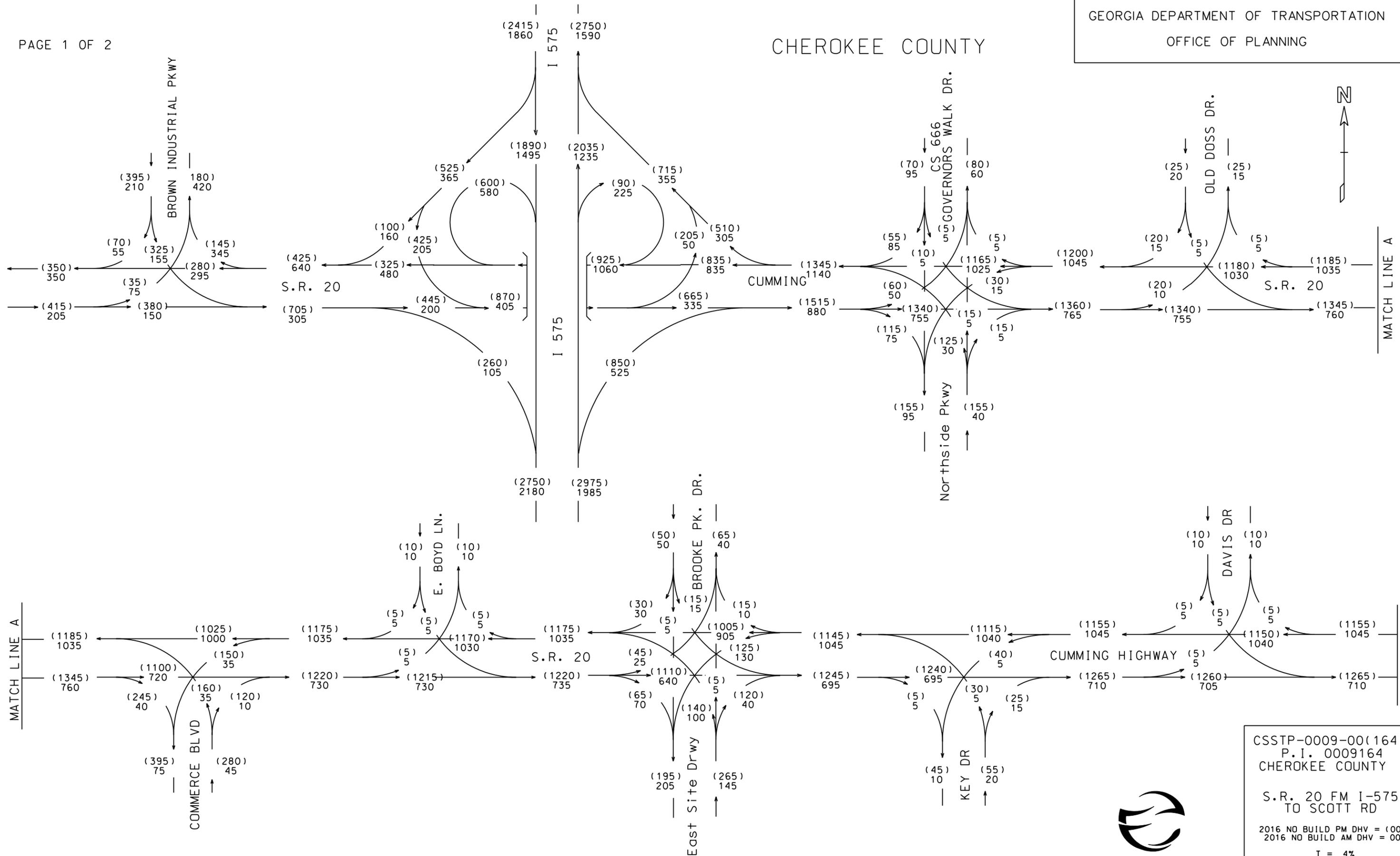
S.R. 20 FM I-575
TO SCOTT RD

2036 NO BUILD ADT = (000)
2016 NO BUILD ADT = 000

24 HOURS T = 6%
S.U. = 4%
COMB. = 2%

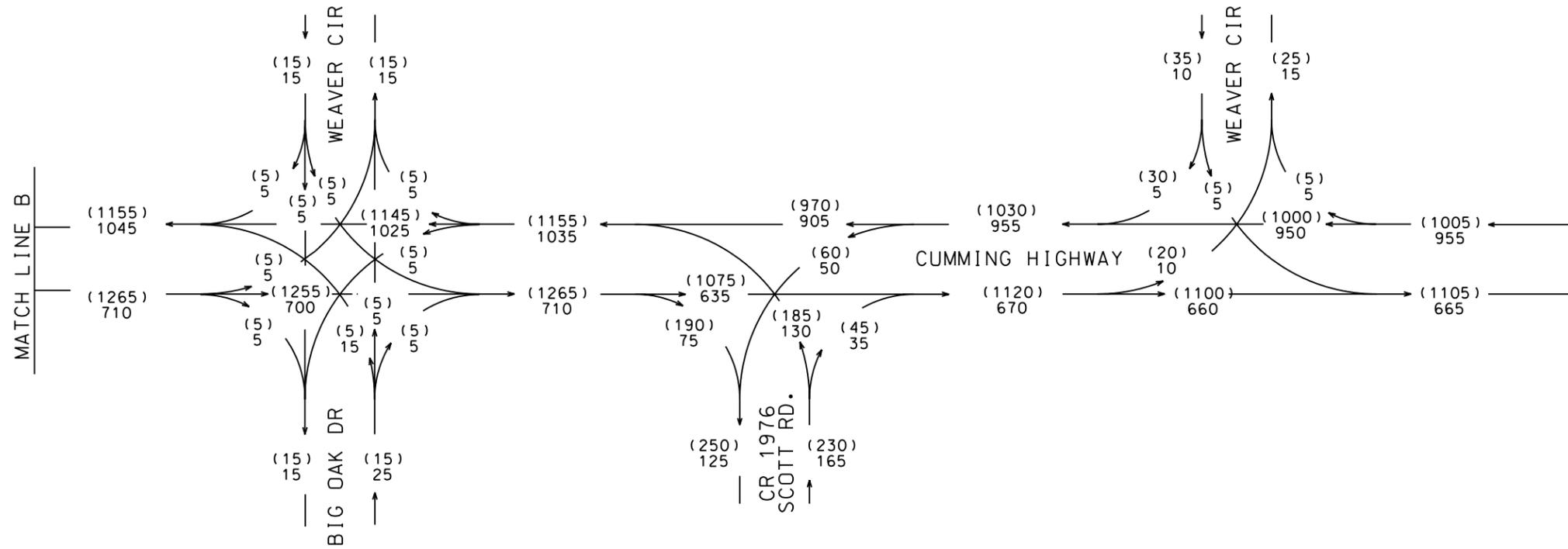
HF
3/12

CHEROKEE COUNTY



CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY
S.R. 20 FM I-575
TO SCOTT RD
2016 NO BUILD PM DHV = (000)
2016 NO BUILD AM DHV = 000

T = 4%
S.U. = 3%
COMB. = 1%



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CSSTP-0009-00(164)
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CHEROKEE COUNTY

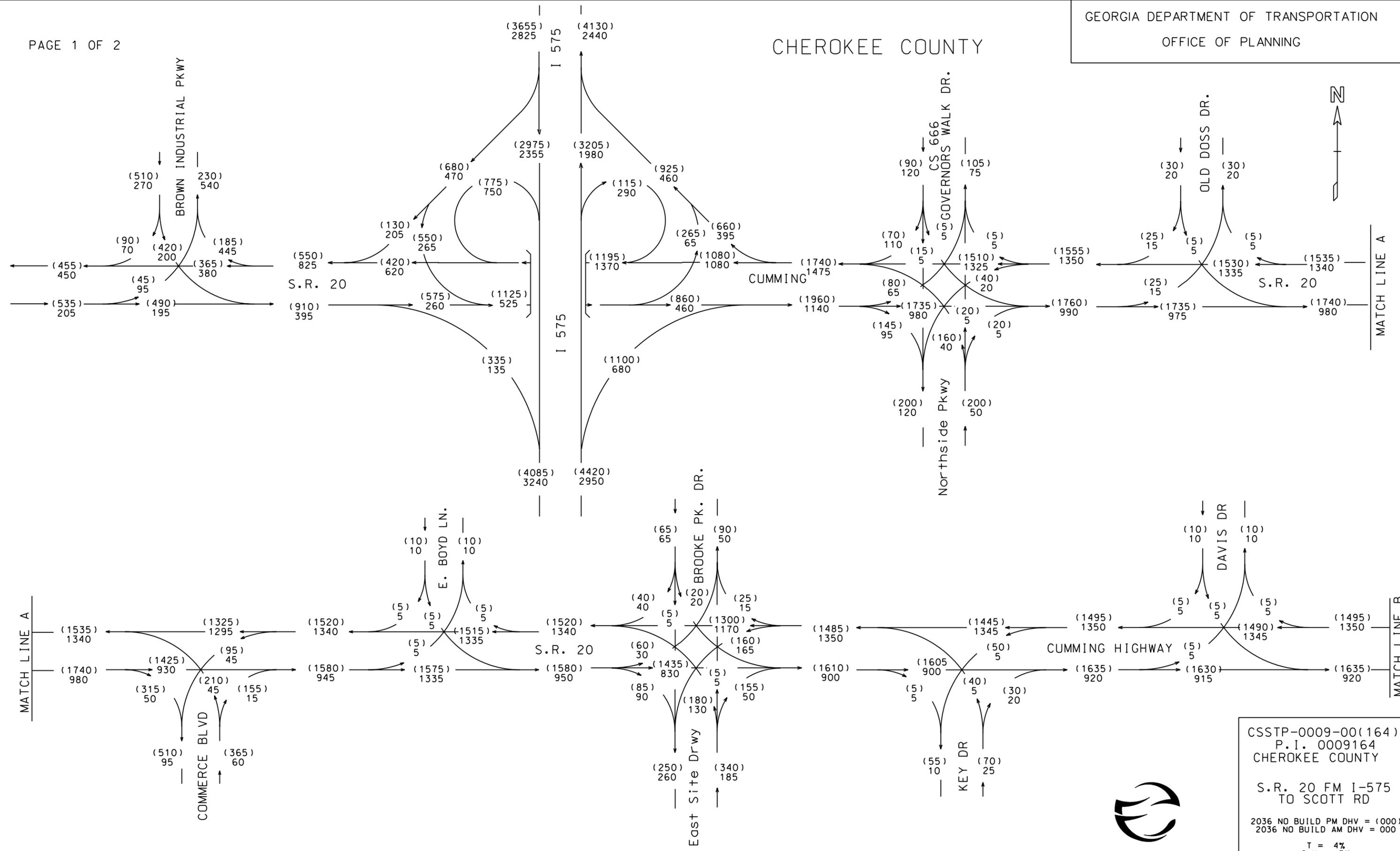
S.R. 20 FM I-575
TO SCOTT RD

2016 NO BUILD PM DHV = (000)
2016 NO BUILD AM DHV = 000

T = 4%
S.U. = 3%
COMB. = 1%

HF
3/12

CHEROKEE COUNTY



MATCH LINE A

MATCH LINE B



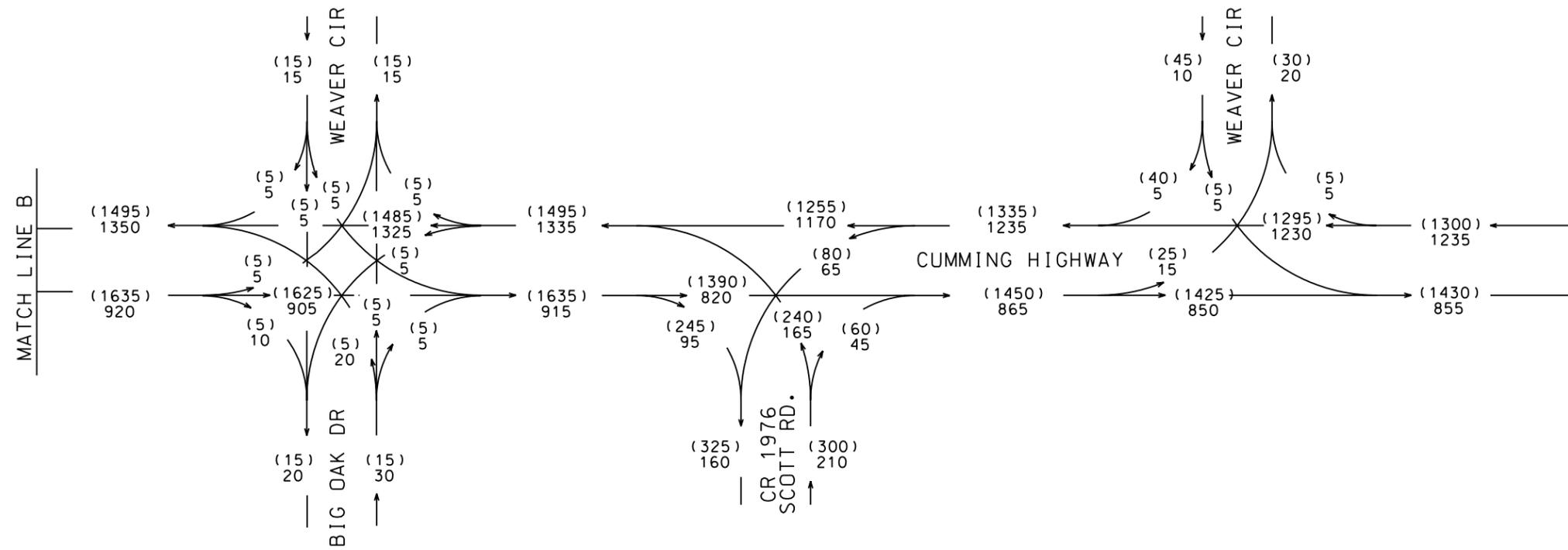
GRICE CONSULTING
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CSSTP-0009-00(164)
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CHEROKEE COUNTY

S.R. 20 FM I-575
TO SCOTT RD

2036 NO BUILD PM DHV = (000)
2036 NO BUILD AM DHV = 000

T = 4%
S.U. = 3%
COMB. = 1%



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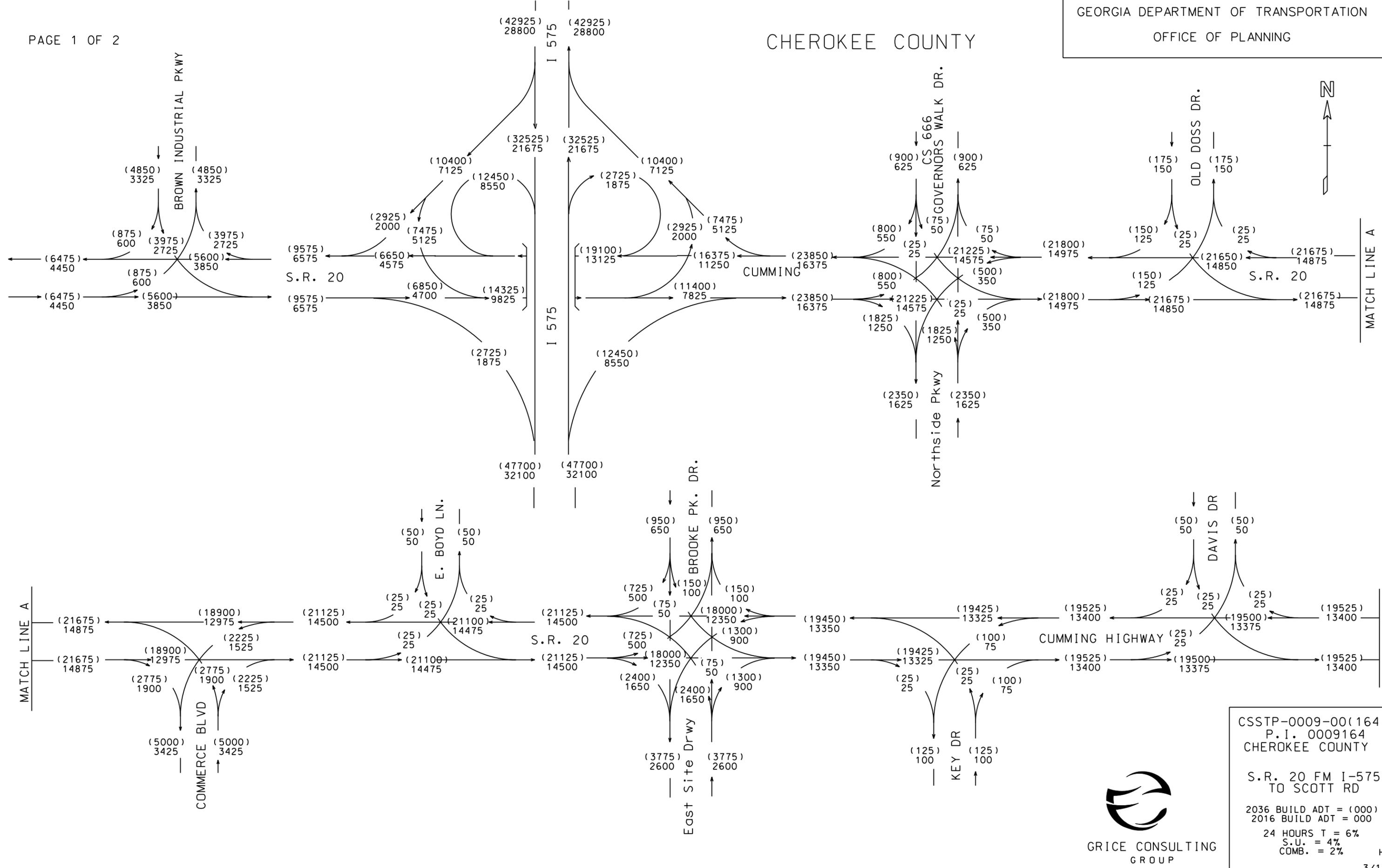
S.R. 20 FM I-575
TO SCOTT RD

2036 NO BUILD PM DHV = (000)
2036 NO BUILD AM DHV = 000

T = 4%
S.U. = 3%
COMB. = 1%

HF
3/12

CHEROKEE COUNTY



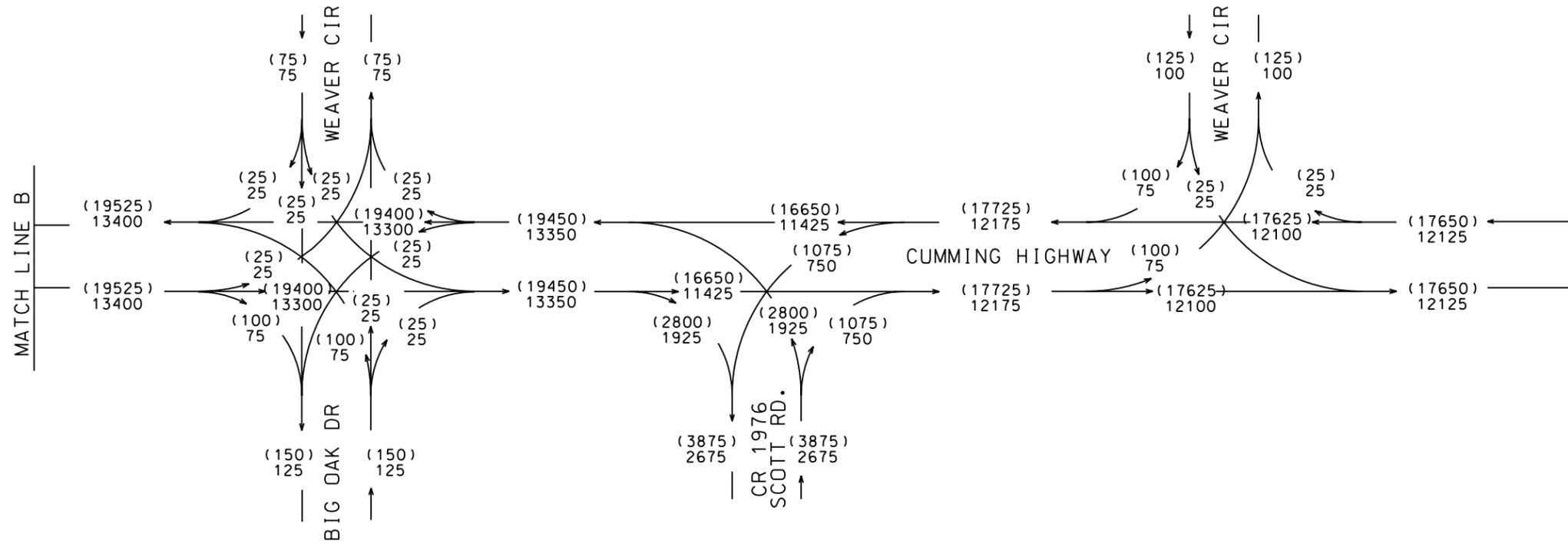
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CHEROKEE COUNTY

S.R. 20 FM I-575
TO SCOTT RD

2036 BUILD ADT = (000)
2016 BUILD ADT = 000

24 HOURS T = 6%
S.U. = 4%
COMB. = 2%





GRICE CONSULTING
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CSSTP-0009-00(164)
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CHEROKEE COUNTY

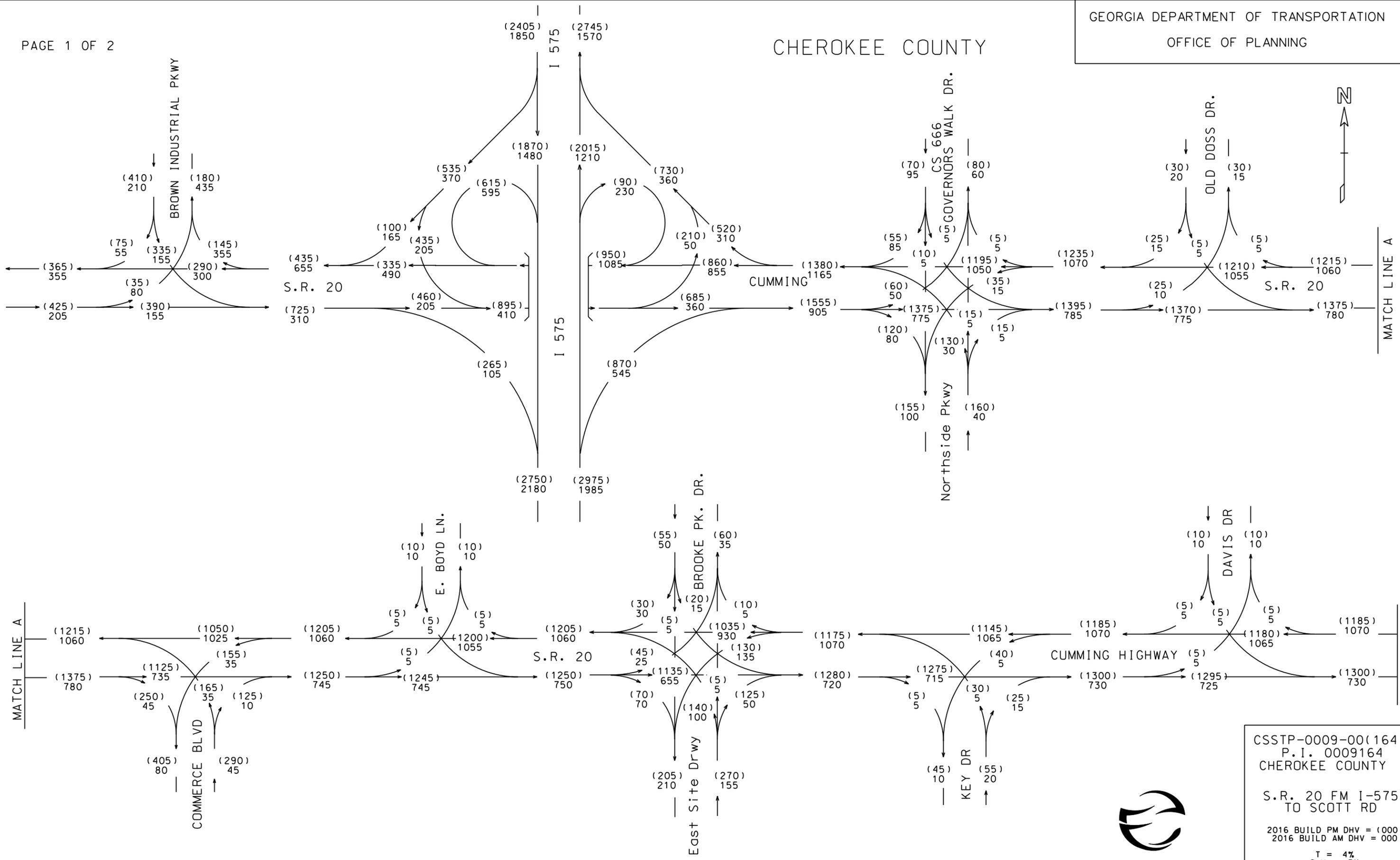
S.R. 20 FM I-575
TO SCOTT RD

2036 BUILD ADT = (000)
2016 BUILD ADT = 000

24 HOURS T = 6%
S.U. = 4%
COMB. = 2%

HF
3/12

CHEROKEE COUNTY



MATCH LINE A

MATCH LINE A

MATCH LINE B



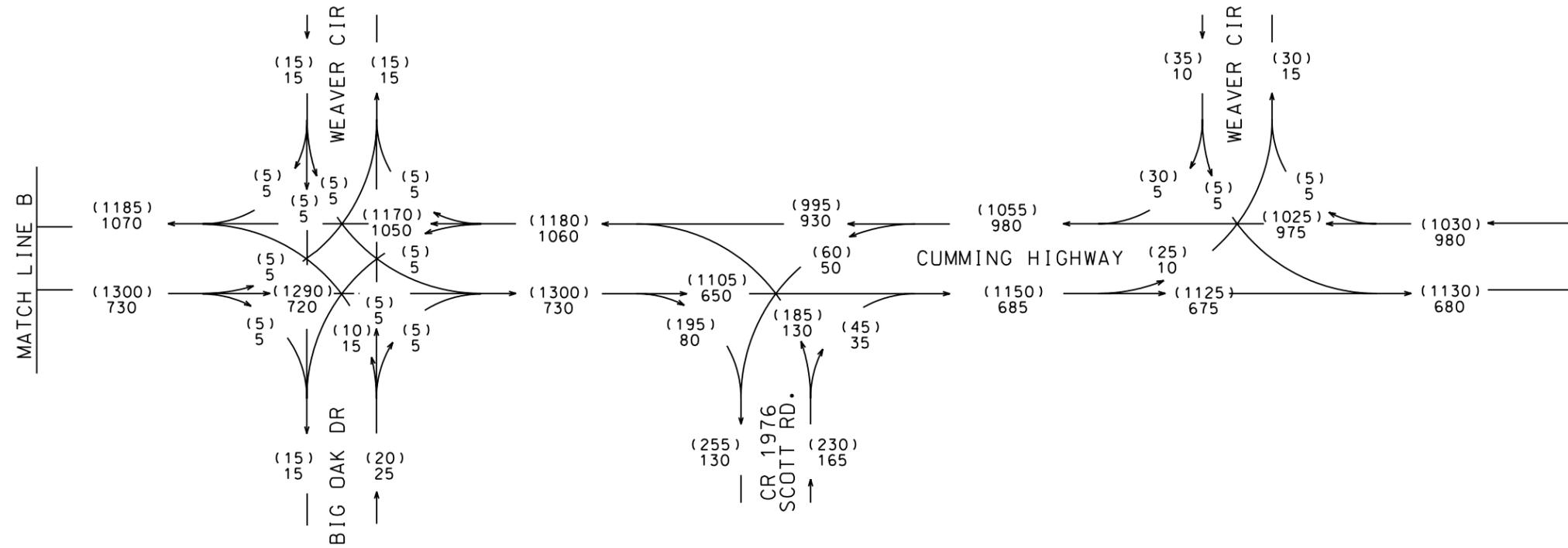
GRICE CONSULTING
GROUP

CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY

S.R. 20 FM I-575
TO SCOTT RD

2016 BUILD PM DHV = (000)
2016 BUILD AM DHV = 000

T = 4%
S.U. = 3%
COMB. = 1%



GRICE CONSULTING
GROUP

CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY

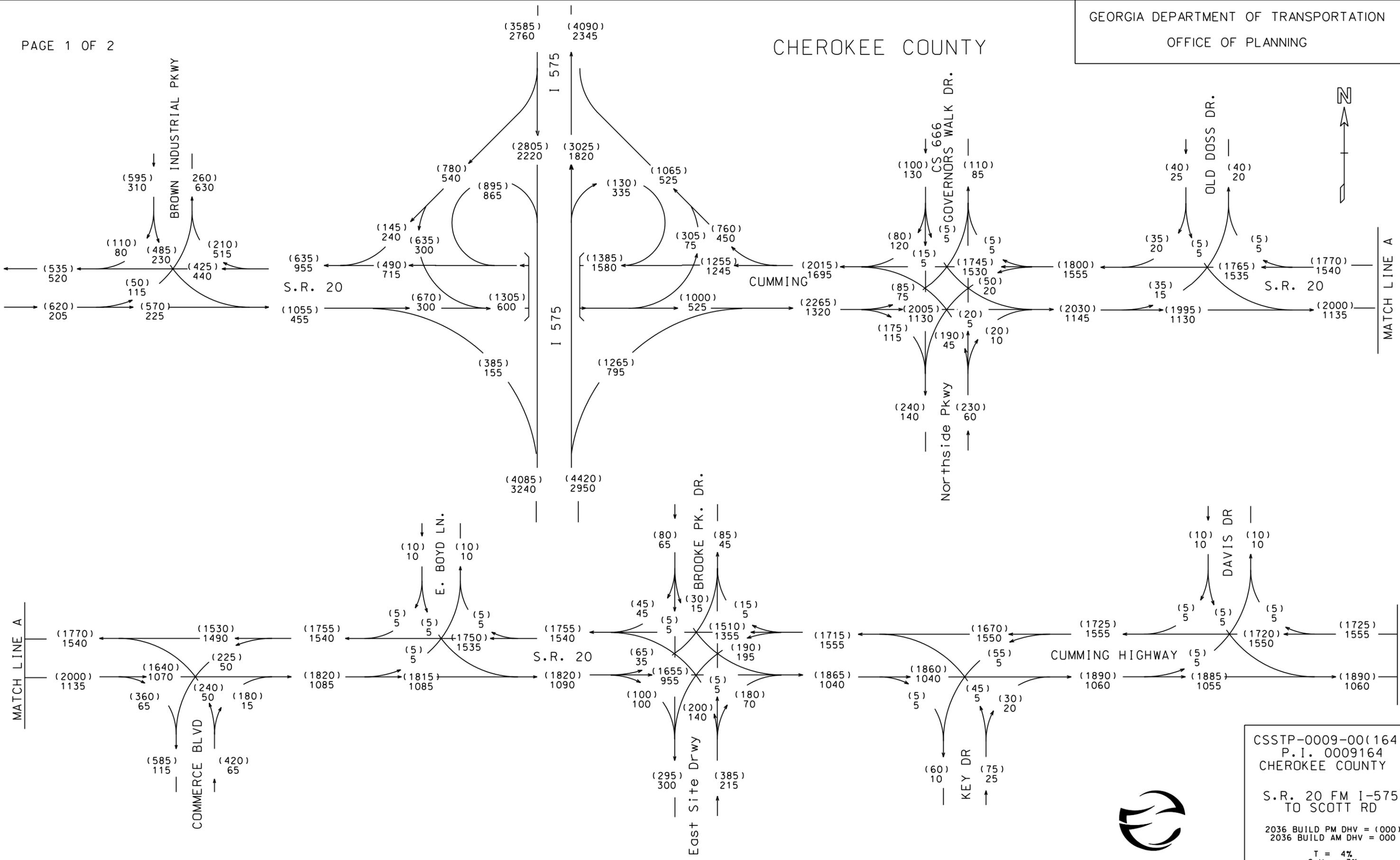
S.R. 20 FM I-575
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2016 BUILD AM DHV = 000

T = 4%
S.U. = 3%
COMB. = 1%

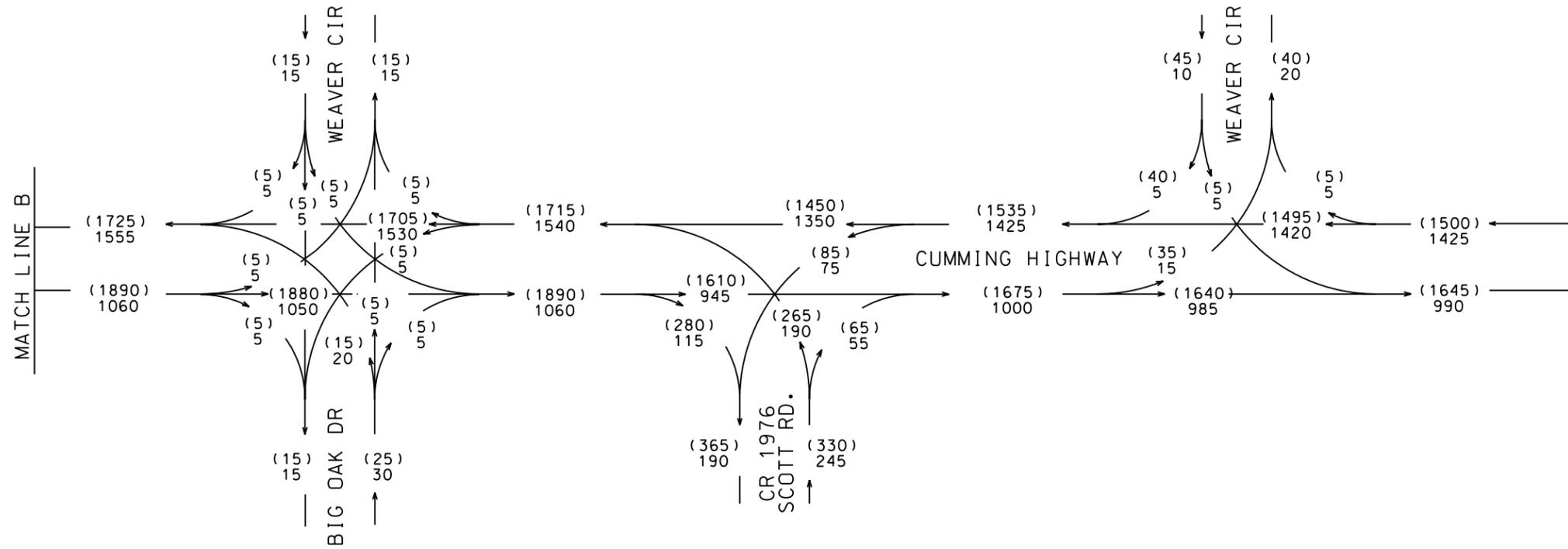
HF
3/12

CHEROKEE COUNTY



GRICE CONSULTING GROUP

CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY
S.R. 20 FM I-575
TO SCOTT RD
2036 BUILD PM DHV = (000)
2036 BUILD AM DHV = 000
T = 4%
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HF
3/12



GRICE CONSULTING
GROUP

CSSTP-0009-00(164)
P.I. 0009164
CHEROKEE COUNTY

S.R. 20 FM I-575
TO SCOTT RD

2036 BUILD PM DHV = (000)
2036 BUILD AM DHV = 000

T = 4%
S.U. = 3%
COMB. = 1% HF

Phone: Fax:
 E-mail:

DESIGN ANALYSIS

Analyst: Keric Primus
 Agency/CO: GDOT D6
 Date: 8/23/2012
 Analysis Period: SR20/Cumming Hwy
 Highway: MP 13-15
 From/To:
 Jurisdiction:
 Analysis Year: 2033
 Project ID: Widening of SR 20 from I-575 to CR 281/Scott Road

	LEVEL OF SERVICE	
Desired LOS	1	2
	D	D

	FREE-FLOW SPEED	
	1	2
Lane width	12.0	12.0
Lateral clearance:		
Right edge	6.0	6.0
Left edge	6.0	6.0
Total lateral clearance	12.0	12.0
Access points per mile	0	0
Median type		
Free-flow speed:	Measured	Measured
FFS or BFFS	45.0	45.0
Lane width adjustment, FLW	0.0	0.0
Lateral clearance adjustment, FLC	0.0	0.0
Access points adjustment, FA	0.0	0.0
Median type adjustment, FM	0.0	0.0
Free-flow speed	45.0	45.0

	VOLUME	
	1	2
Volume, V	1965	2080
Peak-hour factor, PHF	0.90	0.90
Peak 15-minute volume, v15	546	578
Trucks and buses	4	4
Recreational vehicles	0	0
Terrain type	Rolling	Rolling
Grade	0.00	0.00
Segment length	0.00	0.00
Trucks and buses PCE, ET	2.5	2.5
Recreational vehicles PCE, ER	2.0	2.0
Heavy vehicle adjustment, fHV	0.943	0.943

Driver population adjustment, fP 1.00 1.00
 Flow rate, vp 2314 2449 pcph pcph

RESULTS

	Direction	1	2
Desired LOS		D	D
Flow rate, vp		2314	2449
Free-flow speed, FFS		45.0	45.0
Allowable maximum service flow rate for desired LOS, MSF		1550	1550
Number of lanes required, N		1.5	1.6

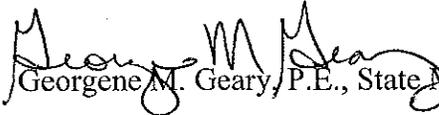
Designers should perform an operational analysis on the possible choices for N.
 Overall results are not computed when free-flow speed is less than 45 mph.

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE STP-0012-01 (107) Cherokee County **OFFICE** Materials & Research
P.I. No. 632790 Forest Park, Georgia
Truck Climbing Lanes and Widening on SR 20 **DATE** November 7, 2008

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

TO Kent L. Sager, District Engineer, Cartersville
Attention: DeWayne Comer, District Preconstruction Engineer

SUBJECT **Pavement Type Selection and Pavement Design Recommendation
SR 20 from Union Hill Road to Greenwood Court**

We have completed the Pavement Type Selection and Pavement Design Recommendation for the above referenced projects.

Project Descriptions and Locations

Project STP-0012-01(107), Truck Climbing Lanes on SR 20, starts west of Union Hill Road (Sta. 2023+00.00), and ends east of Greenwood Court (Sta. 3126+00.00). The total gross length of the project is 34,000 feet (6.44 miles) with 11,300 (2.14 miles) of exceptions. The project is located 100 % in Cherokee County.

Pavement Design Alternatives Considered

The LCCA analyzed the costs of the first phase of the project by comparing two alternatives pavement types. Alternative A used Full Depth Asphalt pavement, while Alternative B used Full Depth Concrete pavement.

Pavement Type Recommendation

The PTS concludes that Alternative B (Full Depth Concrete) is the preferred alternative, considering the economics of construction costs, maintenance costs, pavement performance and other factors over the analysis period. The alternatives are listed in Table 1 and are as follows:

Table 1: Pavement Design Alternatives

	Profile	Surface	Intermediate (Binder)	Base	Subbase
Alternate A	Mainline: Full Depth HMA	12.5 mm Superpave (1.50")	19 mm Superpave (2.00")	25 mm Superpave (8.00")	Graded Aggregate Base (12.00")
Alternate B	Mainline: Full Depth PCC	PCC (12.00")	---	---	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

Table 2 summarizes the life cycle costs for 40-year and 50-year analysis periods. The amounts displayed are the Annualized Agency Costs per mile per both directions.

Table 2: Annualized Costs

ALTERNATIVE DESIGNS	40 YEAR ANNUALIZED AGENCY COST <i>per mile per both directions</i>	50 YEAR ANNUALIZED AGENCY COST <i>per mile per both directions</i>
Alternative A HMA Full-Depth	\$52,509	\$48,784
Alternative B PCC Full-Depth	\$57,838	\$53,517

NOTE:

The 50 year Annualized Agency Cost for the PCC took into consideration the salvage value for the PCC at year 50. This salvage value is multiplied with the Present Worth Factor, subtracted from the Total Net Present Value (Agency Cost) and then used to derive the Annualized Cost above.

Table 3 summarizes the Total Scores and Ranking from the Decision Matrix. The scores were determined from the LCCA using a 40-year Analysis Period.

Table 3: Pavement Selection

ALTERNATIVE DESIGNS	RANK	TOTAL SCORE
Alternative B – PCC Full-Depth	1	87.3
Alternative A – HMA Full-Depth	2	80.5

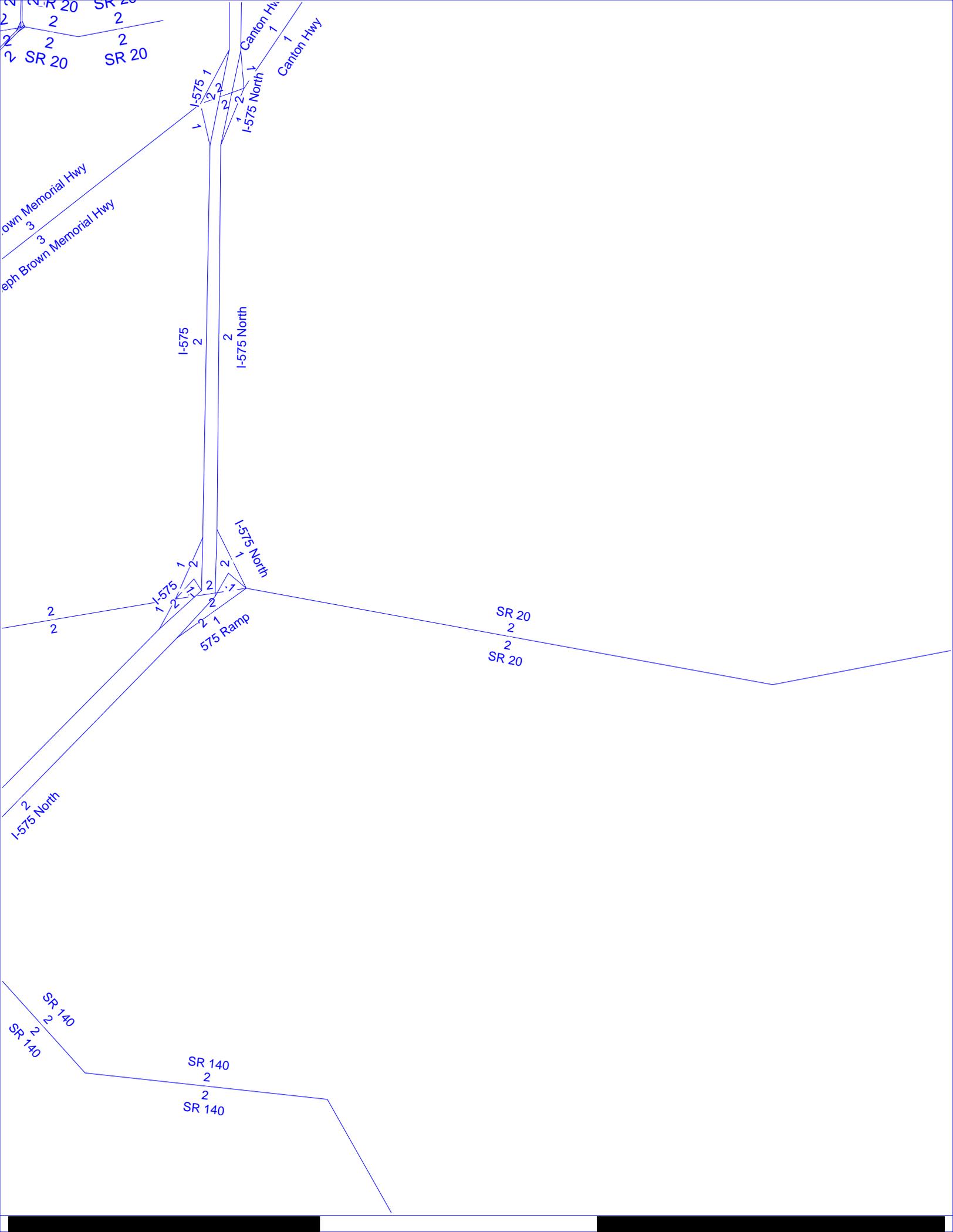
The detailed analysis is on file and can be requested from the Office of Materials and Research. Please contact A.J. Jubran at (404) 363-7582 or Eugene Utsalo at (404) 362-4930 if you should have any questions.

GMG: JTR: EUU

Attachments

1. Report Summary
2. Flexible Pavement Design
3. Rigid Pavement Design
4. Decision Matrix
5. Cost Itemization
6. Summary of Initial Costs

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DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE CSSTP-0009-00(164), Cherokee County OFFICE Program Delivery
P.I. No. 0009164
SR 20 from I-575 to CR 281/Scott Road DATE March 6, 2013

FROM *Genetha Rice-Singleton*
Genetha Rice-Singleton, State Program Delivery Engineer

TO Lisa Myers, State Review Engineer

SUBJECT Request to Partially Reverse Implemented VE Study Recommendation

A Value Engineering Study for road widening project 0009164 and truck climbing lanes project 632790 was conducted on this project October 28-31, 2008. Alternative RD-7 recommended using 5' sidewalks in lieu of 8' sidewalks for a savings of approximately \$141,835. Implementation of RD-7 was approved by the Chief Engineer on February 19, 2009.

Further discussions with the City of Canton have revealed that the City's master plan calls for 6' sidewalks with 4' grass pedestrian buffer area on streets within the City Limits. In accordance with our Complete Streets policy, and after evaluation of this change to the schedule and budget, the project team has determined that the sidewalks should match the City's master plan. The ROW impacts of this change will be minimal due to the setbacks of the commercial businesses on the south side of the road. The reduction of the sidewalks from 8' to 6', rather than 5', will result in a savings of approximately \$112,835.

Additionally, RD-6 recommended using a single multi-use trail instead of bike lanes. This recommendation was rejected and the stated reason was that SR 20 was on a statewide bike plan. Additional research on this as revealed that SR 20 is not on a statewide bike plan, nor is it on the Cherokee County or City of Canton bike network. Therefore, this recommendation will be accepted, and no bike lanes will be provided with this improvement. This will result in an additional savings of \$410,633.

If there are any questions please contact Karyn Matthews of this Office at (404) 631-1584.

^{AVS}
GRS:AVS:KMM

Approved: *Lisa L Myers* 3/12/13
State Review Engineer Date

Approved: *Lyndee Carpenter* 3/12/13
Director of Engineering Date

Approved: *Bill R. M. Myers* 3/18/13
Chief Engineer Date

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: STP00-0012-01(107)
CSSTP-0009-00(164), Cherokee County
P. I. Nos.: 632790 & 0009164
SR 20 Widening and Truck Climbing Lanes

OFFICE: Engineering Services

DATE: February 17, 2009

FROM: Ronald E. Wishon, Acting Project Review Engineer *REW*

TO: Kent L. Sager, District Engineer
Attention: DeWayne Comer, Project Manager

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate alternatives recommended for implementation to the extent reasonable in the design of the project.

**SR 20 Widening from I-575 to CR 288/Scott Rd. – CSSTP-0009-00(164),
PI No.0009164**

ALT No.	Description	Savings PW & LCC	Implement	Comments
ROADWAY (RD)				
RD-6	Use a single multi-use trail in lieu of bike lanes/sidewalk.	\$410,633	No	The project limits are within a section that is on the Statewide Bicycle Plan.
RD-7	Use 5' sidewalks in lieu of 8' sidewalks.	Proposed= \$737,809 Actual= \$141,835	Yes	The additional \$595,974 savings was in commercial ROW which will not change due to the coordination with the developer and City of Canton.
RD-11	Use MSE wall in lieu of poured in place GA STD 4948-B retaining wall for wall number one.	Proposed= \$29,391 Actual= \$39,600	Yes	MSE walls offer savings but impacts historic property boundaries. By using the 4948-C wall instead of 4948-B wall, a savings of \$39,600 is realized.
RD-12	Use modular block wall in lieu of poured in place GA STD 4948-B retaining wall for wall number one.	\$94,766	No	See above. Already implementing GA STD 4849-C retaining wall for wall number one.

SR 20 Truck Climbing Lanes – STP00-0012-01(107), PI #632790

ALT No.	Description	Savings PW & LCC	Implement	Comments
TRUCK CLIMBING LANES (TCL)				
TCL-3	Use Bi-directional “passing lanes” in lieu of truck climbing lanes.	\$508,462	No	According to HCM 2000, the optimal passing lane length for +700 pc/h is 1-2 miles. The VE proposal is two-1,000 foot long passing lanes and the original design calls for one-1.6 mile long passing lane. The project flow rate in 2031 will be 1,850 pc/h.
TCL-4	Do not realign Water Tank Road.	\$67,948	No	Right of Way has already been purchased and additional utility impacts would occur.
TCL-5	Reduce side road improvements of Cotton Road and Old Orange Mill Road.	\$59,073	No	Construction is necessary to provide intersection sight distance and to meet the new mainline pavement profile which is to be lowered.
TCL-7	Terminate the eastbound two-lane section at Sta. 3105+00 in lieu of Sta. 3120+00.	\$247,342	No	According to AASHTO, the ideal design is to extend the passing lane to a point beyond the crest of the vertical curve. The VE team is terminating the lane at a crest vertical curve prior to the highpoint of the roadway.
TCL-9	Coordinate in future with urban design to prevent construction of items which will be obsolete.	Design Suggestion	Yes	This will be done.
TCL-14	Use MSE wall in lieu of poured in place GA Standard.	Proposed=\$41,221 Actual=\$37,947	Yes	This will be done.
TCL-15	Use modular block wall in lieu of poured in place GA Standard.	\$85,993	No	See above. Already implementing MSE wall for wall number one above.

TRUCK CLIMBING LANES (TCL) Continued				
TCL-16	Delete westbound Truck Climbing Lane.	\$737,311	No	According to AASHTO 2004, pg. 244, Criterion 3 is satisfied which justifies a Truck Climbing Lane (TCL). Also according to AASHTO, the addition of TCL can defer total roadway reconstruction for many years or indefinitely. The LOS / Delay with the TCL is "E" / 1.85 min. and "F" / 2.31 min. without the TCL.
TCL-17	Shorten the beginning of the eastbound Truck Climbing Lane.	\$38,704	No	Right of Way has already been purchased. The VE proposal would reduce the TCL length from 1.0 mile long to 0.9 mile long which is less than the optimum design of 1 -2 miles for a flow rate of +700 pc/h. The project flow rate in 2031 is 1,850 pc/h.

A meeting was held on January 26, 2009 to discuss the above recommendations. DeWayne Comer, Joseph Ciavarro, and Kerric Primus with District 6 Design and Ron Wishon and Douglas Fadool with Engineering Services were in attendance. Additional information was provided by the Project Manager on January 27 and February 3 and 13, 2009.

The results above reflect the consensus of those in attendance and those who provided input.

Approved: Gerald M. Ross Date: 2/19/09
Gerald M. Ross, P. E., Chief Engineer

REW/DMF

Attachments

STP00-0012-01(107) and CSSTP-0009-00(164), Cherokee County

P. I. Nos.: 632790 & 0009164

VE Study Implementation

Page 4.

c: Genetha Rice-Singleton
DeWayne Comer
David Moore
Joseph Ciavarro
Kerric Primus
Galen Barrow
James Magnus
Patrick Bowers
Kenny Beckworth
Ken Werho
Lisa Myers
General Files