

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: IM/NH-75-1(131) : 33005-0176-44 ROUTE: I-24 @ I-75
COUNTY: HAMILTON CITY: CHATTANOOGA
PROJECT PIN NUMBER: 114174.00
PROJECT DESCRIPTION: I-24 @ I-75 INTERCHANGE MODIFICATION [DESIGN BUILD]

[1] I-24 AVERAGE TRAFFIC DATA

[2] I-75 AVERAGE TRAFFIC DATA

DIVISION REQUESTING:

MAINTENANCE ☐

S.T.I.D. ☐

PROG. DEVELOPMENT & ADM. ☐

PUBLIC TRANS. & AERO. ☐

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2020

PROJECTED LETTING DATE: _____

PAVEMENT DESIGN ☐

STRUCTURES ☐

SURVEY & ROADWAY DESIGN ☒

TRAFFIC SIGNAL DESIGN ☐

OTHER ☐

TRAFFIC ASSIGNMENT:

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
[1] 118,410	2020	146,100	13,465	9	2040	50-50	12	18	5,680	8,972
[2] 101,260	2040	127,360	12,067	9	2040	53-47	12	18	5,030	7,952

REQUESTED BY: NAME ROBERT ROGERS DATE 6/15/17
DIVISION REGION II DESIGN
ADDRESS 4005 CROMWELL ROAD
CHATTANOOGA TN 37421

REVIEWED BY: TONY ARMSTRONG Tony Armstrong DATE 6.26.17
TRANSPORTATION MANAGER I
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: JIM WATERS Jim Waters DATE 6/26/17
ASSISTANT DIRECTOR
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

PLEASE FURNISH THE 2020-2040 TRAFFIC DATA AND ADL's FOR PAVEMENT DESIGN FOR THE INTERCHANGE MODIFICATION AS SHOWN IN THE ATTACHED FUNCTIONAL LAYOUTS.

THIS TRAFFIC IS BASED ON TWO PREVIOUS PROJECTS PREPARED FOR PAVEMENT DESIGN [I-75 @ S.R. 8] DATED 4/5/2017 AND FOR ENVIRONMENTAL [I-24 @ I-75] DATE 9/24/2014. THESE TWO PROJECTS WERE COMBINED INTO THIS PROJECT. AADT's, DHV's AND ADL's ARE INCLUDED.

DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.

NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 2/22/17)

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: IM/NH-75-1(131) : 33005-0176-44

ROUTE NO.: I-24 [1]

COUNTY: HAMILTON

CITY: CHATTANOOGA

PROJECT DESCRIPTION: I-24 @ I-75 INTERCHANGE MODIFICATION

Interstate

Pavement Structural Design

Calculation of Equivalent Daily 18 Kip Single Axle Loads

Type Vehicle	ADT (No. Counted)	Flexible		Rigid	
		18-kip Factor	ADL	18-kip Factor	ADL
Pass. cars and motorcycles (1-2)	73,707	0.001	74	0.001	74
Pick-up, Panel, Van (3)	34,743	0.004	139	0.005	174
Sing. Buses (4)	423	0.300	127	0.300	127
Unit 2-axle, 6-tire (5)	2,658	0.170	452	0.170	452
3-axle or more (6-7)	1,561	0.700	1,093	1.000	1,561
4-axle (8)	608	0.700	426	0.780	474
Comb. 5-axle or more (9-13)	18,555	1.100	20,411	1.780	33,028
Totals (2030 AADT)	132,255		22,720		35,889

Suggested Percentages of Trucks in Design Lane

	4 Lane	6 Lane	8 Lane
5,000 or less ADT	90%	75%	70%
5,000 - 10,000 ADT	80%	70%	65%
10,000 - 15,000 ADT	75%	65%	60%
15,000 - 20,000 ADT	75%	65%	55%
20,000 - 30,000 ADT	70%	60%	50%
30,000 Plus ADT	65%	60%	50%

No. of Lanes: 8 TO 10

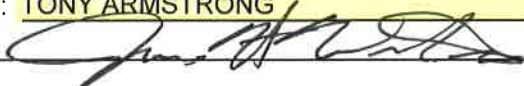
% Trucks in Design Lane: 50%

ADL in Design Lane:

FLEX:	0.5	X	0.50	X	22720.2	=	5,680
RIGID:	0.5	X	0.50	X	35889.3	=	8,972

ADL Calculations By: TONY ARMSTRONG

Date: 6/23/2017

Reviewed By: 

Date: 6/23/17

[REV. 7-1-14]

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: IM/NH-75-1(131) : 33005-0176-44

ROUTE NO.: I-75 [2]

COUNTY: HAMILTON

CITY: CHATTANOOGA

PROJECT DESCRIPTION: I-24 @ I-75 INTERCHANGE MODIFICATION.

Interstate

Pavement Structural Design

Calculation of Equivalent Daily 18 Kip Single Axle Loads

Type Vehicle	ADT (No. Counted)	Flexible		Rigid	
		18-kip Factor	ADL	18-kip Factor	ADL
Pass. cars and motorcycles (1-2)	58,367	0.001	58	0.001	58
Pick-up, Panel, Van (3)	34,922	0.004	140	0.005	175
Sing. Unit	Buses (4)	0.300	124	0.300	124
	2-axle, 6-tire (5)	0.170	412	0.170	412
	3-axle or more (6-7)	0.700	672	1.000	960
	4-axle (8)	0.700	407	0.780	454
Comb.	5-axle or more (9-13)	1.100	18,308	1.780	29,626
Totals (2030 AADT)	114,310		20,121		31,809

Suggested Percentages of Trucks in Design Lane

	4 Lane	6 Lane	8 Lane
5,000 or less ADT	90%	75%	70%
5,000 - 10,000 ADT	80%	70%	65%
10,000 - 15,000 ADT	75%	65%	60%
15,000 - 20,000 ADT	75%	65%	55%
20,000 - 30,000 ADT	70%	60%	50%
30,000 Plus ADT	65%	60%	50%

No. of Lanes: 10

% Trucks in Design Lane: 50%

ADL in Design Lane:

FLEX:	0.5	X	0.50	X	20121.4	=	5,030
RIGID:	0.5	X	0.50	X	31808.8	=	7,952

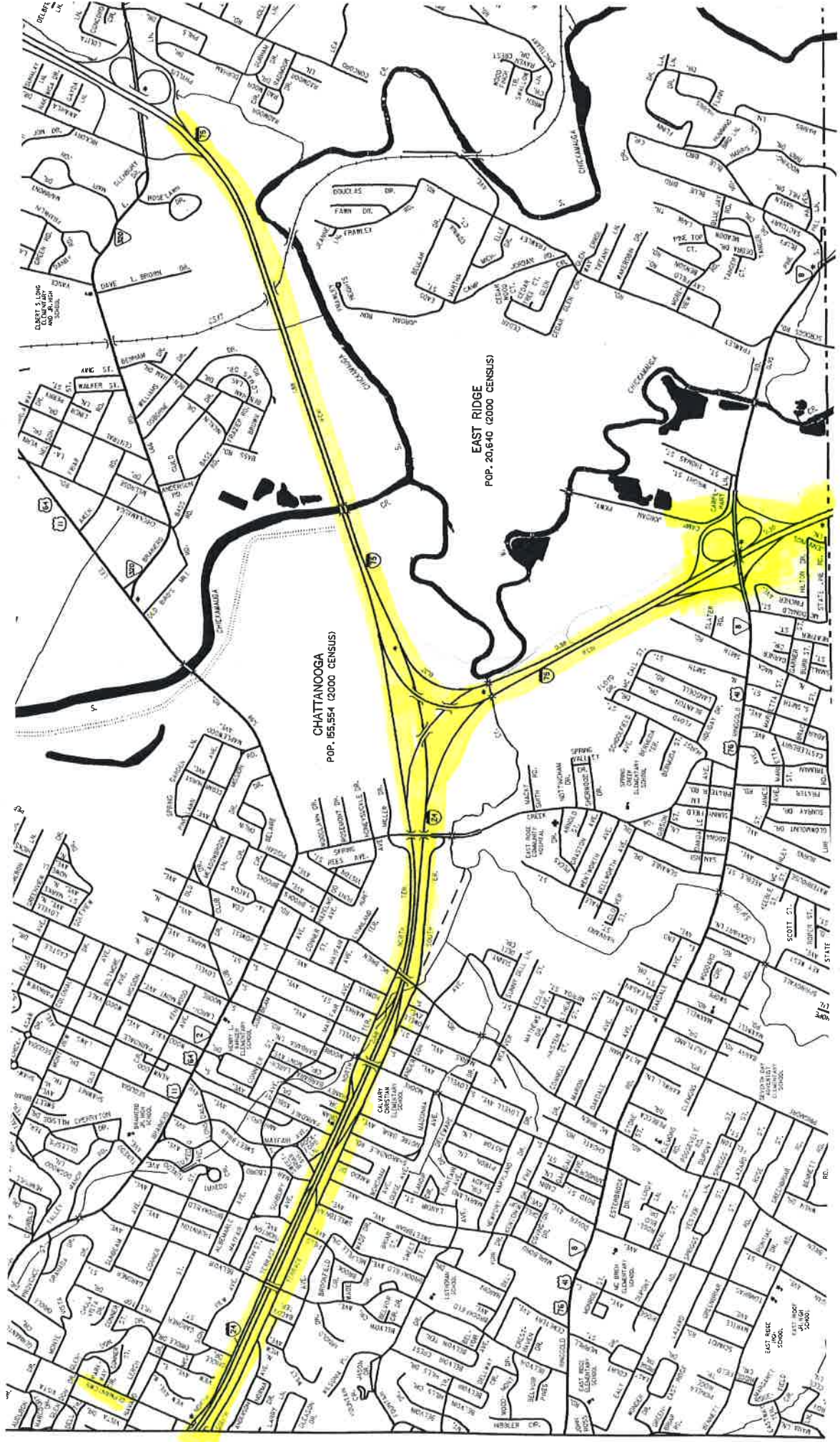
ADL Calculations By: TONY ARMSTRONG

Date: 6/23/2017

Reviewed By:

Date: 6/26/17

[REV. 7-1-14]



CHATTANOOGA
POP. 55,554 (2000 CENSUS)

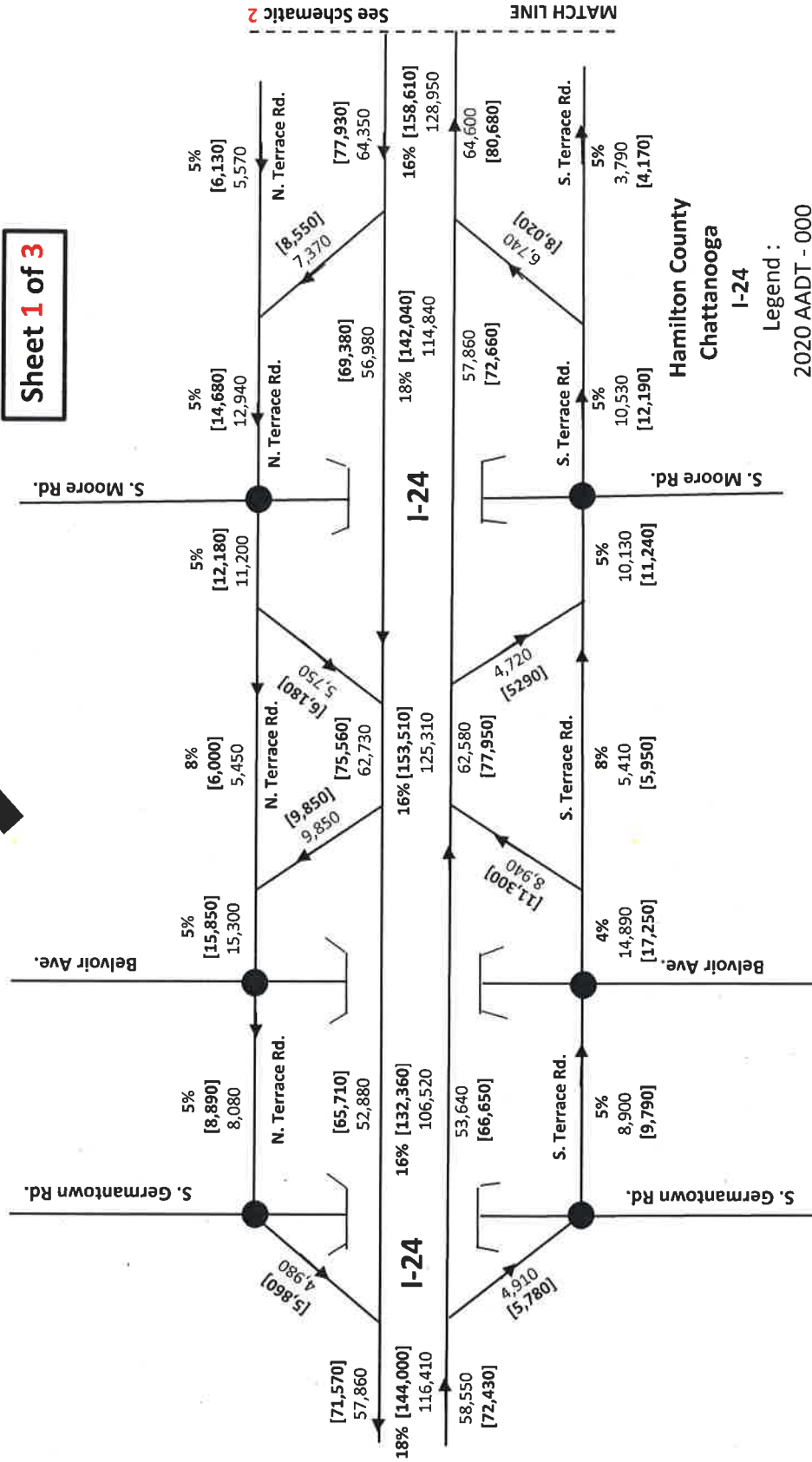
EAST RIDGE
POP. 20,640 (2000 CENSUS)

HAMILTON COUNTY
CHATTANOOGA
I-24 @ I-75



AADT

Sheet 1 of 3



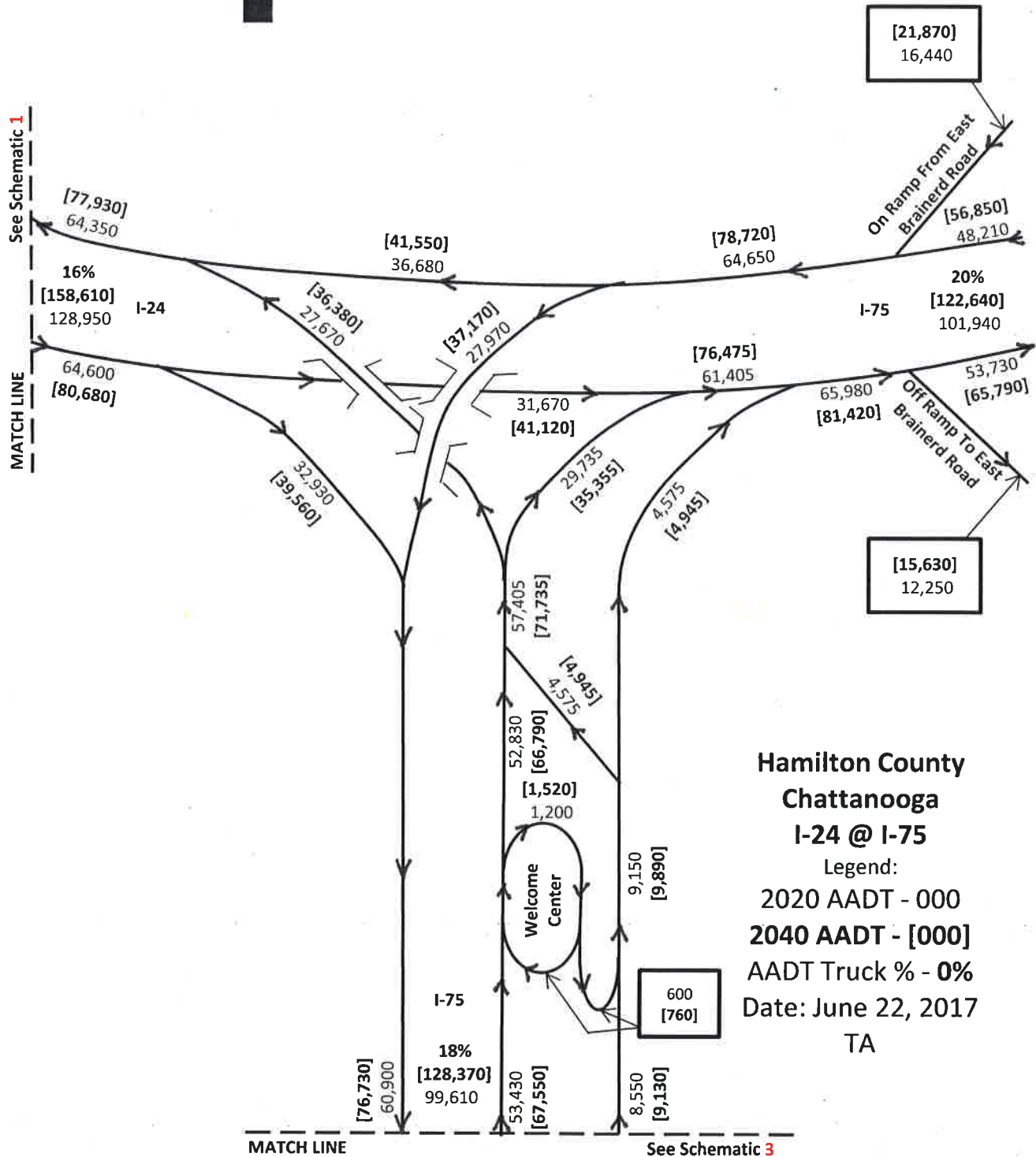
See Schematic 2

MATCH LINE



AADT

Sheet **2** of 3



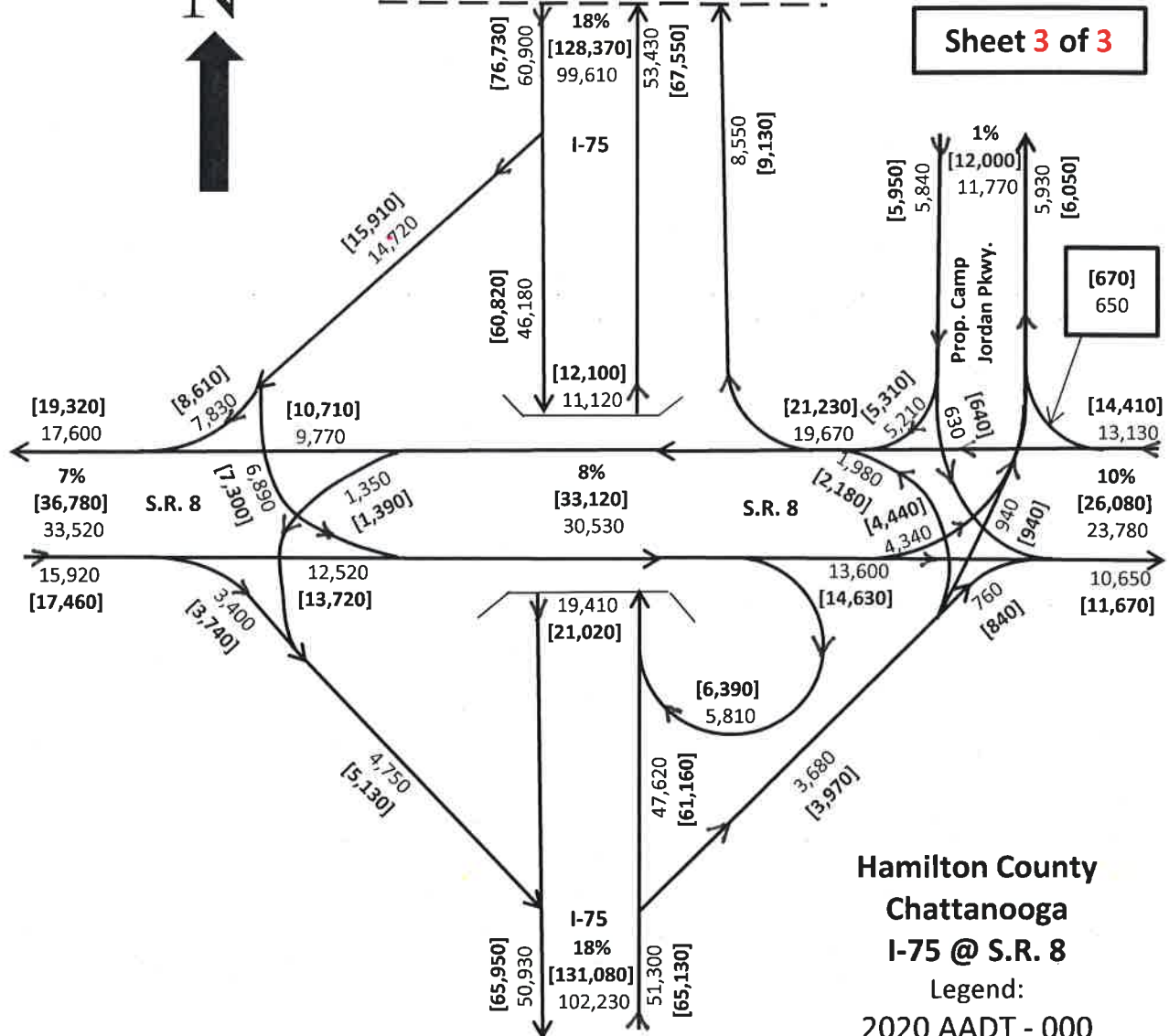


MATCH LINE

See Schematic 2

AADT

Sheet 3 of 3



Hamilton County
Chattanooga
I-75 @ S.R. 8

Legend:

2020 AADT - 000

2040 AADT - [000]

AADT Truck % - 0%

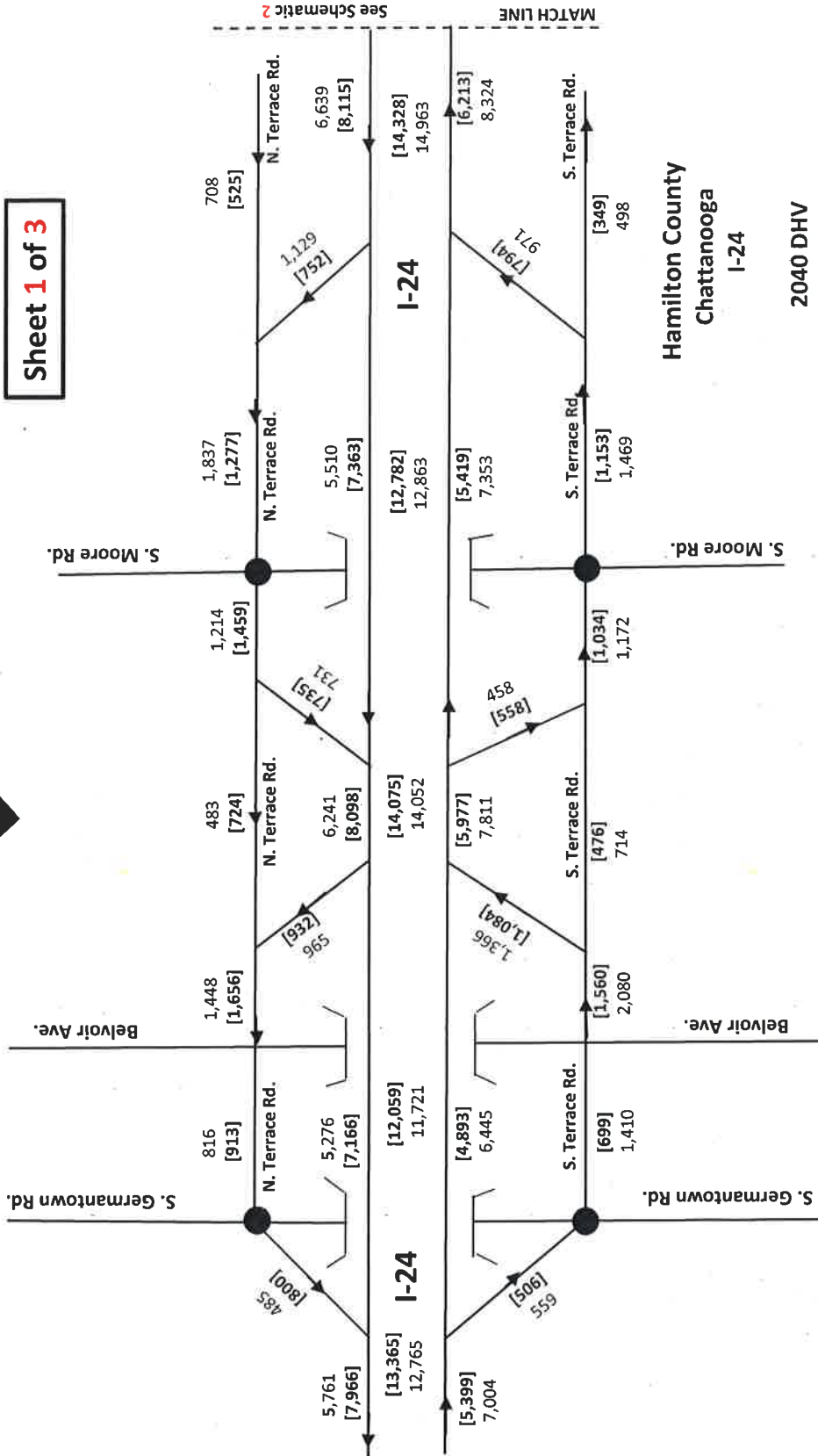
Date: June 22, 2017

TA



2040 DHV

Sheet 1 of 3

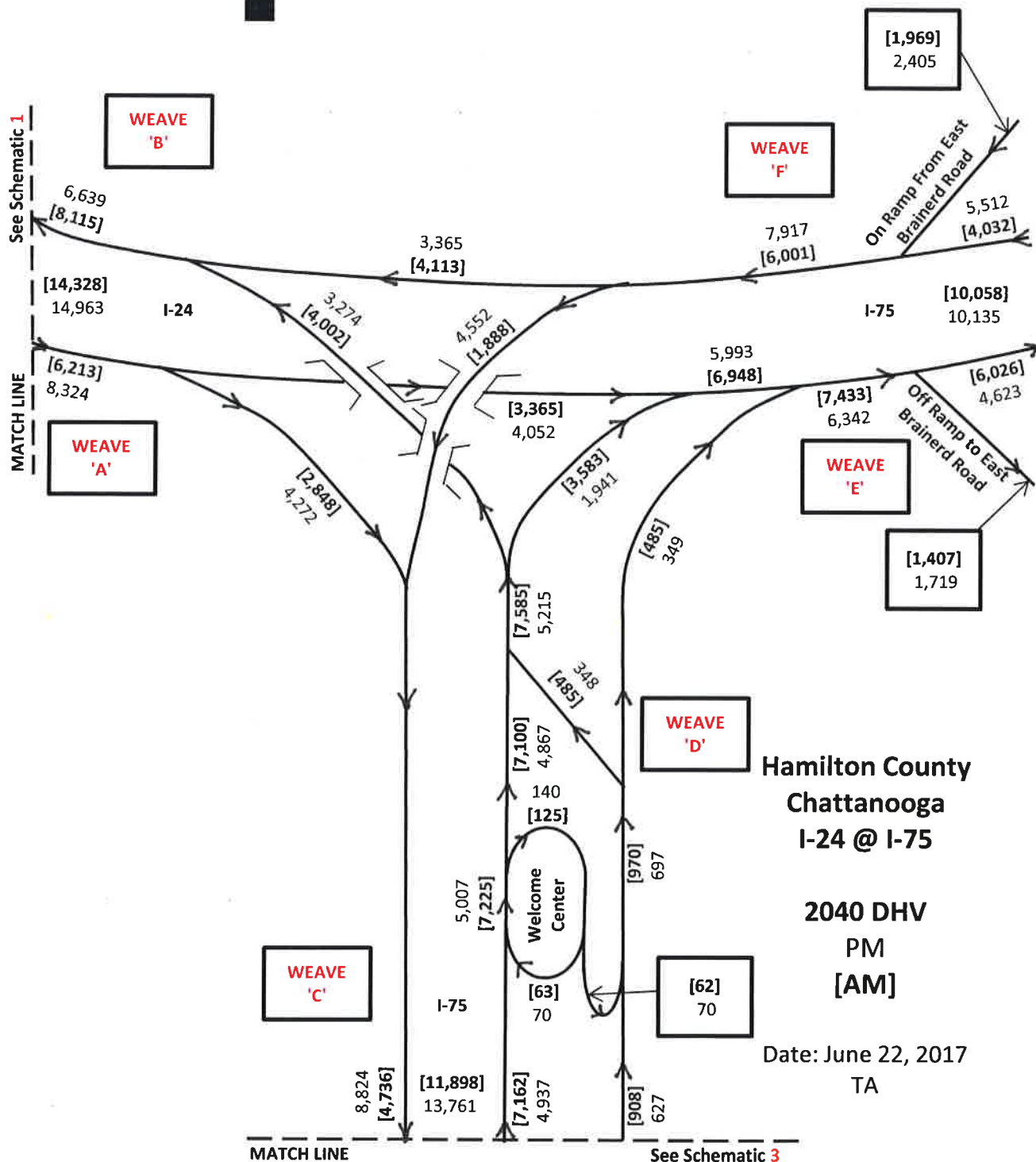


Hamilton County
Chattanooga
I-24

2040 DHV
PM
[AM]

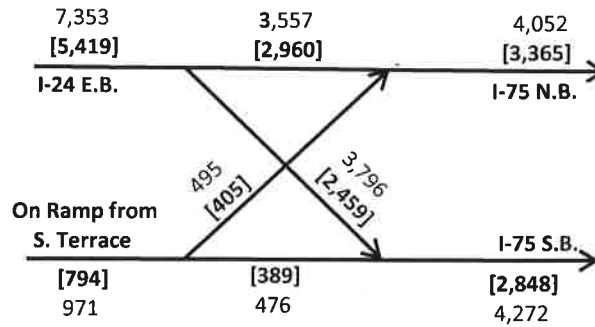
Date : June 22, 2017
TA

Sheet 2 of 3



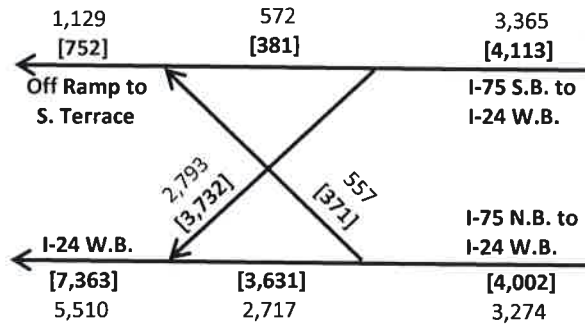
Weave 'A'

Sheet 1 of 2



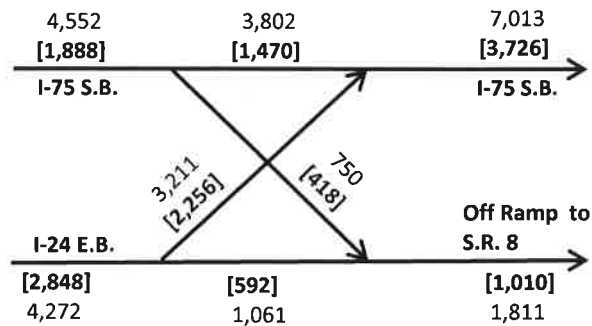
2040 DHV
PM
[AM]

Weave 'B'



2040 DHV
PM
[AM]

Weave 'C'

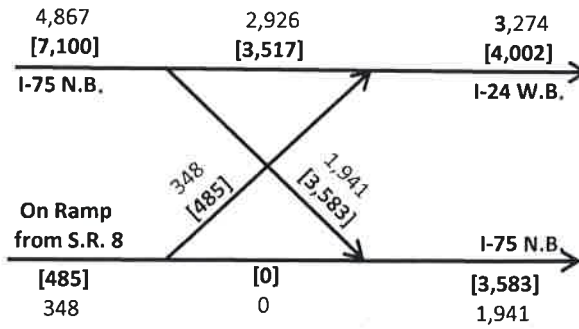


2040 DHV
PM
[AM]

See DHV Sheet 2 of 3 for WEAVE Locations.

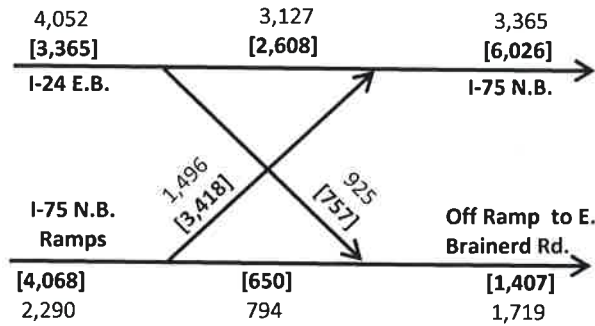
Weave 'D'

Sheet 2 of 2



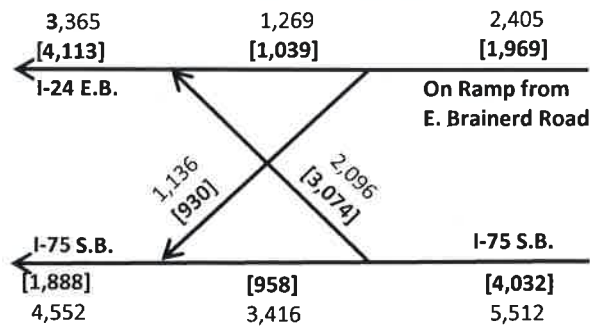
2040 DHV
PM
[AM]

Weave 'E'



2040 DHV
PM
[AM]

Weave 'F'



2040 DHV
PM
[AM]

See DHV Sheet 2 of 3 for WEAWE Locations.