

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

Project Type: New Location P.I. Number: 522570
 GDOT District: 5 County: Liberty
 Federal Route Number: N/A State Route Number: US 84/SR 38 & SR 119

US 84 Connector creates a freight route alternate to SR 119 by constructing a two-lane highway in Liberty County southwest of SR 119. It would provide connectivity between US84/SR38 and SR 119.

Submitted for approval:

Vincent Hale, P.E. 10/26/15
 Moreland Altobelli Associates, Inc. DATE

[Signature] 10/26/15
 Liberty County Administrator DATE

Albert Shelby 12/2/15
 Office Head DATE

[Signature] 11/25/2015
 GDOT Project Manager DATE

Recommendation for approval:

ERIC DUFF*/EKP 4/29/2016
 State Environmental Administrator Date

KEN WERHO*/EKP 12/10/2015
 State Traffic Engineer Date

BILL DUVALL*/EKP 5/7/2016
 State Bridge Engineer Date

- EKP**
- MPO Area: This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).
 - Rural Area: This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

CINDY VAN DYKE*/EKP 12/19/2015
 State Transportation Planning Administrator Date

** - RECOMMENDATION ON FILE*

County:

PLANNING, APPROVED CONCEPT, AND BACKGROUND

Project Justification Statement: PI No.522570 is listed as projects 114 and 115 in the Hinesville Area Metropolitan Planning Organization's (HAMPO) Long Range Transportation Plan (LRTP) with right-of-way funds programmed in the FY 2015-2018 Transportation Improvement Program (TIP). The project was added to Georgia Department of Transportation's (GDOT) work program in 1992 at the request of Liberty County. US 84/SR 38 has been designated a non-interstate route in the Strategic Highway Network (STRAHNET) and is currently a coastal evacuation route. The Coastal Regional Commission identified US 84/SR 38 as a potential bike and pedestrian route beginning from the Wayne/Long County line and ending at the intersection with US17 in Midway. The Liberty Transit system has multiple local bus routes that serve US 84/SR 38 in the project area.

A traffic study completed in 2010 by Moreland Altobelli Associates and approved by GDOT and HAMPO identified the need to shift regional traffic away from the section of US 84/SR 38 that travels through the center of Hinesville. According to the HAMPO travel demand model, approximately 35% of the traffic currently on US 84/SR 38 in Hinesville is regional traffic. Due to commercial development and a large number of driveways, the roadway's functionality as regional thoroughfare is diminished.

As documented in HAMPO's travel demand model, traffic volumes on US 84/SR 38 inside the City of Hinesville are expected to increase 64% by the 2035 design year. This increase in traffic would result in most of the roadway segments and intersections within the City of Hinesville operating at LOS E or LOS F that represent unacceptable traffic conditions. Therefore, the capacity of US 84/SR 38 would be unable to handle the future traffic demand. The regional traffic also includes a large number of tractor trailer trucks traveling between manufacturers in Wayne County (southwest of Hinesville) and the Port of Savannah. The roadway segment of US 84/SR 38 through Hinesville has 18% trucks as determined from the daily truck classification data collected in September of 2015.

The project runs south of Walthourville and parallels SR 119. The proposed western logical terminus of the project is located on US 84/SR 38 just southwest of Walthourville and at the edge of the heavily developed commercial area extending from Hinesville; this is where traffic volumes decrease from 15740 vpd to 13,400 vpd and future level-of-service (LOS) is an acceptable¹ LOS B. The eastern logical terminus is proposed to be along existing SR 119 beyond Tibet Road where the US 84 Connector joins SR 119. SR 119 beyond the project would operate at a LOS B.

In addition to providing congestion relief on US 84/SR 38 and an essential evacuation route, the project would provide regional economic benefits by facilitating truck movements and providing access to future area development. The purpose of this project is to improve regional travel through Liberty County while also accommodating local traffic in Hinesville. With regard to statewide performance measures, this project is needed to improve future traffic conditions on US 84/SR 38 to an acceptable level-of-service.

Existing conditions: The proposed roadway is on new location southwest of the existing SR 119. The land uses are primarily residential with some commercial and light industrial.

Description of the approved concept: The proposed bypass, referred to as US 84 Connector, consist of a new location roadway that would begin at US 84/SR 38 (Oglethorpe Highway) and would be located approximately one mile south of SR 119, just outside the city limits of Walthourville in Long County. The alignment would continue east parallel to SR 119 and bridge over the CSXT railroad. The bypass would intersect with Arnold Drive, Griffin Road, Tibet Road (also called Tibet Highway), and Sandy Run Rd.

¹ *Acceptable Levels of Service are those that are greater than C in rural areas and D in urban areas.*

County:

ENVIRONMENTAL AND PERMITS

Potential environmental impacts of proposed revision: It is not anticipated that the new alignment would have any impacts on historic properties. Some wetland or stream impacts will require mitigation.

Have proposed revisions been reviewed by environmental staff? No Yes

Environmental responsibilities (Studies/Documents/Permits): Moreland Altobelli Associates would conduct and prepare environmental studies, documents and permits on behalf of Liberty County,

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

Environmental Comments and Information:

NEPA: It is anticipated that an Environmental Assessment (EA)/Finding of No Significant Impact (FONSI) will be completed for the proposed project as it will be constructed on new location.

Ecology: A preliminary field survey for wetlands, streams, and endangered/threatened species habitat has been performed for preparation of the revised concept Report. There are wetlands and stream impacts that will require mitigation including a US Army Corp of Engineers Section 404 Regional permit. All protected species will be assessed through a field visit to determine the presence/absence of these species along the proposed project.

Archaeology: A windshield/pedestrian survey was conducted. A cemetery was identified to be approximately within 20 feet of the project. Therefore, an archaeology survey will be required to establish any impacts of the project to the cemetery.

History: A preliminary desktop survey for History has been performed for preparation of the revised Concept Report. Based on preliminary database research, 2 properties, 50+ years old were identified within the study area. Preliminary data indicates that the resources are outside the area of potential effect. Upon field review, one of the properties was found to be outside the area of effect. The other property is within the area of potential effect and a full history report will be required.

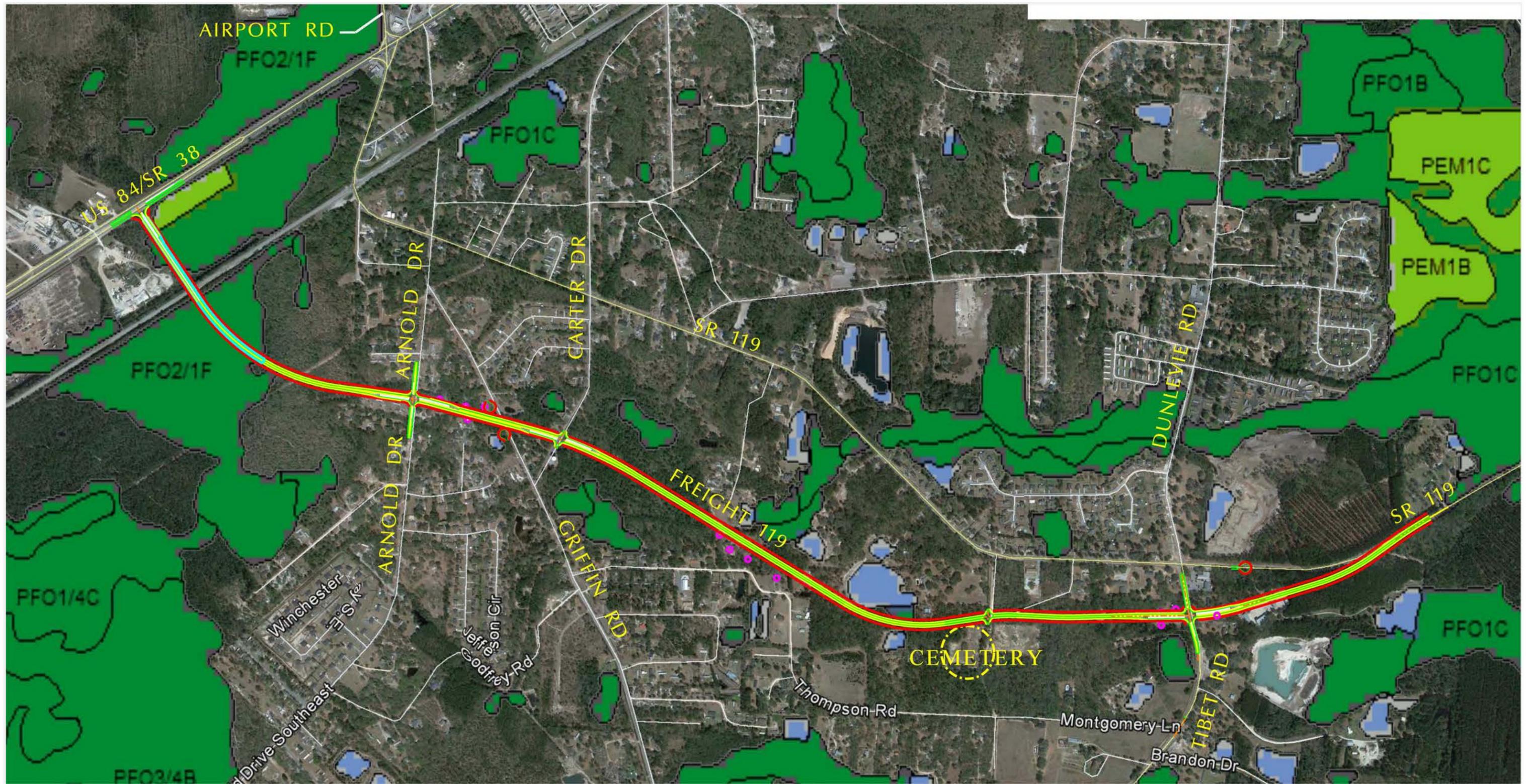
Air Quality: An Air Quality Impact Assessment has not been performed. Liberty County is in an attainment area for PM_{2.5} and Ozone. CO modeling will not be required because traffic volumes are lower than 10,000 vehicles per day and there are no traffic signals on this project.

Noise Effects: Noise studies will be required to determine if there are any impacts to receptors along the route.

Public Involvement: This project will require a Public Information Open House (PIOH) and Public Hearing Open House (PHOH). A PIOH meeting is tentatively being planned for June 2016 to present the conceptual alignment along with the typical sections and the Environmental Sensitive Areas (ESAs) to the public

Attachment 1

Concept Layout



Attachment 2

Cost Estimates

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. **OFFICE**

PROJECT DESCRIPTION

DATE

From:

To: Lisa L. Myers, State Project Review Engineer

Subject: REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER **MGMT LET DATE**
MGMT ROW DATE

PROGRAMMED COSTS (TPro W/OUT INFLATION)

LAST ESTIMATE UPDATE

CONSTRUCTION	\$	<input type="text" value="18,443,555.00"/>	DATE	<input type="text" value="9/22/2014"/>
RIGHT OF WAY	\$	<input type="text" value="3,044,000.00"/>	DATE	<input type="text" value="9/22/2014"/>
UTILITIES	\$	<input type="text" value="812,400.00"/>	DATE	<input type="text" value="10/4/2013"/>

REVISED COST ESTIMATES

CONSTRUCTION*	\$	<input type="text" value="22,864,479.06"/>
RIGHT OF WAY	\$	<input type="text" value="2,583,000.00"/>
UTILITIES	\$	<input type="text" value="926,850.00"/>

*Cost Contains % Contingency

REASONS FOR COST INCREASE AND CONTINGENCY JUSTIFICATION:

CONTINGENCY SUMMARY

A. CONSTRUCTION COST ESTIMATE:	\$	18,620,070.11	Base Estimate From CES
B. ENGINEERING AND INSPECTION (E & I):	\$	931,003.51	Base Estimate (A) x 5 %
C. CONTINGENCY:	\$	2,932,661.04	Base Estimate (A) + E & I (B) x 15 % See % Table in "Risk Based Cost Estimation" Memo
D. TOTAL LIQUID AC ADJUSTMENT:	\$	380,744.40	Total From Liquid AC Spreadsheet
E. CONSTRUCTION TOTAL:	\$	22,864,479.06	(A + B + C + D = E)

REIMBURSABLE UTILITY COSTS

UTILITY OWNER	REIMBURSABLE COST
Atlanta Gas Light Co	\$ 220,500.00
Century Link	\$ 55,600.00
Coastal EMC	\$ 109,150.00
Comcast	\$ 61,200.00
Georgia Power Distribution	\$ 180,000.00
Georgia Power Transmission	\$ 264,600.00
Liberty County Commissioners	\$ 35,800.00
TOTAL	\$ 926,850.00

ATTACHMENTS:

Detailed Cost Estimate Printout From TRAQS
Liquid AC Adjustment Spreadsheet

GEORGIA DEPARTMENT OF TRANSPORTATION

DATE : 09/09/2015

PAGE : 1

JOB DETAIL ESTIMATE

JOB NUMBER : 522570 SPEC YEAR: 01
 DESCRIPTION: US 84 CONNECTOR

ITEMS FOR JOB 522570

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0203	150-1000		LS	TRAFFIC CONTROL - 522570	1.000	100000.00	100000.00
0208	201-1500		LS	CLEARING & GRUBBING - 522570	1.000	300000.00	300000.00
0213	205-0001		CY	UNCLASS EXCAV	45000.000	8.17	368079.30
0218	206-0002		CY	BORROW EXCAV, INCL MATL	527500.000	5.40	2849307.08
0223	207-0203		CY	FOUND BKFILL MATL, TP II	500.000	56.57	28287.25
0247	310-1101		TN	GR AGGR BASE CRS, INCL MATL	33041.000	24.33	803948.00
0253	402-3121		TN	RECYL AC 25MM SP,GP1/2,BM&HL	10210.000	72.78	743169.97
0258	402-3141		TN	RECYL AC 12.5 MM SP,GP 1 OR 2,INCL BM	6872.000	69.31	476321.07
0262	402-3143		TN	RECYL AC 25 MM SP,GP 1 OR 2,INCL BM	8283.000	54.39	450512.37
0267	402-3190		TN	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	8283.000	76.89	636879.87
0268	413-1000		GL	BITUM TACK COAT	33041.000	1.67	55387.62
0273	433-1000		SY	REINF CONC APPROACH SLAB	315.000	173.17	54550.75
0278	436-1000		LF	ASPH CONC CURB - 522570	2400.000	8.65	20780.83
0283	441-0016		SY	DRIVEWAY CONCRETE, 6 IN TK	800.000	38.94	31154.11
0293	500-9999		CY	CL B CONC,BASE OR PVMT WIDEN	75.000	206.92	15519.41
0298	550-1180		LF	STM DR PIPE 18",H 1-10	700.000	39.94	27962.55
0303	550-1240		LF	STM DR PIPE 24",H 1-10	700.000	51.61	36131.70
0313	550-3318		EA	SAFETY END SECTION 18",STD,4:1	20.000	703.16	14063.34
0318	550-3324		EA	SAFETY END SECTION 24",STD,4:1	20.000	1148.79	22975.98
0323	550-3618		EA	SAFETY END SECTION 18",SD,6:1	40.000	472.51	18900.56
0328	576-1018		LF	SLOPE DRAIN PIPE, 18 IN	200.000	37.13	7426.18
0333	603-2181		SY	STN DUMPED RIP RAP, TP 3, 18"	175.000	76.40	13370.28
0338	603-2182		SY	STN DUMPED RIP RAP, TP 3, 24"	245.000	48.45	11871.96
0343	603-7000		SY	PLASTIC FILTER FABRIC	420.000	3.93	1650.65
0348	634-1200		EA	RIGHT OF WAY MARKERS	125.000	100.78	12598.03
0353	641-1100		LF	GUARDRAIL, TP T	100.000	66.09	6609.83
0358	641-1200		LF	GUARDRAIL, TP W	1000.000	17.58	17584.80
0363	641-5001		EA	GUARDRAIL ANCHORAGE, TP 1	2.000	914.47	1828.94
0368	641-5012		EA	GUARDRAIL ANCHORAGE, TP 12	2.000	2008.40	4016.80
0378	543-9000		LS	CONSTR OF BRIDGE COMPLETE - 522570	1.000	11000000.00	11000000.00
0383	163-0232		AC	TEMPORARY GRASSING	18.000	769.59	13852.76
0388	163-0240		TN	MULCH	90.000	198.62	17876.69
0393	163-0300		EA	CONSTRUCTION EXIT	6.000	1571.88	9431.32
0398	163-0531		EA	CONSTR & REM SEDIMENT BASIN,TP 1,STA NO- 522570	2.000	12378.82	24757.65
0403	165-0101		EA	MAINT OF CONST EXIT	6.000	638.91	3833.50

GEORGIA DEPARTMENT OF TRANSPORTATION

DATE : 09/09/2015

PAGE : 2

JOB DETAIL ESTIMATE

0408	165-0010	LF	MAINT OF TEMP SILT FENCE, TP A	5640.000	0.38	2151.43
0413	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	13160.000	0.48	6423.40
0418	165-0060	EA	MAINT OF TEMP SEDIMENT BASIN,STA NO -	2.000	1966.11	3932.23
0423	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000	430.24	860.49
0428	167-1500	MO	WATER QUALITY INSPECTIONS	24.000	635.16	15243.89
0433	171-0010	LF	TEMPORARY SILT FENCE, TYPE A	5640.000	1.80	10188.21
0438	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	13160.000	3.00	39533.30
0443	700-6910	AC	PERMANENT GRASSING	18.000	1018.17	18327.20
0448	700-7000	TN	AGRICULTURAL LIME	1.000	92.64	92.65
0453	700-8000	TN	FERTILIZER MIXED GRADE	1.000	535.42	535.42
0458	700-8100	LB	FERTILIZER NITROGEN CONTENT	20.000	5.67	113.54
0463	710-9000	SY	PERM SOIL REINFORCING MAT	6200.000	3.35	20820.72
0468	716-2000	SY	EROSION CONTROL MATS, SLOPES	2000.000	1.61	3226.64
0473	636-1020	SF	HWY SGN,TP1MAT,REFL SH TP3	100.000	14.25	1425.76
0478	636-1033	SF	HWY SIGNS, TP1MAT,REFL SH TP 9	70.000	19.27	1349.56
0488	636-2080	LF	GALV STEEL POSTS, TP 8	420.000	9.19	3860.61
0493	653-0120	EA	THERM PVMT MARK, ARROW, TP 2	36.000	83.80	3016.90
0497	653-0210	EA	THERM PVMT MARK, WORD , TP 1	4.000	134.91	539.65
0498	653-1501	LF	THERMO SOLID TRAF ST 5 IN, WHI	33000.000	0.39	12944.58
0503	653-1502	LF	THERMO SOLID TRAF ST, 5 IN YEL	33000.000	0.38	12856.47
0508	653-1704	LF	THERM SOLID TRAF STRIPE,24",WH	300.000	6.42	1927.61
0512	653-1804	LF	THERM SOLID TRAF STRIPE, 8",WH	1000.000	2.50	2506.73
0513	653-3501	GLF	THERMO SKIP TRAF ST, 5 IN, WHI	1500.000	0.36	550.44
0518	653-6004	SY	THERM TRAF STRIPING, WHITE	100.000	5.13	513.59
0523	653-6006	SY	THERM TRAF STRIPING, YELLOW	2000.000	3.95	7907.10
0528	654-1001	EA	RAISED PVMT MARKERS TP 1	400.000	4.05	1622.21
0538	654-1003	EA	RAISED PVMT MARKERS TP 3	200.000	3.03	606.00
0543	657-1085	LF	PRF PL SD PVT MKG,8",B/W,TP PB	2200.000	5.64	12408.00
0548	657-6085	LF	PRF PL SD PVMT MKG,8",B/Y,TPPB	1800.000	6.12	11016.00
0552	639-4004	EA	STRAIN POLE, TP IV	8.000	7866.07	62928.63
0553	647-1000	LS	TRAF SIGNAL INSTALLATION NO - 522570	1.000	80000.00	80000.00
0558	647-1000	LS	TRAF SIGNAL INSTALLATION NO - 522570	1.000	80000.00	80000.00
ITEM TOTAL						18620070.11
INFLATED ITEM TOTAL						18620070.11
TOTALS FOR JOB 522570						
ESTIMATED COST:						18620070.11
CONTINGENCY PERCENT (0.0):						0.00
ESTIMATED TOTAL:						18620070.11

PROJ. NO. US 84 Connector
P.I. NO. 522570
DATE 9/9/2015

CALL NO. 9/29/2009

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Sep-15	\$ 2.289
DIESEL		\$ 2.569
LIQUID AC		\$ 450.00

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)				342427.5	\$	342,427.50
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	720.00		
Monthly Asphalt Cement Price month project let (APL)			\$	450.00		
Total Monthly Tonnage of asphalt cement (TMT)				1268.25		

ASPHALT	Tons	%AC	AC ton
Leveling		5.0%	0
12.5 OGFC		5.0%	0
12.5 mm	6872	5.0%	343.6
9.5 mm SP		5.0%	0
25 mm SP	10210	5.0%	510.5
19 mm SP	8283	5.0%	414.15
	25365		1268.25

BITUMINOUS TACK COAT

Price Adjustment (PA)				\$	38,316.90	\$	38,316.90
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	720.00			
Monthly Asphalt Cement Price month project let (APL)			\$	450.00			
Total Monthly Tonnage of asphalt cement (TMT)				141.9144296			

Bitum Tack

Gals	gals/ton	tons
33041	232.8234	141.91443

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)					\$	0	\$	-
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	720.00				
Monthly Asphalt Cement Price month project let (APL)			\$	450.00				
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 \$ **380,744.40**

GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 7/2/2015
Revised:

Project: NH000-0026-03(756)
County: Liberty
PI: 522750

Description: US 84 Connector
Project Termini: US 84 to SR 119

Existing ROW: Varies
Required ROW: 100'
Parcels: 28

Land and Improvements _____ \$1,421,760.00

Proximity Damage	\$50,000.00
Consequential Damage	\$0.00
Cost to Cures	\$0.00
Trade Fixtures	\$0.00
Improvements	\$500,000.00

Valuation Services _____ \$85,000.00

Legal Services _____ \$206,400.00

Relocation _____ \$456,000.00

Demolition _____ \$150,000.00

Administrative _____ \$263,500.00

TOTAL ESTIMATED COSTS _____ \$2,582,660.00

TOTAL ESTIMATED COSTS (ROUNDED) _____ \$2,583,000.00

Preparation Credits	Hours	Signature
Benjamin M. Garland Jr.	4	<i>Benjamin M. Garland Jr.</i>

Prepared By: *Benjamin M. Garland Jr.* CG#: *611270880* DATE: *7/2/15*
 Approved By: *Deshone Alexander* CG#: 286999 DATE: 07/17/2015

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

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE PI No. 522570 Liberty Co. OFFICE District 5, Jesup
SR 38 Bypass DATE July 6, 2015

FROM 
Dallery Rozier, District Utilities Engineer

TO Aghdas Ghazi, Project Manager

SUBJECT UPDATED UTILITY COST (ESTIMATE)

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

Facility Owner	Non-Reimbursable	Reimbursable	Comments
Atlanta Gas Light Co.	\$ 0.00	\$220,500.00	
Canochee EMC	\$ 29,750.00	\$ 0.00	
Century Link	\$172,750.00	\$ 55,600.00	
City of Walthourville - Water	\$ 23,150.00	\$ 0.00	
City of Walthourville – Sewer	\$ 18,850.00	\$ 0.00	
Coastal EMC	\$317,500.00	\$109,150.00	
Comcast	\$ 41,340.00	\$ 61,200.00	
Georgia Power – Distribution	\$ 0.00	\$180,000.00	
Georgia Power – Transmission	\$ 0.00	\$264,600.00	
Liberty County Commissioners	\$ 38,580.00	\$ 19,300.00	
Liberty County Commissioners	\$ 33,075.00	\$ 16,500.00	
Totals	\$675,995.00	\$926,850.00	
Total Reimbursement		\$926,850.00	

CC: Jun Birnkammer, State Utilities Preconstruction Engineer
Yulanda Pride-Foster, Utilities Preconstruction Engineer
Vahid Munshi, Management Specialist
District Office File
Utilities Office File

Attachment 3

Traffic Flow Diagrams

Department of Transportation State of Georgia

INTERDEPARTMENT CORRESPONDENCE

FILE NH000-0026-03(056) **OFFICE** Planning
P.I. # 522570
Liberty County **DATE** November 19, 2015

FROM Cynthia L. VanDyke, State Transportation Planning Administrator

TO Albert Shelby, State Program Delivery Design Engineer
Attention: Aghdas S. Ghazi

SUBJECT **Review of Design Traffic for *SR 38 BYPASS FROM SR 38/US 84/LONG TO SR 119/LIBERTY***

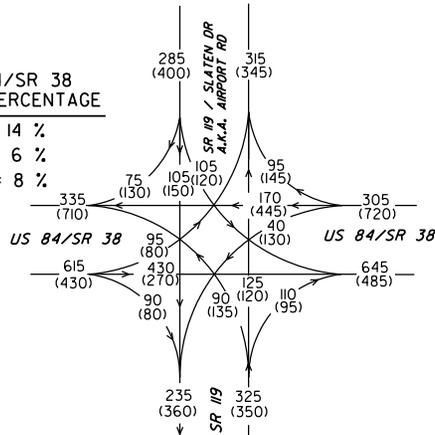
As per your request, we reviewed the consultant's Design Traffic for the above project.

Based on the information furnished, the **Design Traffic** is approved. Any questions concerning this review should be addressed to Ms. Leslie R. Woods at e-mail lwoods2@dot.ga.gov or phone (404) 631-1773.

CLV/lrw

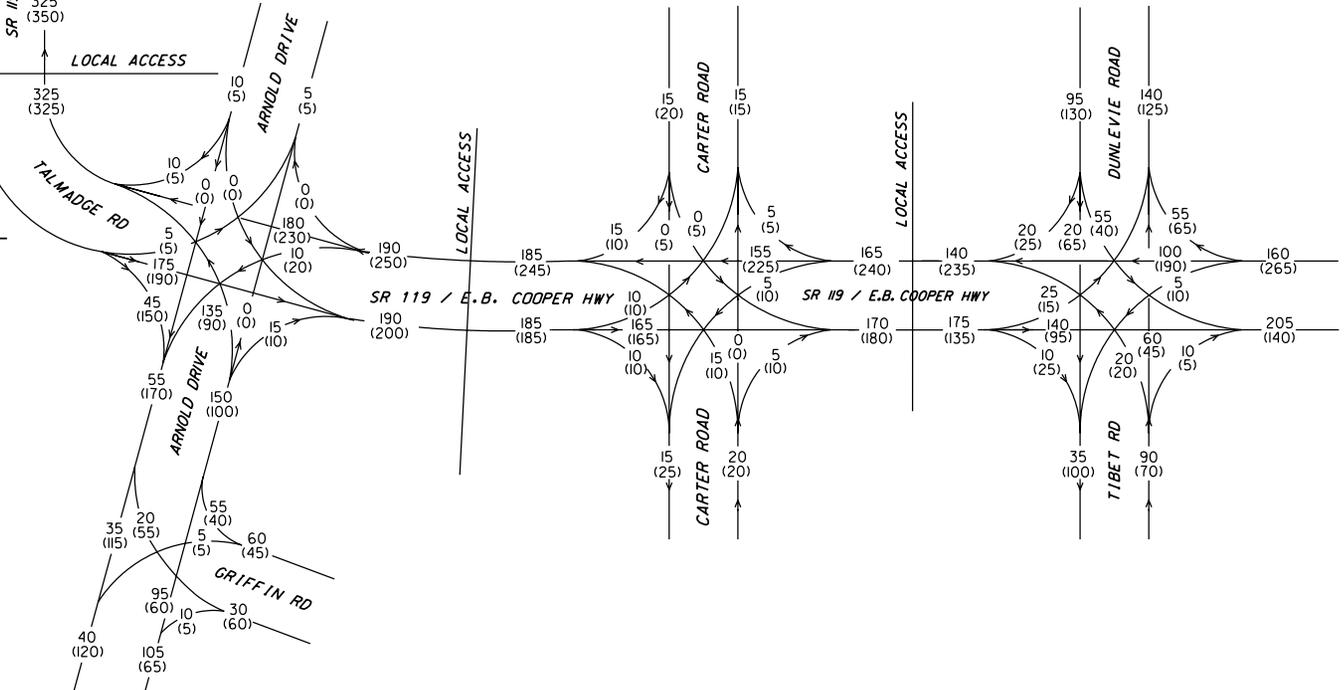
**US 84/SR 38
TRUCK PERCENTAGE**

T = 14 %
SU = 6 %
COMB = 8 %



**SR 119
TRUCK PERCENTAGE**

T = 11 %
SU = 8 %
COMB = 3 %



LEGEND
OO AM PEAK HOUR
(OO) PM PEAK HOUR

MA Moreland Altobelli Associates, Inc.
2211 Beaver Run Road
Suite 190
Norcross, Georgia, 30071
Telephone 770/263-9945

KP 10/15

NH000-0026-03 (056)
PI No. 522570
LIBERTY COUNTY,
GEORGIA

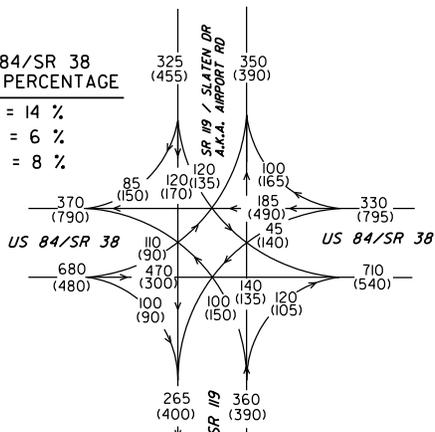
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TRAFFIC FLOW DIAGRAMS
US 84 CONNECTOR
LIBERTY COUNTY
2015 EXISTING PEAK HOUR TRAFFIC

DRAWING No. **10-001**

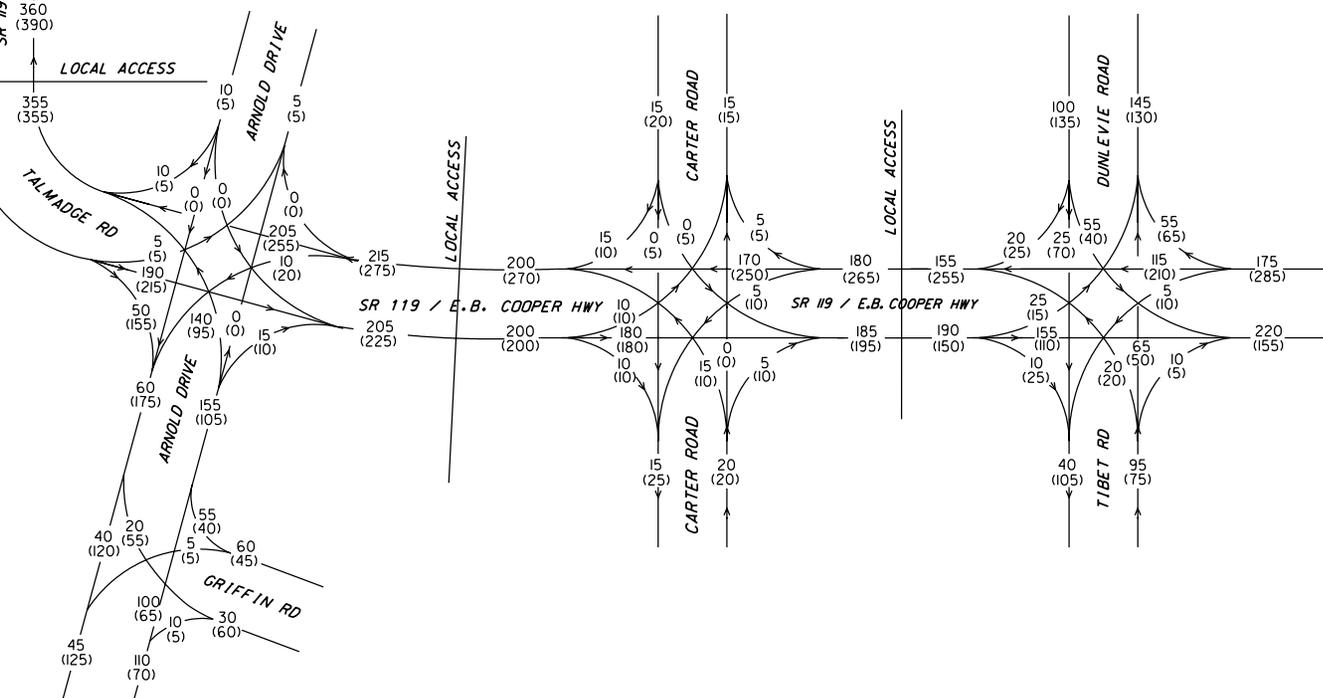
**US 84/SR 38
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COMB = 8 %



**SR 119
TRUCK PERCENTAGE**

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SU = 8 %
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LEGEND
OO AM PEAK HOUR
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MA Moreland Altobelli Associates, Inc.
2211 Beaver Run Road
Suite 190
Norcross, Georgia, 30071
Telephone 770/263-9945

KP 10/15

NH000-0026-03 (056)
PI No. 522570
LIBERTY COUNTY,
GEORGIA

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:

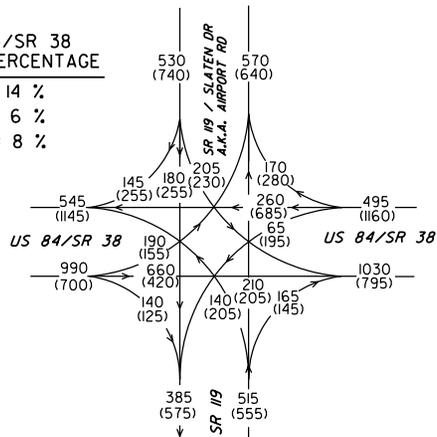
TRAFFIC FLOW DIAGRAMS
US 84 CONNECTOR
LIBERTY COUNTY

2020 NO-BUILD PEAK HOUR TRAFFIC

DRAWING No. **10-003**

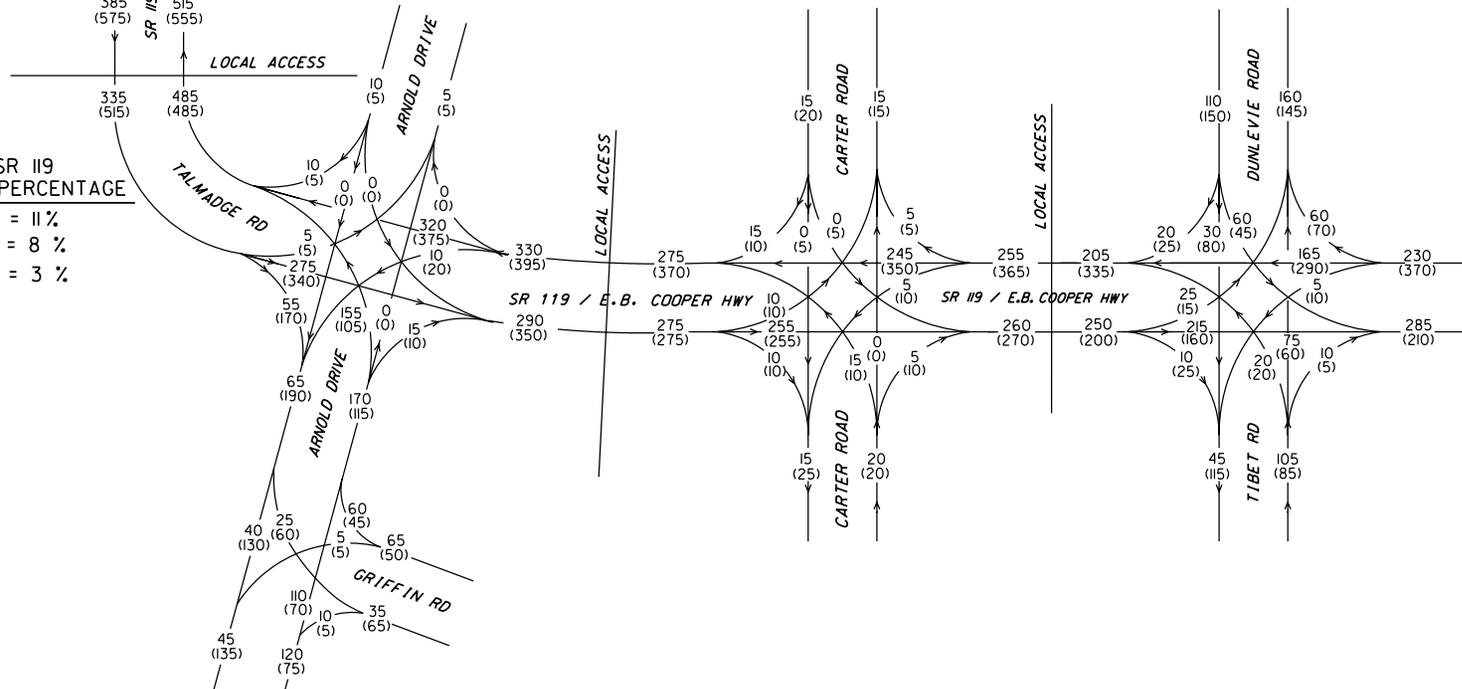
**US 84/SR 38
TRUCK PERCENTAGE**

T = 14 %
SU = 6 %
COMB = 8 %



**SR 119
TRUCK PERCENTAGE**

T = 11 %
SU = 8 %
COMB = 3 %



LEGEND

OO AM PEAK HOUR
(OO) PM PEAK HOUR

MA Moreland Altobelli Associates, Inc.
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Telephone 770/263-9945

KP 10/15

NH000-0026-03 (056)
PI No. 522570
LIBERTY COUNTY,
GEORGIA

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:

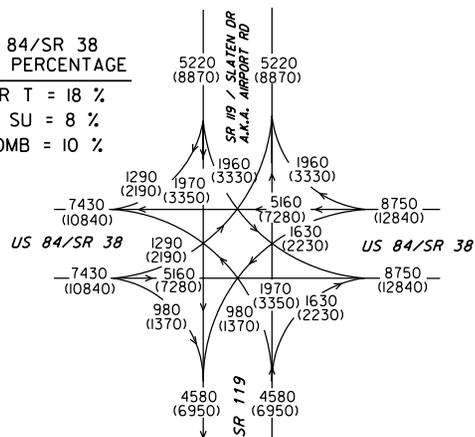
TRAFFIC FLOW DIAGRAMS

US 84 CONNECTOR
LIBERTY COUNTY
2040 NO-BUILD PEAK HOUR TRAFFIC

DRAWING No. **10-004**

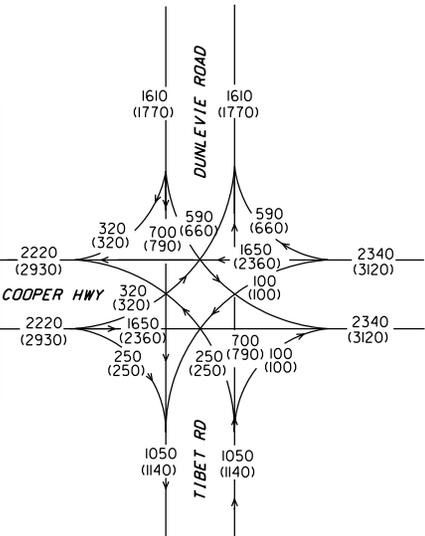
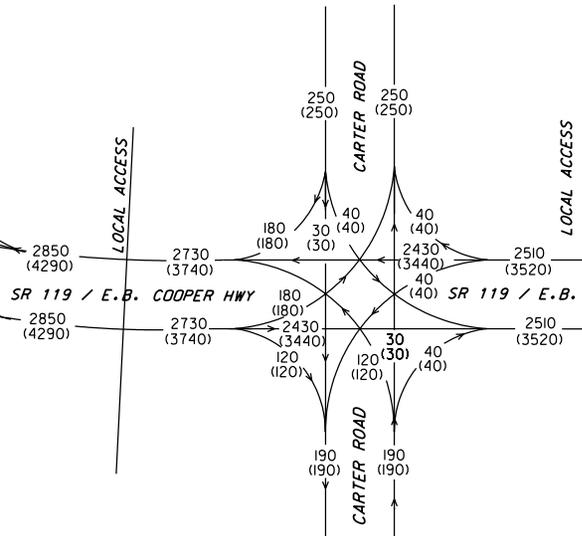
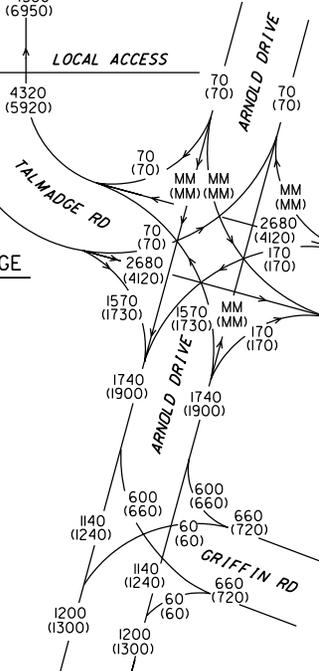
**US 84/SR 38
TRUCK PERCENTAGE**

24-HR T = 18 %
SU = 8 %
COMB = 10 %



**SR 119
TRUCK PERCENTAGE**

24-HR T = 11 %
SU = 8 %
COMB = 3 %



LEGEND

00	2020 ADT
(00)	2040 ADT
MM	MINOR MOVEMENT

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Norcross, Georgia, 30071
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NH000-0026-03 (056)
PI No. 522570
LIBERTY COUNTY,
GEORGIA

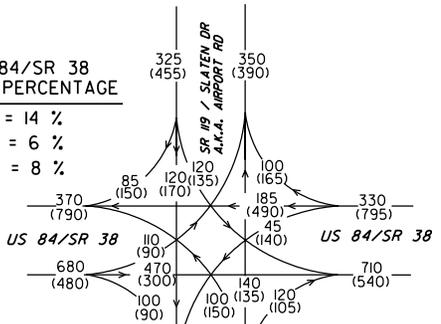
REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TRAFFIC FLOW DIAGRAMS
US 84 CONNECTOR
LIBERTY COUNTY
2020/2040 NO-BUILD ADT

DRAWING No. **10-005**

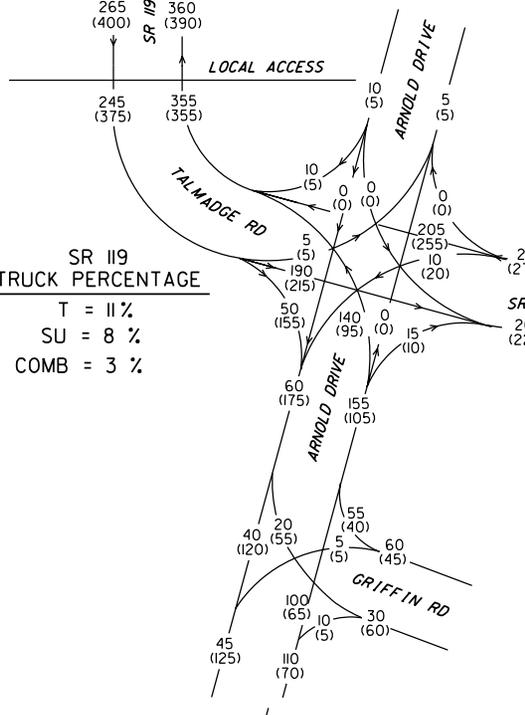
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T = 14 %
 SU = 6 %
 COMB = 8 %



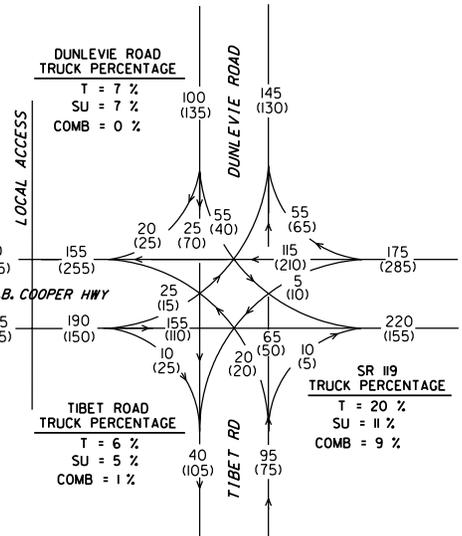
SR 119 TRUCK PERCENTAGE

T = 11 %
 SU = 8 %
 COMB = 3 %



DUNLEVIE ROAD TRUCK PERCENTAGE

T = 7 %
 SU = 7 %
 COMB = 0 %

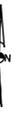


TIBET ROAD TRUCK PERCENTAGE

T = 6 %
 SU = 5 %
 COMB = 1 %

SR 119 TRUCK PERCENTAGE

T = 20 %
 SU = 11 %
 COMB = 9 %



LEGEND
 OO AM PEAK HOUR
 (OO) PM PEAK HOUR

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REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:

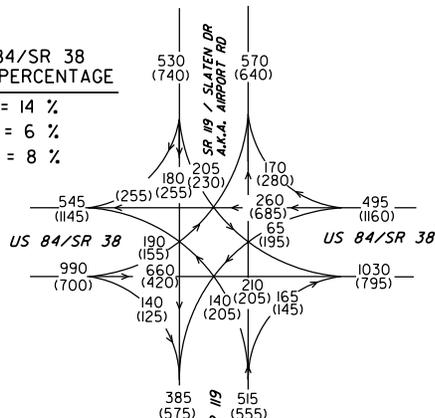
TRAFFIC FLOW DIAGRAMS

US 84 CONNECTOR
 LIBERTY COUNTY
 2022 NO-BUILD PEAK HOUR TRAFFIC

DRAWING No. **10-006**

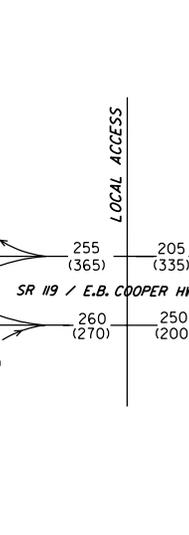
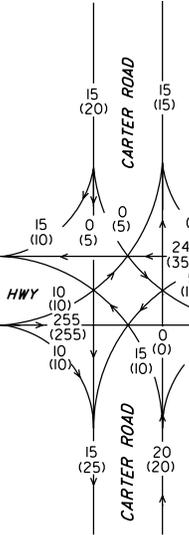
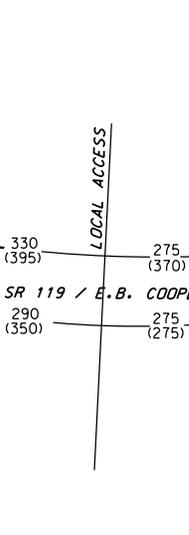
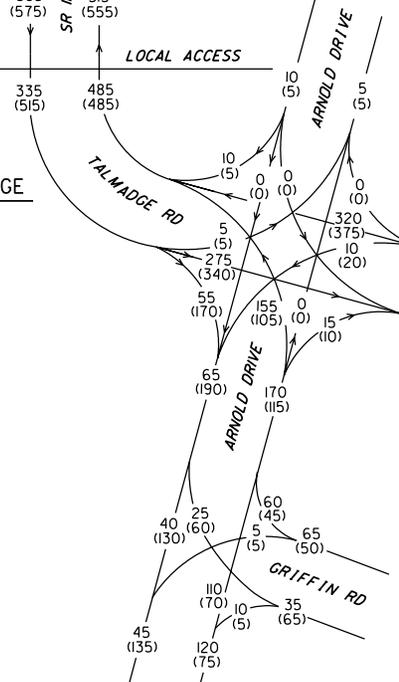
**US 84/SR 38
TRUCK PERCENTAGE**

T = 14 %
SU = 6 %
COMB = 8 %



**SR 119
TRUCK PERCENTAGE**

T = 11 %
SU = 8 %
COMB = 3 %



LEGEND
OO AM PEAK HOUR
(OO) PM PEAK HOUR

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NH000-0026-03 (056)
PI No. 522570
LIBERTY COUNTY,
GEORGIA

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:

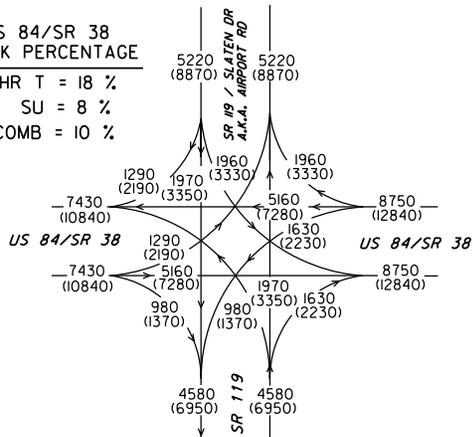
TRAFFIC FLOW DIAGRAMS

US 84 CONNECTOR
LIBERTY COUNTY
2042 NO-BUILD PEAK HOUR TRAFFIC

DRAWING No.
10-007

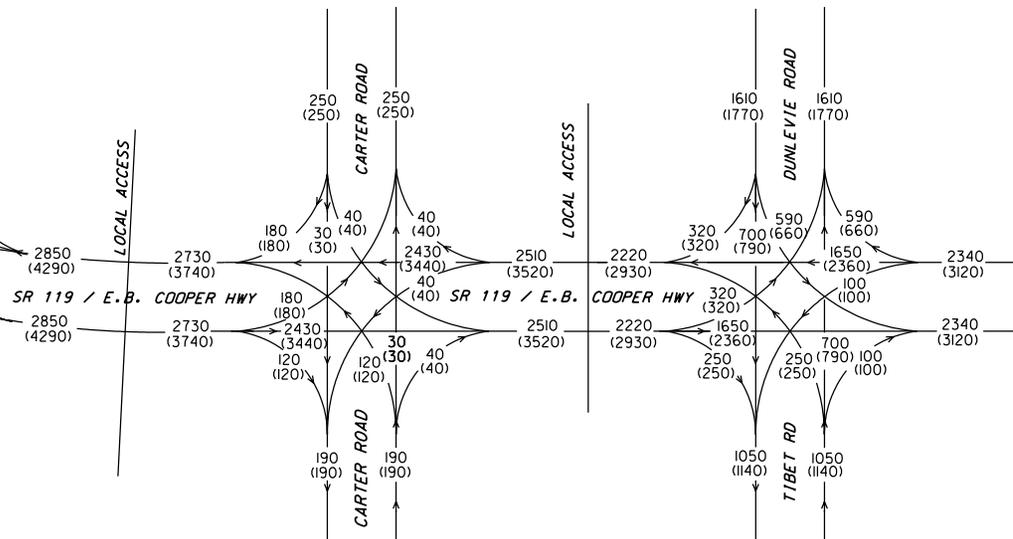
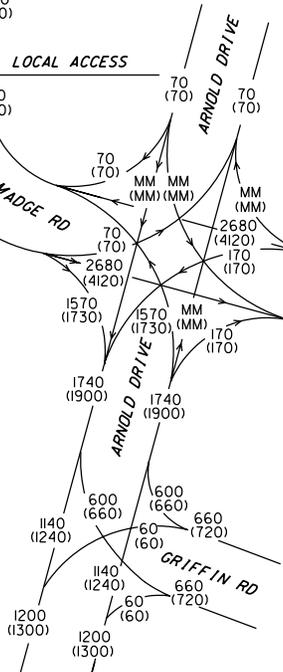
**US 84/SR 38
TRUCK PERCENTAGE**

24-HR T = 18 %
SU = 8 %
COMB = 10 %



**SR 119
TRUCK PERCENTAGE**

24-HR T = 11 %
SU = 8 %
COMB = 3 %



LEGEND
00 2022 ADT
(00) 2042 ADT

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NH00-0026-03 (056)
PI No. 522570
LIBERTY COUNTY,
GEORGIA

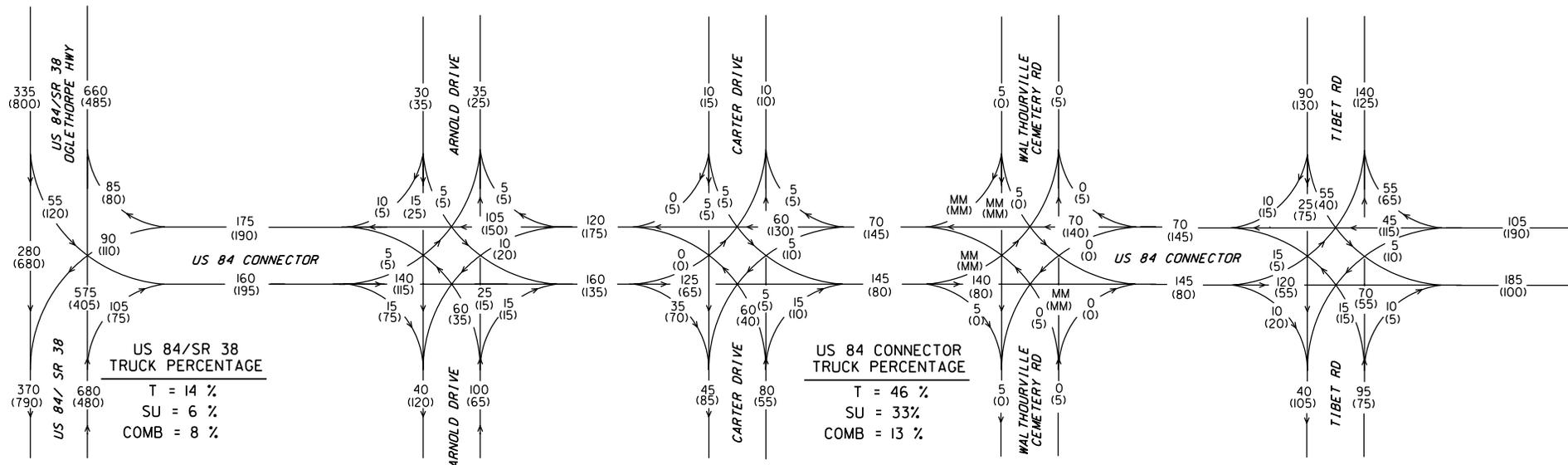
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:

TRAFFIC FLOW DIAGRAMS

US 84 CONNECTOR
LIBERTY COUNTY
2022/2042 NO-BUILD ADT

DRAWING No.
10-008



LEGEND

00 AM PEAK HOUR
 (00) PM PEAK HOUR
 MM MINOR MOVEMENT

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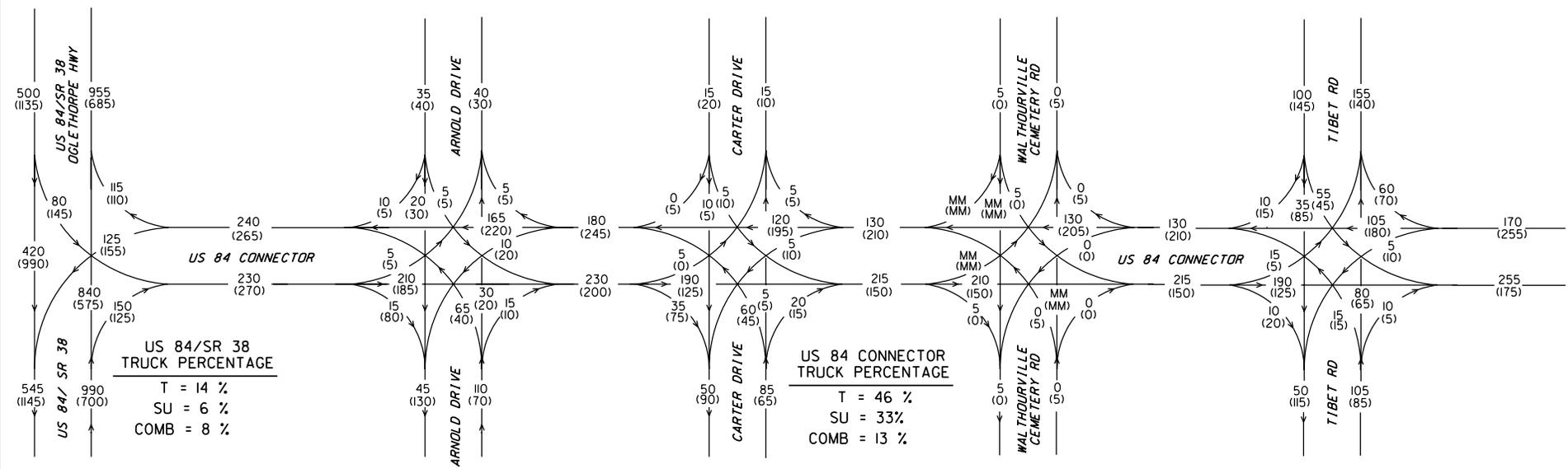
REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION

OFFICE:
TRAFFIC FLOW DIAGRAMS
 US 84 CONNECTOR
 LIBERTY COUNTY

2020 BUILD PEAK HOUR TRAFFIC

DRAWING No. **10-009**



LEGEND

OO AM PEAK HOUR
 (OO) PM PEAK HOUR
 MM MINOR MOVEMENT

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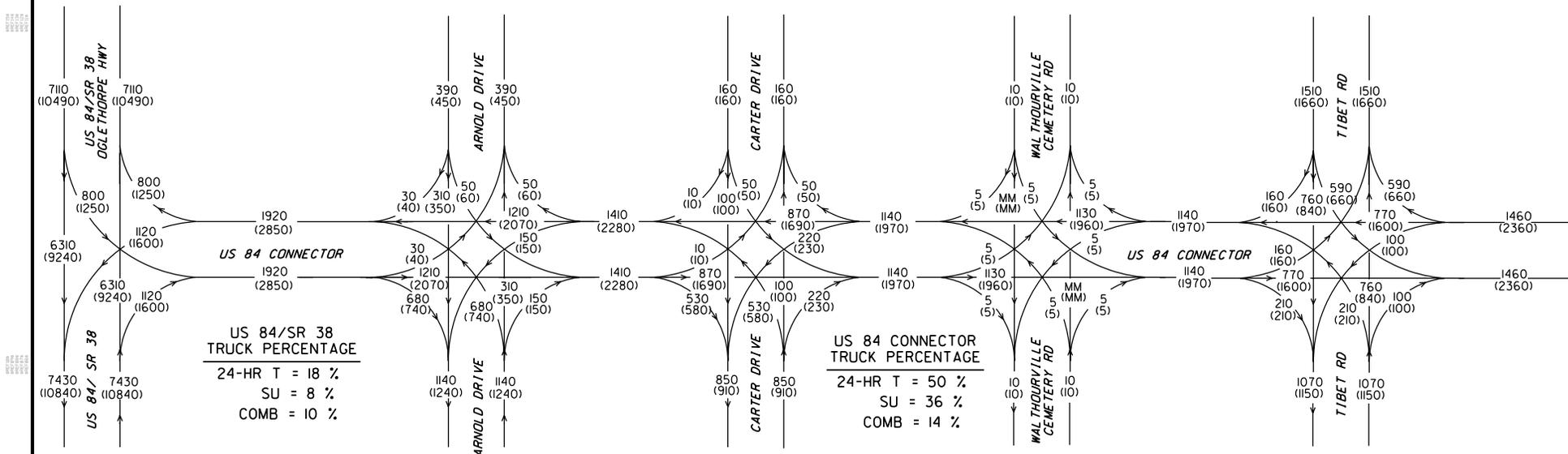
KP 10/15

NH000-0026-03 (056)
 PI No. 522570
 LIBERTY COUNTY,
 GEORGIA

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:
TRAFFIC FLOW DIAGRAMS
 US 84 CONNECTOR
 LIBERTY COUNTY
 2040 BUILD PEAK HOUR TRAFFIC

DRAWING No. **10-010**



LEGEND

00	2020 ADT
(00)	2040 ADT
MM	MINOR MOVEMENT

MA Moreland Altobelli Associates, Inc.
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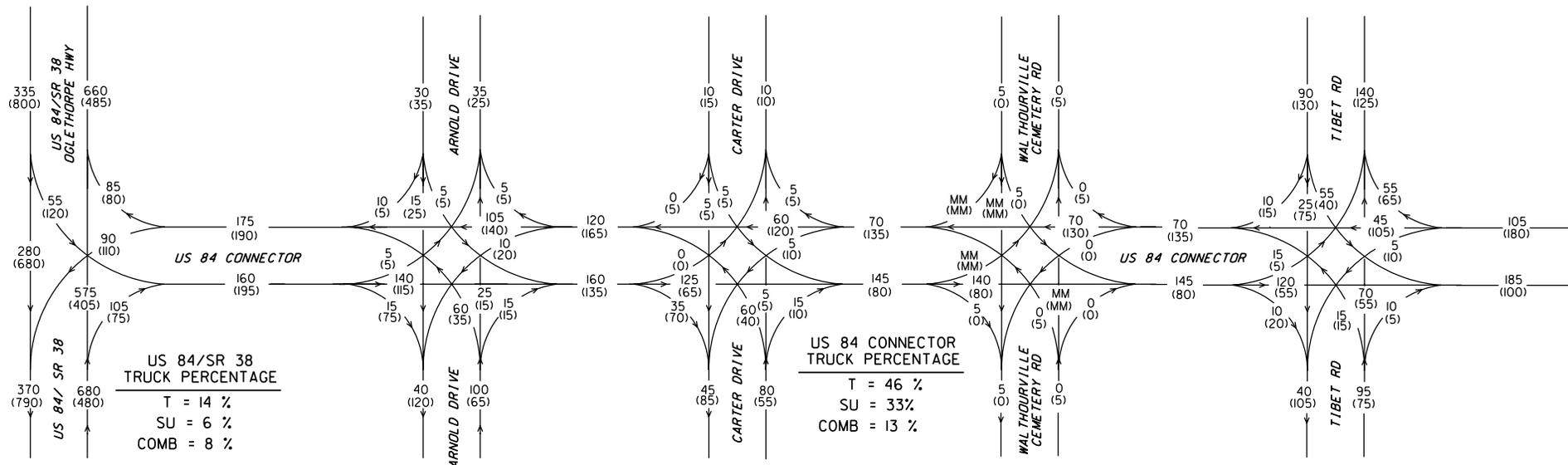
KP 10/15

NH000-0026-03 (056)
 PI No. 522570
 LIBERTY COUNTY,
 GEORGIA

REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:
TRAFFIC FLOW DIAGRAMS
 US 84 CONNECTOR
 LIBERTY COUNTY
 2020/2040 BUILD ADT

DRAWING No.
10-011



LEGEND

00	AM PEAK HOUR
(00)	PM PEAK HOUR
MM	MINOR MOVEMENT

REVISION DATES	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

OFFICE:

TRAFFIC FLOW DIAGRAMS
US 84 CONNECTOR
LIBERTY COUNTY

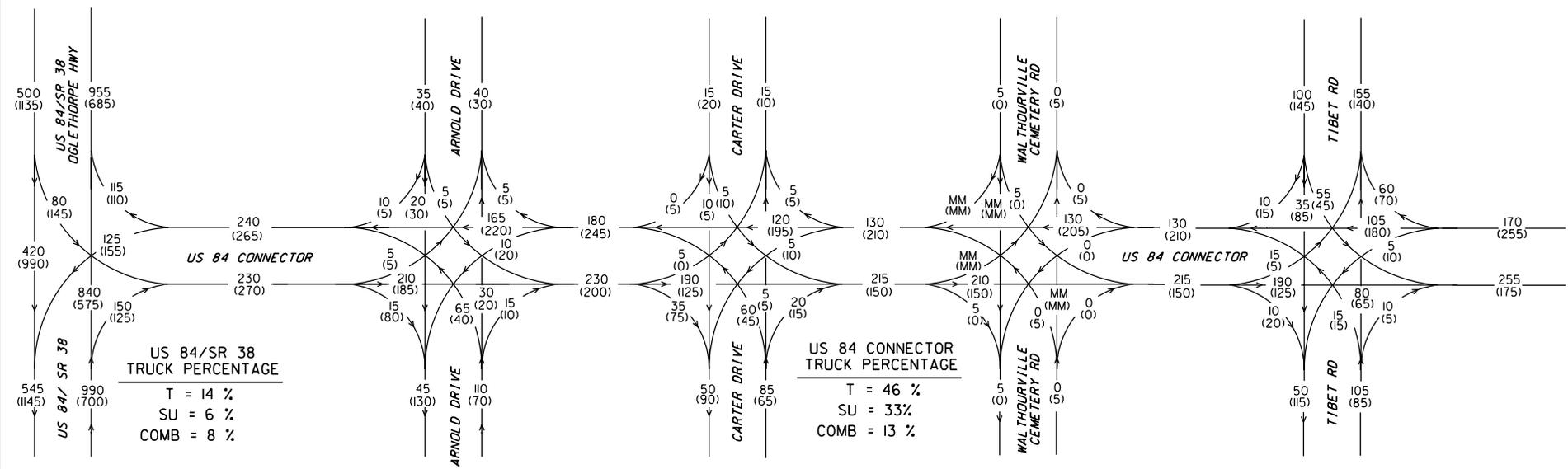
2022 BUILD PEAK HOUR TRAFFIC

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LIBERTY COUNTY,
GEORGIA

DRAWING No.
10-012



LEGEND

OO AM PEAK HOUR
 (OO) PM PEAK HOUR
 MM MINOR MOVEMENT

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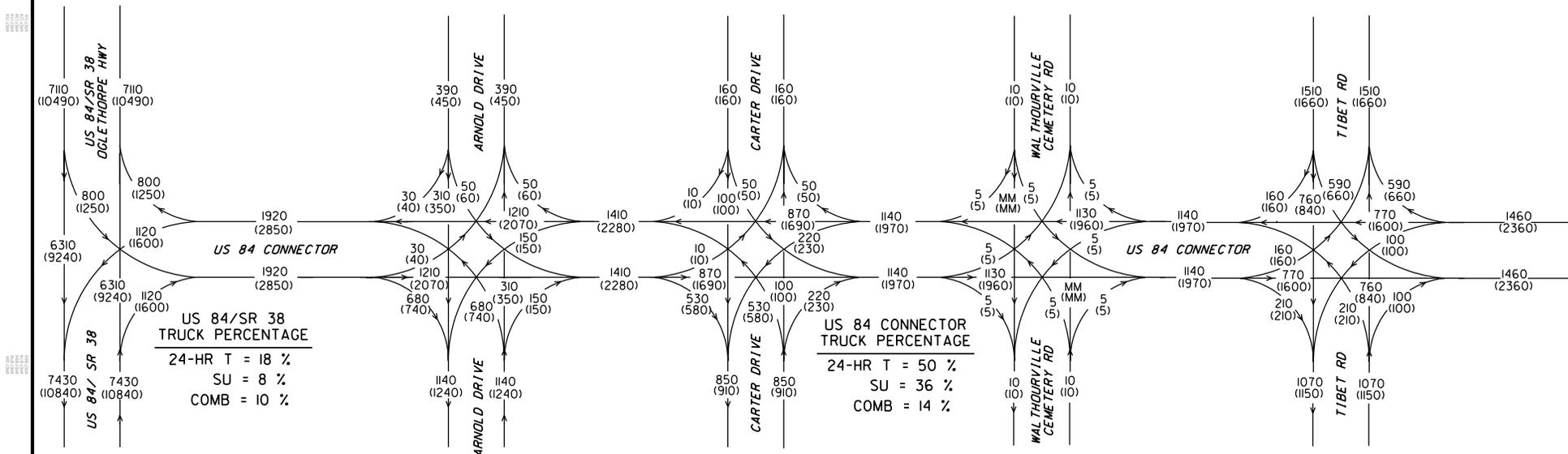
KP 10/15

NH000-0026-03 (056)
 PI No. 522570
 LIBERTY COUNTY,
 GEORGIA

REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:
TRAFFIC FLOW DIAGRAMS
 US 84 CONNECTOR
 LIBERTY COUNTY
 2042 BUILD PEAK HOUR TRAFFIC

DRAWING No. **10-013**



LEGEND

00	2022 ADT
(00)	2042 ADT
MM	MINOR MOVEMENT

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 PI No. 522570
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REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:
TRAFFIC FLOW DIAGRAMS
 US 84 CONNECTOR
 LIBERTY COUNTY
 2022/2042 BUILD ADT

DRAWING No. **10-014**

Attachment 4

Capacity Analysis

Table 1
LOS Analysis for Road Segments on the Existing Corridor¹

ROAD SEGMENTS OF SR 119	2015 Existing Year			2020 (Opening Year)			2040 (Design Year)		
	ADT²	LOS AM	LOS PM	ADT²	LOS AM	LOS PM	ADT²	LOS AM	LOS PM
US 84/SR 38 to Arnold Drive (0.45 miles)	8,160	C	C	9,160	C	C	13,900	D	D
Arnold Drive to Carter Road (0.32 miles)	5,660	A	A	5,700	A	A	8,580	A	B
Carter Road to Dunlevie Road (1.27 miles)	4,520	B	C	5,020	B	C	7,040	C	C
Dunlevie Road to Project Terminus (0.44 miles)	4,320	C	C	4,680	C	C	6,240	C	D
SR 119 (1.0 miles)	4,320	C	C	4,680	C	C	6,240	C	C

¹Analysis used HCS⁺ Software.

²The highest Eastbound / Westbound or Northbound / Southbound peak hour traffic for each segment is used to determine the HCS.

Table 2
LOS Analysis for Road Segments on the Project Corridor¹

ROAD SEGMENTS OF SR 84 Connector	2020 (Opening Year)			2040 (Design Year)		
	ADT²	LOS AM	LOS PM	ADT²	LOS AM	LOS PM
US 84/SR 38 to Arnold Drive (0.67 miles)	3,840	B	B	5,700	B	B
Arnold Drive to Carter Drive (0.29 miles)	2,820	A	A	4,560	B	B
Carter Drive to Dunlevie Road (1.28)	2,280	A	A	3,940	B	B
Dunlevie Road to Project Terminus (0.3 miles)	2,920	B	B	4,720	B	B
SR 119 (1.0 miles)	2,920	B	B	4,720	B	B

¹Analysis used HCS⁺ Software.

²The highest Eastbound / Westbound or Northbound / Southbound peak hour traffic for each segment is used to determine the HCS.

Table 3
LOS Analysis for Intersections on the Existing Corridor¹

Intersection ² SR 119	Existing Year 2013		Opening Year 2020		Design Year 2040	
	AM	PM	AM	PM	AM	PM
US 84/SR 38	C (22.3)	C (23.8)	C (22.9)	C (24.6)	C (23.5)	C (28.4)
Arnold Road	B (13.7)	B (15.0)	B (14.6)	C (16.3)	C (21.0)	D (26.0)
Carter Road	B (10.9)	B (10.8)	B (10.6)	B (10.5)	B (11.5)	B (11.7)
Dunlevie Road/Tibet Road	B (11.8)	B (12.4)	B (12.1)	B (12.9)	B (13.3)	B (14.7)

¹Analysis used HCS 2010 Software.

²Signalized intersections are indicated by bold-faced type. All other intersections are stop-controlled. LOS for un-signalized intersections is for the stop-controlled (side street) movement. LOS for signalized intersections is the weighted average of all movements

Table 4
LOS Analysis for Intersections on the Project Corridor¹

Intersection ² US 84 Connector	Opening Year 2020		Design Year 2040	
	AM	PM	AM	PM
US 84/SR 38 ³	B (13.4)	B (15.8)	C (20.0)	D (29.4)
Arnold Road	B (11.2)	B (11.3)	B (13.3)	B (13.5)
Carter Road	B (10.3)	B (11.1)	B (11.6)	B (11.3)
Dunlevie Road/Tibet Road	B (11.4)	B (11.5)	B (13.2)	B (13.6)

¹Analysis used HCS 2010 Software.

²Signalized intersections are indicated by bold-faced type. All other intersections are stop-controlled. LOS for un-signalized intersections is for the stop-controlled (side street) movement. LOS for signalized intersections is the weighted average of all movements