### TRAFFIC FORECAST STUDY

## PELLISSIPPI PARKWAY EXTENSION FROM STATE ROUTE 33 TO STATE ROUTE 73 / US 321 BLOUNT COUNTY



# PREPARED BY SAIN ASSOCIATES, INC. IN COOPERATION WITH THE TENNESSEE DEPARTMENT OF TRANSPORTATION ENVIRONMENT AND PLANNING DIVISIONS

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Schematic Diagram of AADT Volumes (Year 2006, 2015, and 2035)

Intersection Volumes (2015 and 2035)

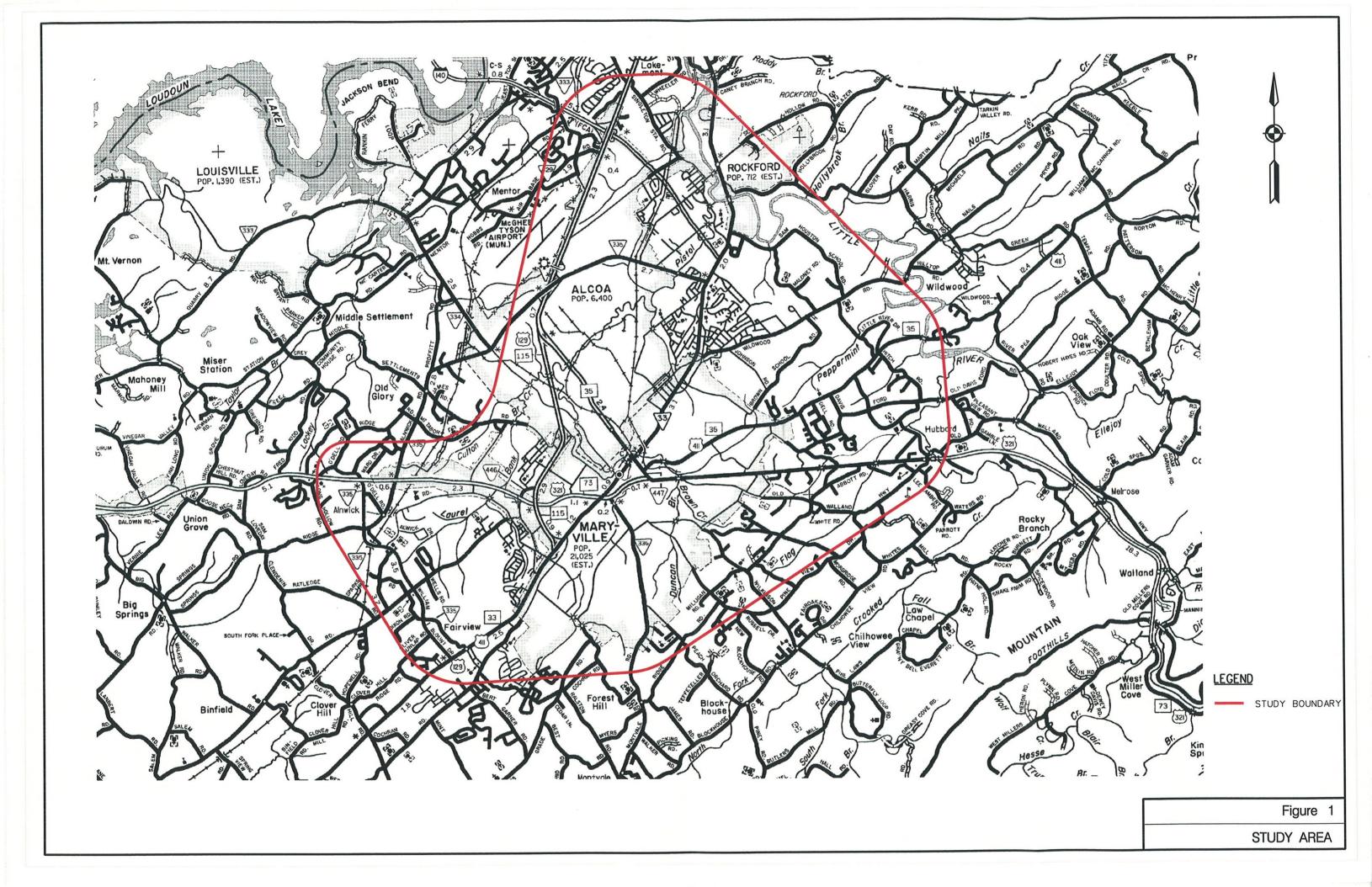
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#### I. INTRODUCTION

This report documents the process used to forecast traffic volumes for a proposed extension of Pellissippi Parkway / I-140 from State Route 33 to US Highway 321 in Blount County, Tennessee. The Tennessee Department of Transportation (TDOT) is preparing an environmental study of the potential impacts associated with extension of the Pellissippi Parkway. The goal of this traffic forecasting study is to provide objective estimates of future traffic volumes without and with the proposed Pellissippi Parkway Extension for use in the environmental study. The area included in this study is depicted on Figure 1. Generally, the study area extends from the interchange of Interstate 140 and US 129 in Alcoa southward to US 321 in Maryville. From west to east, the study area extends from Old Glory Road to the possible termini of the Pellissippi Parkway Extension, located in the general vicinity of John Helton Road.

The process used to develop the traffic forecasts in this study was discussed and approved by the TDOT's Project Planning Division – Travel Data and Operations Planning Section. In general, the process included four major steps: field data collection, data tabulation, validation or adjustment of segment volumes from the regional travel demand model, and estimation of future traffic volumes at specific intersections impacted by the proposed Pellissippi Parkway extension.



#### II. DATA COLLECTION

Sain Associates retained the assistance of Southern Traffic Services, a firm that specializes in traffic data collection, to gather existing traffic data in the study area. The field data collection efforts were conducted during the week of November 13, 2006. Some additional traffic counts were conducted on December 6, 2006 to provide extra segment volume data. Data was only collected during weeks verified as acceptable for typical conditions through discussions with local officials and TDOT personnel. Area schools were in session during the days that surveys were taken. Following is a list of items that were surveyed during the data collection effort. Figure 2 shows a map of the data collection locations for the traffic volume and license tag surveys.

- License plate origin/destination study with eight survey stations was conducted on November 14, 2006, from 11:00 a.m.-1:00 p.m. and 3:00-6:00 p.m. and on November 16, 2006, from 7:00-9:00 a.m.
- 24-hour vehicle classification counts were collected at each license tag survey location.
- Manual turning movement traffic counts were conducted from 7:00-9:00 a.m., 11:00 a.m.-1:00 p.m., and 3:00-6:00 p.m. on a weekday at nine intersections in the study area.
- 24-hour mechanical traffic counts were collected on each ramp at the interchanges of I-140 with US 129, US 129 with SR 35, and US 129 with SR 33/US 411.
- Peak hour travel time data was collected between each license plate survey location during the morning, midday, and afternoon peak periods.
- Lane geometry and traffic control were inventoried at existing intersections.

#### License Plate Surveys

License tag surveys were conducted at eight locations along radial routes entering Maryville and Alcoa. The purpose of the license plate survey was to quantify the origin and destination of traffic entering the study area on each major radial route. For example, data from the study provides an indication of the amount of traffic entering Alcoa from the west on I-140 that also exits the study area on US 321 east within the time it would take to drive straight through the study area. In other words, the license plate survey captures through trips that traverse the study area from one end to another on any of the surveyed origin/destination pairs. Following is a list of locations where license plate data was recorded:

- Station 1 US 129, north of Airway Drive
- Station 2 I-140, west of US 129
- Station 3 SR 33, north of Rockford Heights Road
- Station 4 US 321, east of John Helton Road
- Station 5 US 129, between SR 35 and Louisville Road
- Station 6 SR 35/US 411, east of Peppermint Hills Road
- Station 7 US 411/US 129, southwest of William Blount Drive
- Station 8 US 321, west of William Blount Drive

Traffic Forecast Study Pellissippi Parkway Extension – Blount County, TN



At every site, license tags were recorded in each direction of travel. The license tags were photographed using a low infra-red (L.I.R.) camera system and video tape recorders. The cameras were mounted in positions that provided a view of each tag approximately 70 feet from the camera. MetroCount portable classification equipment was placed at each site to collect a count of total vehicles by classification type. The classification count data along with travel time data was used to verify and trim the camera data set to reflect the number of vehicles that could possibly match another site by time of day and travel time between survey locations.

The tag surveys were conducted on Tuesday, November 14, but moisture problems created by an early morning fog necessitated that the morning peak hours be re-surveyed on Thursday, November 16. The final survey data includes midday (11:00 am – 1:00 pm) and afternoon (3:00 – 6:00 pm) peaks on Tuesday, November 14 and the morning (7:00 – 9:00 am) peak on Thursday, November 16. During the seven survey hours approximately 100,000 vehicles passed through the eight tag survey locations. Cameras recorded a picture of each visible license plate with a time stamp. The recorded tags for each site were then tabulated and matched to other tags recorded at the other seven sites to create an origin/destination trip matrix.

#### Traffic Counts

As mentioned previously, vehicle classification counts were collected by machine at locations adjacent to each of the license plate data collection stations. These counts were collected for a period of at least 48 hours, corresponding to the start and end of the license plate survey efforts.

At several major intersections in the study area, manual turning movement counts were conducted during the morning, midday, and evening peaks (7:00-9:00 a.m., 11:00 a.m.-1:00 p.m., and 3:00-6:00 p.m.) The following intersections were counted:

- SR 33 @ I-140 / Pellissippi Parkway
- SR 33 @ Wildwood Road
- SR 33 / E. Broadway Avenue @ SR 35 / S. Washington Street
- SR 35 / S. Washington Street @ Sevierville Road
- SR 35 / S. Washington Street @ High Street / US 411
- S. Washington Street @ US 321 / E. Lamar Alexander Parkway
- US 321 / W. Lamar Alexander Parkway @ SR 33 / US 411 / W. Broadway Avenue
- US 129 @ US 321 / W. Lamar Alexander Parkway
- US 321 / W. Lamar Alexander Parkway @ Old Glory Road

In February of 2007, TDOT personnel collected additional traffic counts at four intersections along SR 35 / South Washington Street in Maryville (SR 35 at SR 33, SR 35 at Sevierville Road, SR 35 at High Street/US 411, and South Washington Street at US 321). These same intersections were counted again in May of 2007 by another consultant contracted with TDOT. These intersections were initially counted on different days which resulted imbalances between intersections that could not be attributed to roadside development. When the May 2007 counts were conducted, all four intersections were counted on the same day.

Directional ramps at the following interchanges were counted with pneumatic tubes in order to determine their peak hour turning movement volumes:

- I-140 at US 129
- US 129 @ SR 35
- US 129 @ SR 33/US 411

#### Travel Time Surveys and Intersection Diagrams

Travel time runs were conducted during the data collection process. Vehicles were driven through the corridor during the peak traffic periods to collect data on the amount of time it took to get from each license tag survey location to every other station. Three travel time runs were made in each direction during each peak hour, and the results were averaged. Data from the travel time runs was used to trim the license tag data set to match only tags between stations that occur in a meaningful travel time window (i.e. tags recorded in a time length equal to or greater than the minimum travel time between stations, and less than a reasonable maximum travel time for a through trip.)

Sain Associates' personnel diagrammed the lane geometry and traffic control at each studied intersection. The field notes were provided to TDOT's environmental consultant for use in their impact assessment.

#### III. DATA TABULATION

#### License Plate Survey

The license plate and traffic volume data collected in Blount County was compiled by Southern Traffic Services, Inc. Data tabulation began with a review of each recorded video tape. The infra-red cameras captured an image of each visible license plate. Character recognition software was initially used to read the license plates from the photos, but after several verification checks it was determined that the error rate of the software was unacceptable. Instead each tape was manually reviewed and license plate numbers were recorded into an electronic database.

Using these techniques, all legible plate numbers were accurately recorded in full at most of the stations. At the best stations, the tag capture rate was approximately 90-95%, with 5-10% of vehicles either having no tag or having a tag that was not legible. Several sites proved difficult to collect because of the movement of vehicles between lanes, dense traffic, and shadowing. In order to maintain an adequate sample size at these sites where full tag numbers could not always be recorded, partial tag numbers of at least four characters were recorded when necessary. The worst site, Station 5, located on US 129 between SR 35 and Louisville Road, had to be discarded from consideration because of difficulties caused by close platooning of vehicles that prevented the cameras from capturing an adequate number of tags.

After the manual review was complete, the tag numbers were matched between locations. The software used for the tag matching first attempted to match complete tag numbers, then tags that had four consecutive matching characters. Full and partial matching spreadsheets were produced for each departing site for all study periods. The time that each tag appears at a site was recorded, allowing travel times between sites to be identified. Table 1 presents a summary of the number of license plate matches between each data collection station and the percentage of matched tags between stations.

Traffic Forecast Study Pellissippi Parkway Extension – Blount County, TN

Table 1
Summary of License Plate Matches by Station

							No. of	Percent		No. of	Percent		No. of	Percent		No. of	Percent		No. of	Percent		No. of	Percent		No. of	Percent
Station	Total on	Total on	Percent	Total	Percent	Match	Possible	Match to	Match	Possible	Match	Match	Possible	Match	Match	Possible	Match	Match	Possible	Match to	Match	Possible	Match	Match	Possible	Match
Number	Tape	Machine	Capture	Matches	Matched	to 1	Matches	1	to 2	Matches	to 2	to 3	Matches	to 3	to 4	Matches	to 4	to 6	Matches	6	to 7	Matches	to 7	to 8	Matches	to 8
1 SB AM	2496	2878			42%				273	2496	11%	23	2437	1%	9	2385	0%	5	2401	0%	66	2422	3%	17		
1 SB Noon	2130	2484	86% *		42%				218	2068	11%	10	1966	1%	25	1833	1%	6	1883	0%	43	1884	2%	41		
1 SB PM	5829	6950	84% *	2856	49%				628	5677	11%	23	5533	0%	88	5437	2%	32	5449	1%	348	5473	6%	100	5473	2%
																										igsquare
		2112	2.224		100/												20/			201			101	<u> </u>		121
2 EB AM	888			165								23	838	3%	3	0.0		3		0%	6	865	1%			
2 EB Noon	1362	2138		278	20%							16	948	2%	16			2		0%	16	890	2%			
2 EB PM	5532	7347	75%	1262	23%							42	4544	1%	93	4505	2%	47	4528	1%	206	4505	5%	34	4505	1%
																										$\vdash$
3 SB AM	551	587	94% *	119	22%	25	524	5%	57	524	11%				3	509	1%	1	524	0%	1	485	0%	4	485	1%
3 SB Noon	356								22	315	7%				1	304		5		2%	1	283	0%		283	
3 SB PM	1392							2%	127	1379	9%				14			23		2%	35	1315	3%			
O OB I W	1002	1000	3070	000	22 /0	01	107 5	270	121	1070	370				17	1001	1 70	20	1073	270	- 00	1010	370	12	1010	1 70
																								1		
4 WB AM	1628	1663	98% *	264	16%	85	1309	6%	80	1309	6%	6	1309	0%				5	1426	0%	30	1332	2%	28	1332	2%
4 WB Noon	942	1046	90% *	157	17%	39	685	6%	48	685	7%	6	685	1%				5	767	1%	13	693	2%	46	693	7%
4 WB PM	2381	2518	95% *	435	18%	80	2046	4%	115	2046	6%	10	2046	0%				27	2100	1%	108	2046	5%	50	2046	2%
6 SB AM	559				19%				32	526	6%	10	537	2%	4	553					5	508	1%			
6 SB Noon	299				19%	8		3%	20	267	7%	5	277	2%	6	289					4	255	2%			
6 SB PM	675	839	80% *	131	19%	15	628	2%	21	628	3%	5	652	1%	14	662	2%				39	607	6%	11	603	2%
																										$\vdash$
7 NB AM	2436	2513	97% *	923	38%	242	2057	12%	122	1935	6%	7	2074	0%	30	2158	1%	7	1953	0%				24	2158	1%
7 NB Noon	1262	1458			16%			9%	44	876	5%	7	893	1%	23			10		1%				29		3%
7 NB PM	2361	3242		671	28%	148		7%	101	2044	5%	10	1957	1%	64			23		1%				32		
7 NOT W	2001	32 <del>7</del> 2	7 3 70	0/1	20 /0	170	2077	1 70	101	2077	370	10	1331	1 70	04	2000	370	20	2000	1 70				32	2121	2 70
8 EB AM	1607	1604	100% *	272	17%	86	1517	6%	21	1517	1%	6	1509	0%	14	1509	1%	8	1442	1%	22	1564	1%			
8 EB Noon	907	921	98% *						3	728	0%	0	652	0%	19			8	652	1%	14	767	2%			
8 EB PM	1965	2229			13%		1652	2%	25	1652	2%	4	1582	0%	42		3%	15		1%	47	1682	3%			

#### **Explanation of Columns**

Station Number Site the vehicle departed

Total on Tape

Total number of vehicles visible on the video- includes vehicles with no tags or illegible tags

Total on Machine
Percent Capture
Total on the tape divided by Total on machine
Total Matches
All departing tags that matched any other site
Percent Matched
Total matches divided by total on tape

Match to 1... The number of exact and partial tags that departed site in column A and appeared at site 1....

No. of Possible Matches Number of legible tags recorded from tape that have potential to match at each other site- we removed tags that departed site too late to successfully reach each other site

Percent Match to 1... Match to 1 divided by No. of Possible Matches

Tag match percentages of particular interest toward implementing bypass

Site 5, located on US 129 between SR 35 and Louisville Road, was removed due to camera failure. Site 5 was a redundant site not critical to data analysis

<sup>\*</sup> Indicates 100% confidence that all legible tag numbers were recorded

#### Travel Time Survey

The travel time data collected between each license plate survey location was tabulated and averaged by time of day. These averaged travel times for morning, midday, and afternoon were used to determine meaningful thresholds for through travel between stations so that the license plate data could be trimmed and matched. The travel time data is also useful for understanding travel characteristics within the study area. Table 2 summarizes an overall average speed and average travel time between each station.

Table 2
Summary of Travel Time and Travel Speed (Min/MPH)

Station	1	2	3	4	6	7	8
1		2.0 52	7.9	20.1	21.5	16.6	15.2
2	2.0 52		7.8 48	20.1	21.4 36	16.6	15.6
3	7.3	7.2 51		19.3	20.8	22.5	23.4 29
4	17.7	17.6	19.1		14.6	15.6	16.3
6	21.9	21.8	21.3	15.2		20.9	19.6
7	16.7	16.6	23.0	17.3	18.7		11.5
8	15.9	15.8 40	23.9	16.5	19.2	12.3	

#### IV. TRAFFIC FORECASTS

The traffic forecasting process utilized existing traffic count data and future volumes projected by the Knoxville regional travel demand model. It was first necessary to determine whether the travel demand model was sufficiently calibrated so that it's projections could be relied upon for the Pellissippi Parkway Extension. The verification and forecasting process involved five major steps:

- 1. Conduct a select link analysis to determine origin / destination paths in the model and compare these to the field data collected in the license plate survey.
- 2. Examine segment volumes from the model's year 2000 and 2009 assignments and compare them to actual ground counts from 2000 and 2006.
- 3. Identify segments where adjustments are needed to increase or decrease the model volumes to better match actual ground counts.
- 4. Calibrate the model's segment volumes for 2014 and 2030 based upon the adjustments identified in step 3 and then adjust them to the horizon years 2015 and 2035.
- 5. Apply growth rates to existing intersection turning movement volumes to forecast them to future years 2015 and 2035, matching as closely as possible the adjacent segment volumes derived from step 4.

#### Select Link Analysis

With assistance from the Knoxville Transportation Planning Organization, a select link analysis was performed on the regional travel demand model. Roadway links were selected to correspond with the locations of the license plate survey and roadways that would be directly influenced by the proposed Pellissippi Parkway Extension. For these selected links, the TPO's modeler prepared a summary of trip origins and destinations as they are assigned in the model. The origins and destinations computed by the travel demand model were then compared with the data from the license plate survey. Table 3 summarizes how these origin/destination percentages compare between the model and the license tag survey. Overall, the percentages of tags matched in the license plate survey between the various stations closely resembled the percentages obtained from the model, especially when considering the actual volume of traffic that travels through the study area.

Since the travel patterns in the regional travel demand model closely matched the findings of the license plate survey, it was agreed that the model could be relied upon as a valid predictor of travel patterns for future traffic projections.

Table 3
Comparison of Model Versus License Plate Origin / Destination

·															
			Percent Matched at:												
	2014 No PPE	Sit	e 1	Site 2		Site 3		Site 4		Site 6		Site 7		Site 8	
	<b>Model Volume</b>	Model	Tag	Model	Tag	Model	Tag	Model	Tag	Model	Tag	Model	Tag	Model	Tag
Site 1 - U.S. 129 (SB)	14,524	100.0%		18.9%	11.0%	0.0%	0.7%	0.1%	1.0%	0.0%	0.3%	3.8%	3.7%	1.3%	1.7%
Site 2 - I-140 (EB)	18,898	14.4%		100.0%		2.6%	2.0%	5.2%	1.3%	1.7%	0.3%	4.5%	2.7%	0.0%	1.0%
Site 3 - SR 33 (SB)	6,602	1.5%	3.0%	7.4%	9.0%	100.0%		2.4%	0.7%	2.3%	1.3%	0.7%	1.0%	1.0%	0.7%
Site 4 - U.S. 321 (WB)	10,461	4.7%	5.3%	8.9%	6.3%	1.2%	0.3%	100.0%		0.0%	0.7%	1.9%	3.0%	5.5%	3.7%
Site 6 - U.S. 411 (WB)	5,166	1.8%	3.0%	6.8%	5.3%	2.3%	1.7%	0.0%	1.7%	100.0%		1.9%	3.0%	2.1%	3.0%

#### Segment Volume Calibration

As previously mentioned, step three of the verification process involved comparing actual traffic counts to volumes in the base year model assignments. Two sources were used for actual traffic count data: counts performed in 2006 by Southern Traffic Services as part of this project, and traffic volumes collected by TDOT for their Advanced Traffic Data Analysis and Management (ADAM) system. In general, the comparison revealed that the model volumes were well calibrated to the count data for I-140 west of US 129, US 321 east of SR 33, and Wildwood Road. The model under assigned traffic volumes on SR 115/US 129, SR 35, and US 321 west of SR 33. The model over assigned traffic volumes on SR 33. The somewhat recent construction of the I-140 segments east of US 129 are partly responsible for some of the calibration issues. Also, travel demand models typically have difficulty with properly assigning trips to parallel routes, such as US 129 and SR 33.

Where adjustments were needed to account for volume differences, historic count data from appropriate ADAM stations was used to develop a growth rate that could be used to forecast a 2015 volume without the Pellissippi Parkway Extension. A growth rate for the period from 2014 to 2030 was then determined from the model's assigned volumes and that growth rate was used to forecast a revised 2035 volume based off the adjusted 2015 volume. Finally, differences between the "No Pellissippi Parkway Extension" and "With Pellissippi Parkway Extension" model assignments were then applied to the adjusted 2015 and 2035 volumes to estimate volumes with the Pellissippi Parkway Extension.

In many instances, the model volumes were deemed appropriate based upon the calibration analysis, and they were used as reported with only an adjustment to shift the 2014 and 2030 volumes to the horizon years 2015 and 2035.

#### Traffic Volume Forecasts

Future traffic volume forecasting for the project involved consideration of other roadway network improvements and land developments planned for the Alcoa/Maryville area. The Relocated Alcoa Highway (RAH) project is included in the Knoxville Transportation Improvement Plan. It is planned to be constructed east of US 129/SR 155 with the southern termini connecting with US 129/SR 115 north of SR 335 and the northern termini connecting with US 129/SR 115 north of Pellissippi Parkway. The RAH project is included in the Knoxville travel demand model for 2014 and 2030, so it was also included in the traffic forecasts for 2015 and 2035.

The Southern Loop (SL) project, currently planned by the City of Maryville, is proposed to connect with US 321/SR 73 east of Maryville and proceed in a general southwest direction to US 129/US 411/SR 33. The Southern Loop is only coded into the Knoxville travel demand model for the horizon year 2030, and so it was only included in our forecasts for 2035 (not 2015).

Construction of a large research and development park is being planned for a parcel of land east of SR 33 in the vicinity of the proposed Pellissippi Parkway Extension. Current plans for the development propose that the park's access would be provided via SR 33, south of its interchange with Pellissippi Parkway. Table 4 summarizes the development levels currently proposed for the R&D park.

Table 4
Development Assumptions for Blount County Research & Development Park

	Proposed Development Density by Horizon Year										
Land Use	2009	2014	2030								
Research &Development	120,000 sq. ft.	360,000 sq. ft.	1,152,000 sq. ft.								
Hotel		150 rooms	450 rooms								
Office	100,000 sq. ft.	300,000 sq. ft.	400,000 sq. ft.								
Residential	40 dwelling units	80 dwelling units	250 dwelling units								
Retail	54,000 sq. ft.	1,112,800 sq. ft.	1,172,800 sq. ft.								

Increases in population and employment that will result from the R&D park were incorporated into the Knoxville travel demand model for the traffic analysis zone that contains the development parcel. By incorporating the additional population and employment, traffic impacts of the R&D park were included in the model's traffic forecasts.

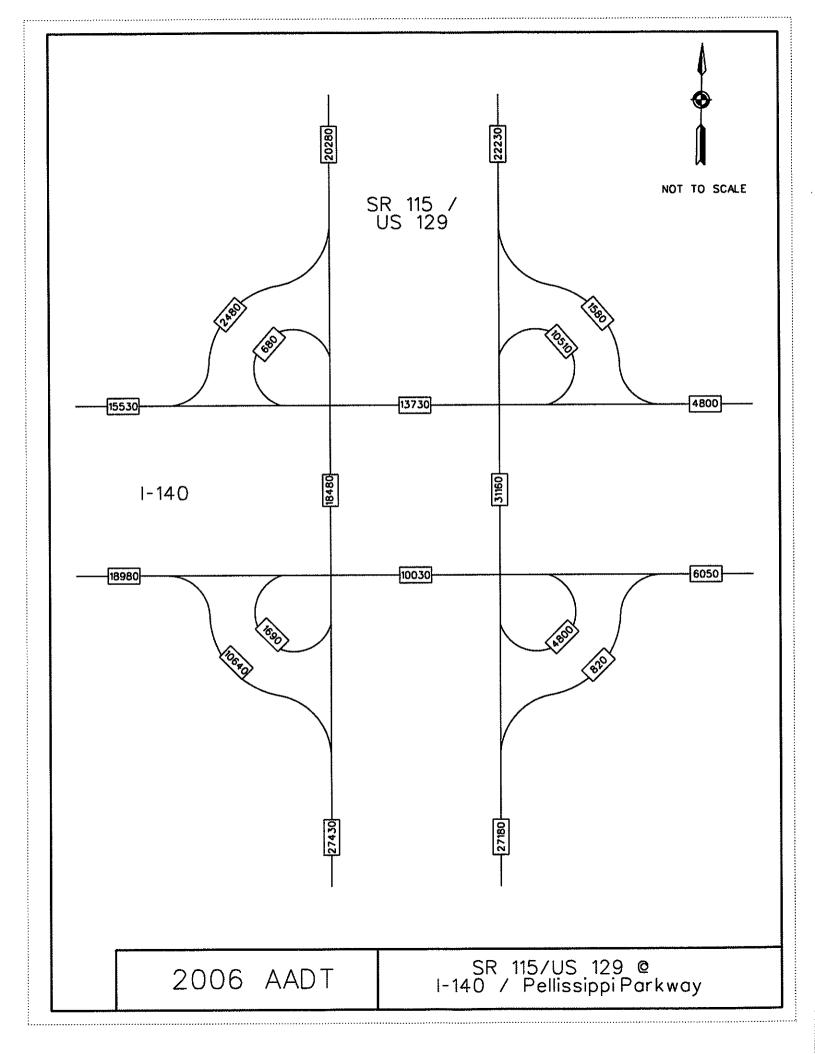
Traffic was forecasted for the study area using the travel demand model with the Relocated Alcoa Highway, Southern Loop, and Blount County R&D Park coded into the network and demographic assumptions. Assignments were run for 2014 and 2030. These model forecasts were then adjusted to 2015 and 2035 forecast years based upon the process previously described in the "Segment Volume Calibration" section of this report.

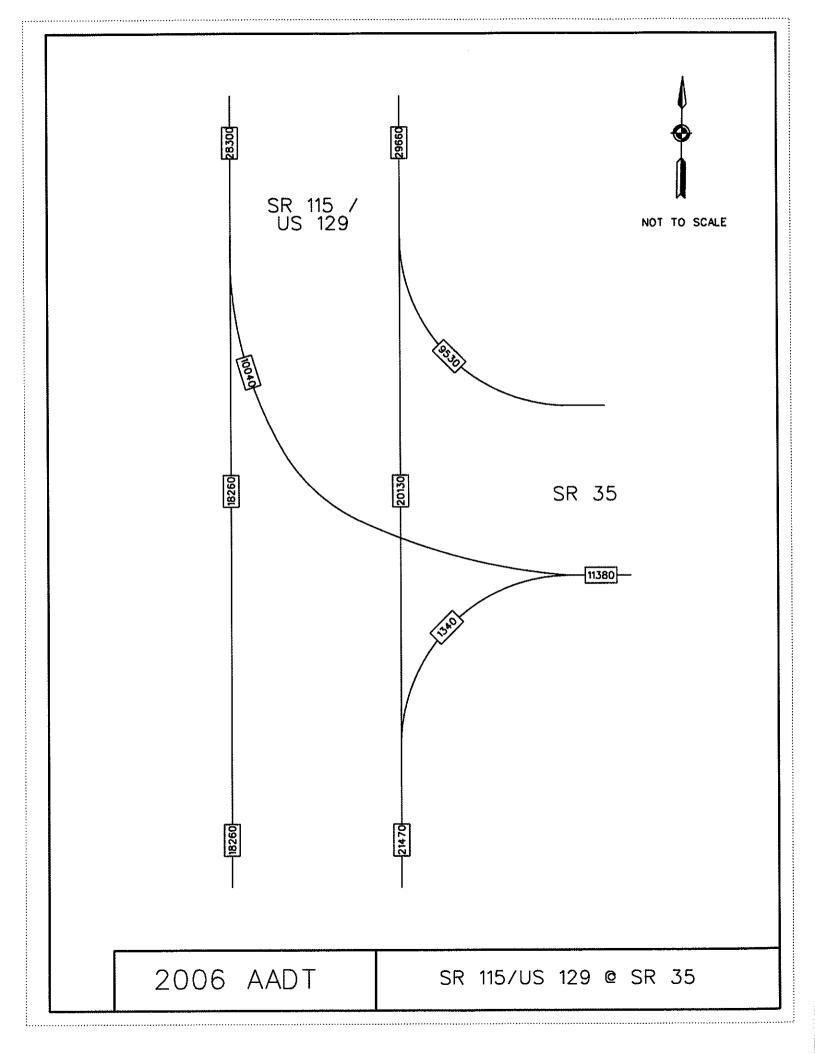
The traffic forecasts prepared in this study are included in the appendix to this report. Traffic volumes for existing conditions are included along with forecasts for future years 2015 and 2035. Following is a list of each item included in the appendix.

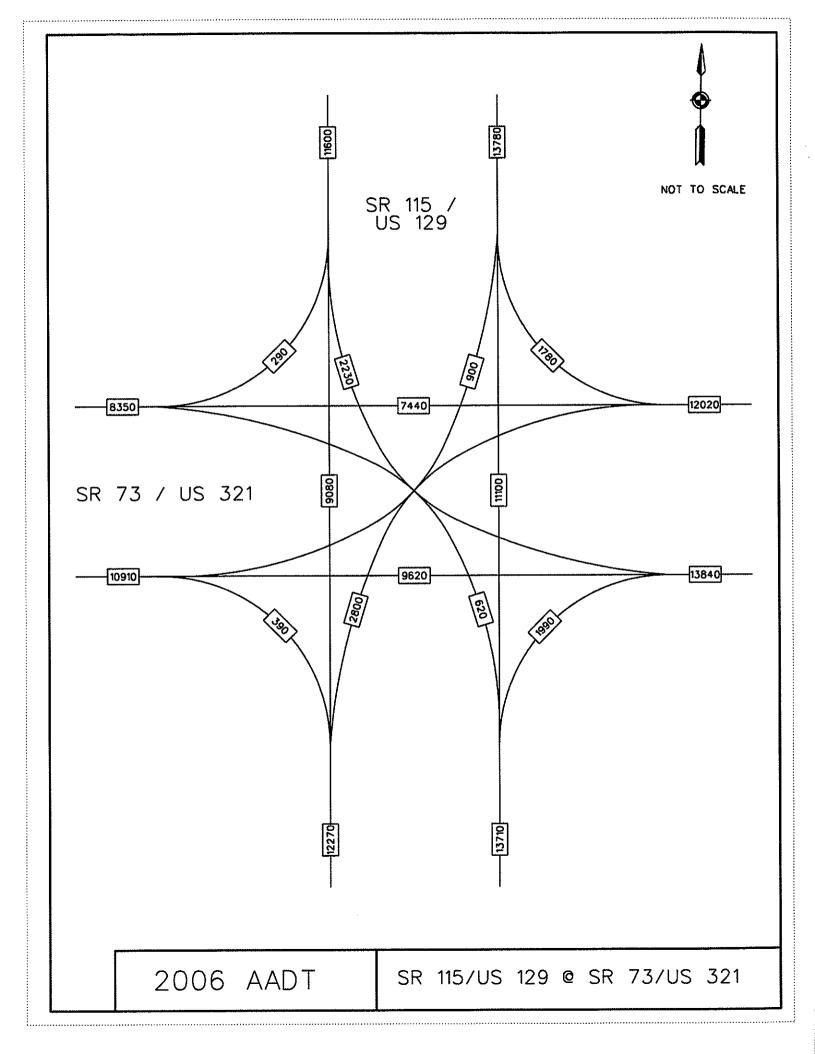
- Existing turning movement volumes for the following intersections:
  - SR 115 / US 129 @ I-140 / Pellissippi Parkway
  - SR 115 / US 129 @ SR 35
  - SR 115 / US 129 @ SR 73 / US 321
  - SR 33 / US 411 @ SR 115 / US 129
  - SR 33 @ I-140 / Pellissippi Parkway
  - SR 33 @ Wildwood Road
  - SR 33 / E. Broadway Avenue @ SR 35 / S. Washington Street
  - SR 33 @ SR 73 / US 321
  - SR 35 / S. Washington Street @ Sevierville Road
  - S. Washington Street / SR 35 @ High Street / SR 35
  - S. Washington Street @ SR 73 / US 321
  - SR 73 / US 321 @ SR 335 / Old Glory Road
- Schematic Diagram of Average Annual Daily Traffic (AADT) Volumes and Truck Percentages for the years 2006, 2015, and 2035 for the scenario without Pellissippi Parkway Extension ("No Build")
- Intersection Volumes (2015 and 2035) for the "No Build" scenario at the same intersections listed for existing conditions
- Schematic Diagram of Average Annual Daily Traffic (AADT) Volumes and Truck Percentages for the years 2015 and 2035 for the scenario with Pellissippi Parkway Extension ("Build")
- Intersection Volumes (2015 and 2035) for the "Build" scenario at the same intersections listed for existing conditions plus these intersections:
  - Pellissippi Parkway Extension @ SR 35 / US 411 / Sevierville Road
  - Pellissippi Parkway Extension @ SR 73 / US 321.

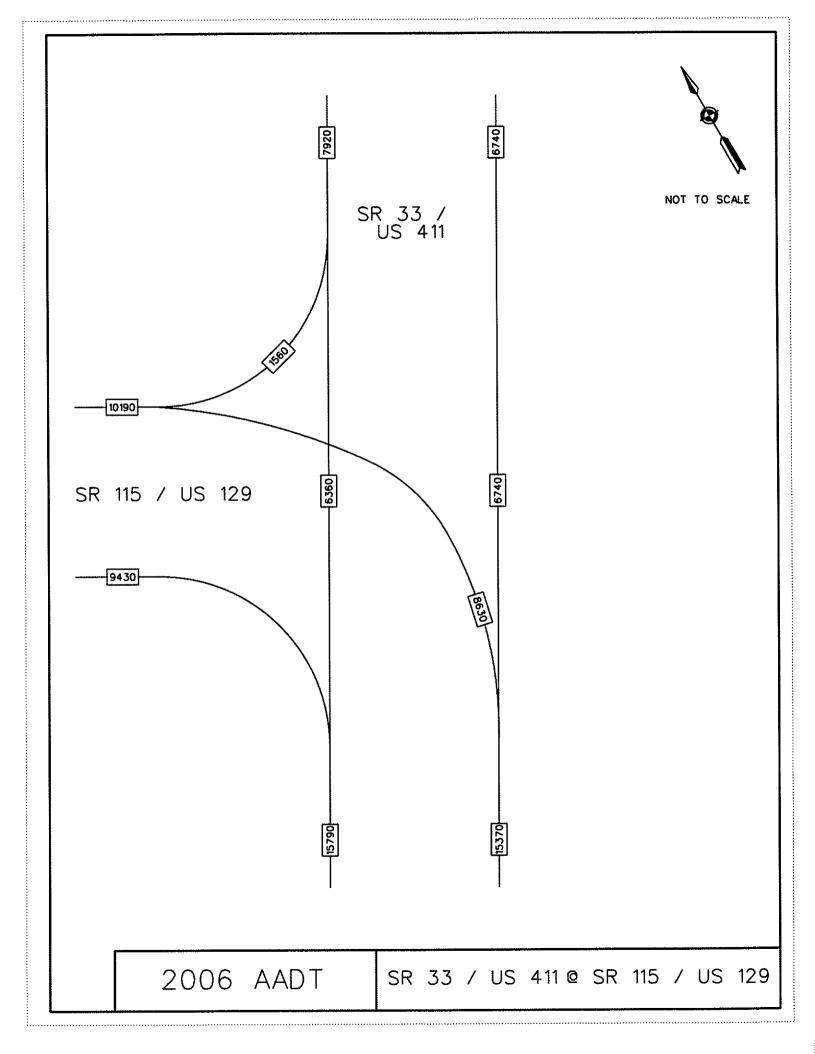
## **APPENDIX**

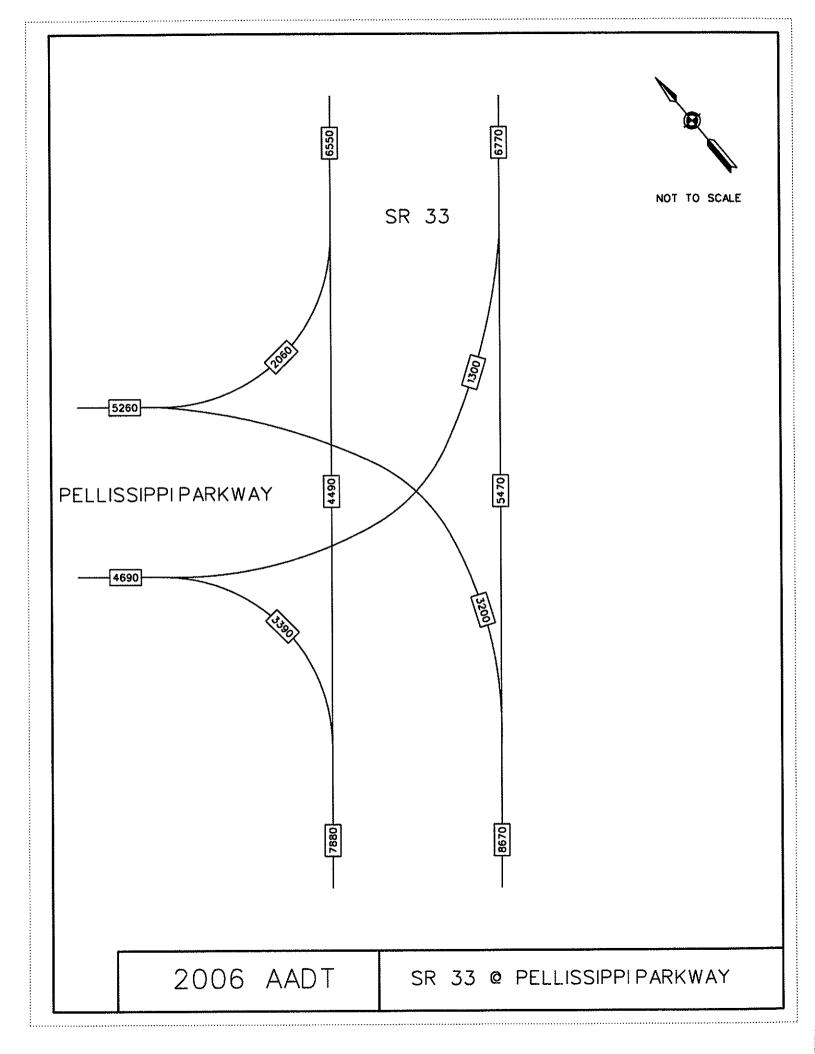
## **EXISTING VOLUMES**

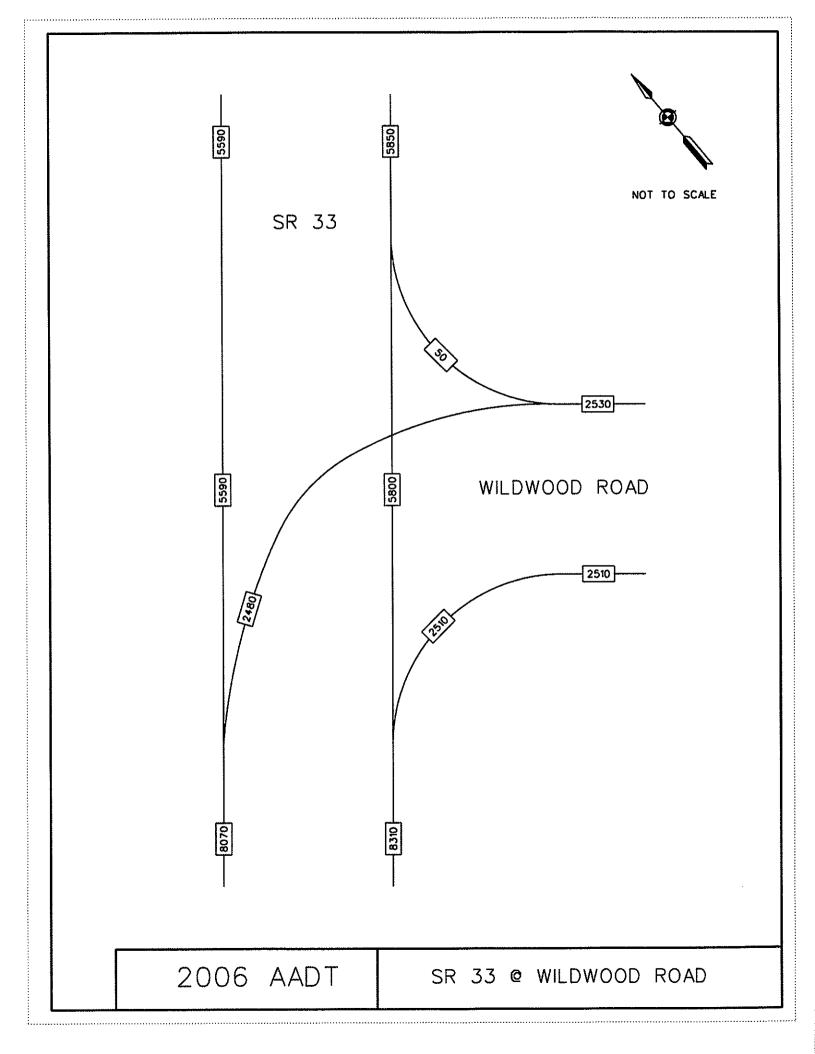


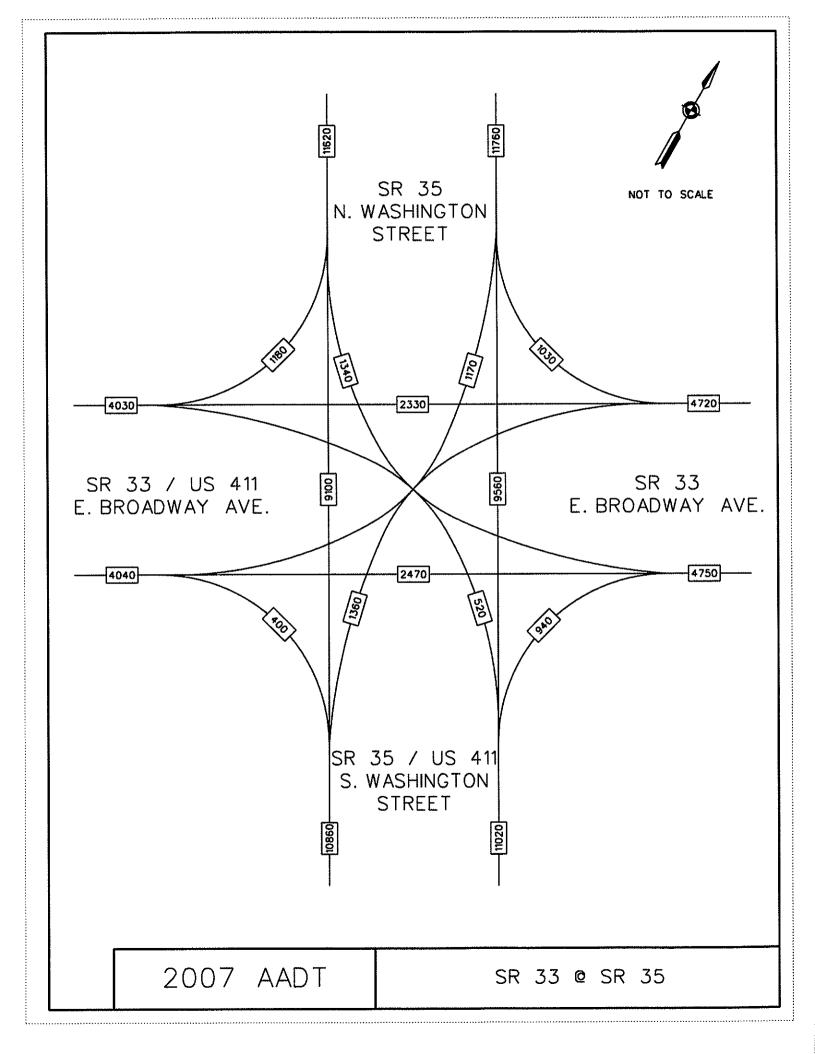


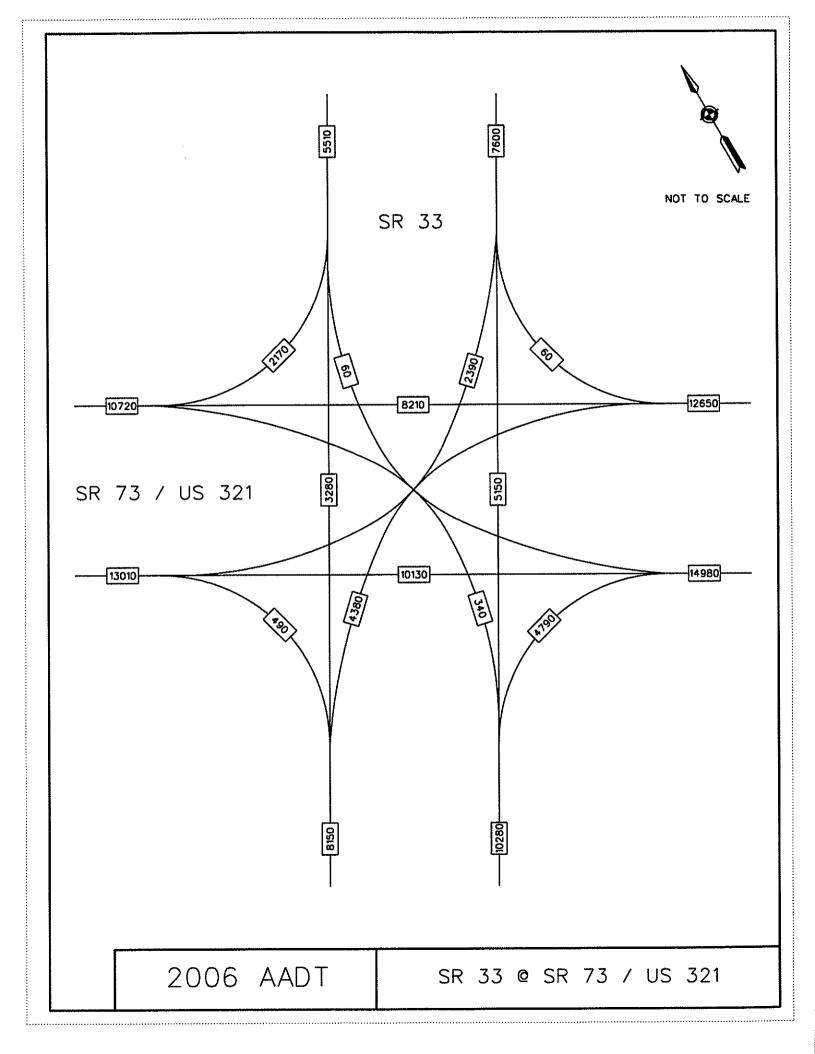


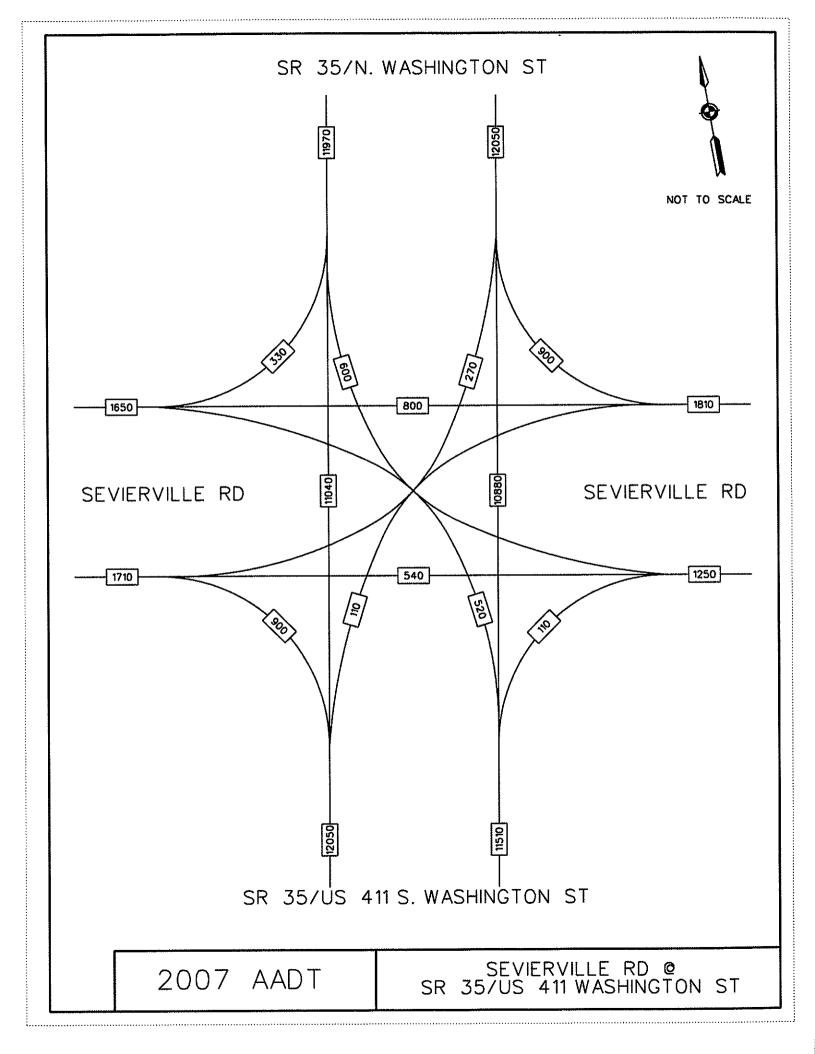


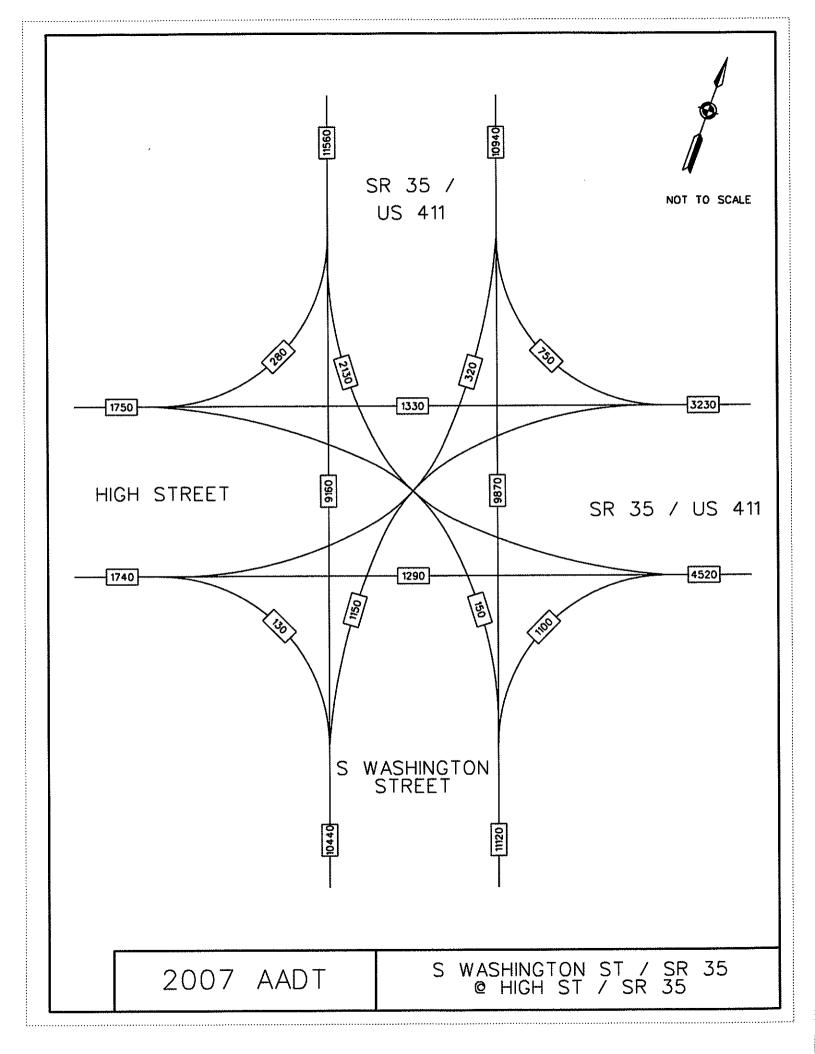


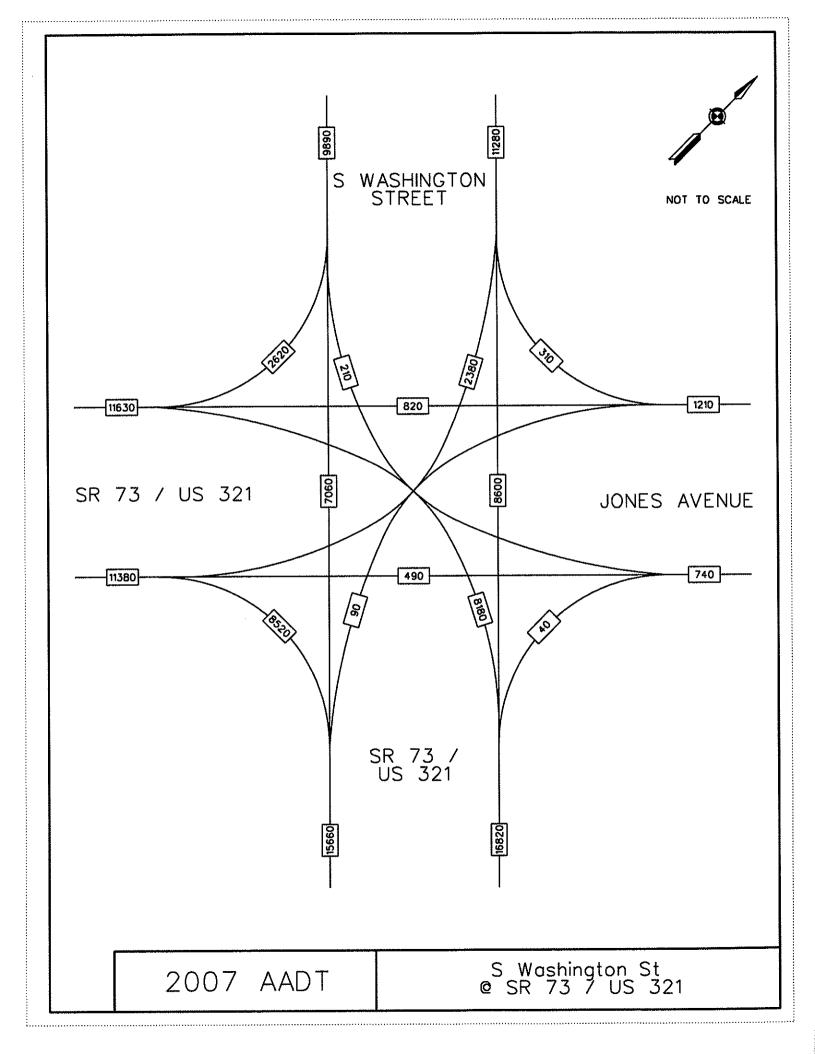


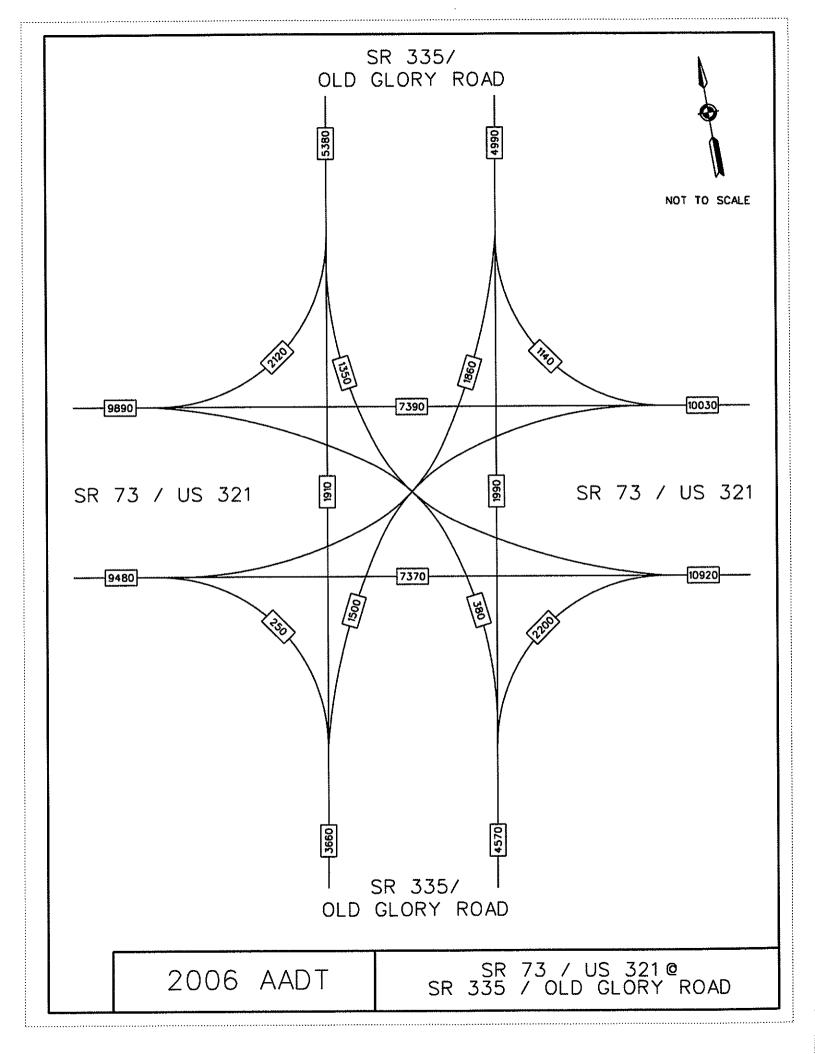


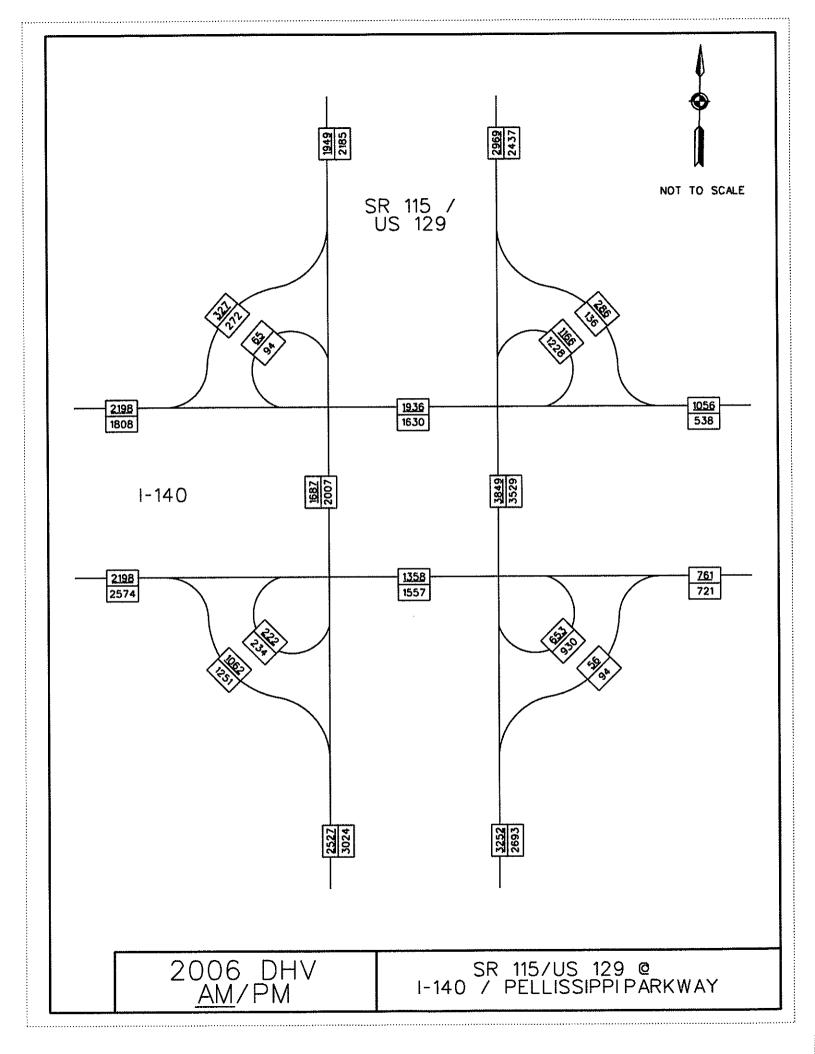


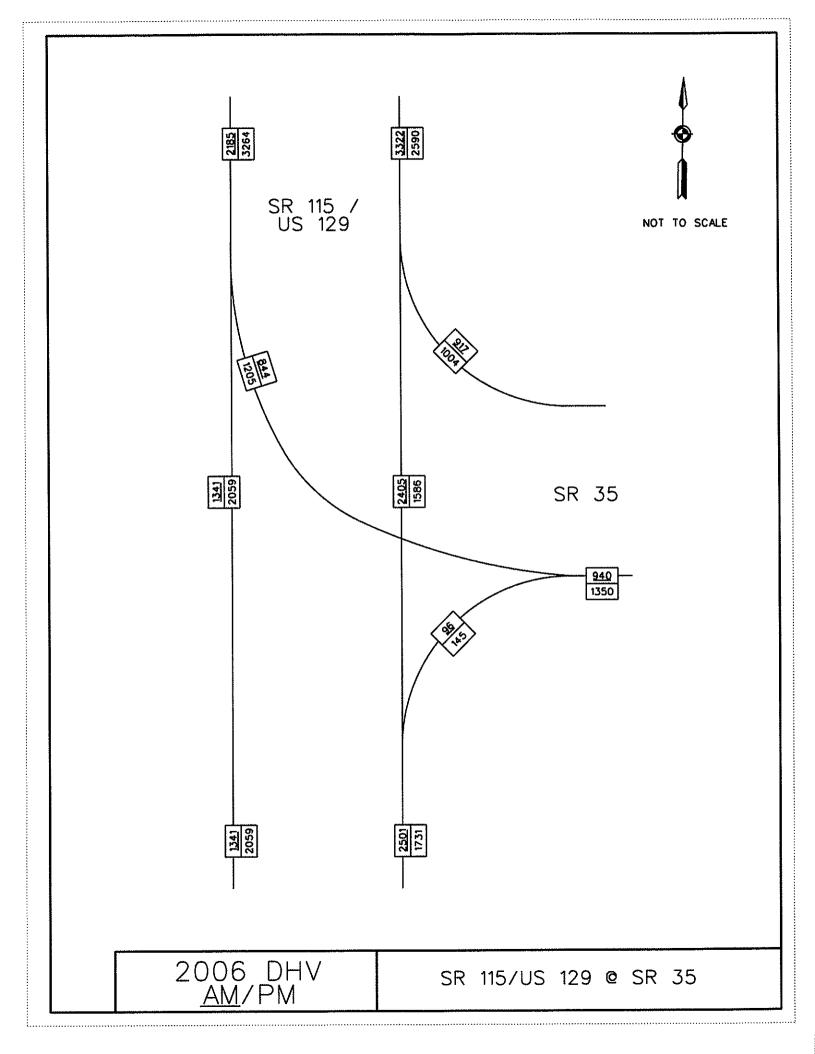


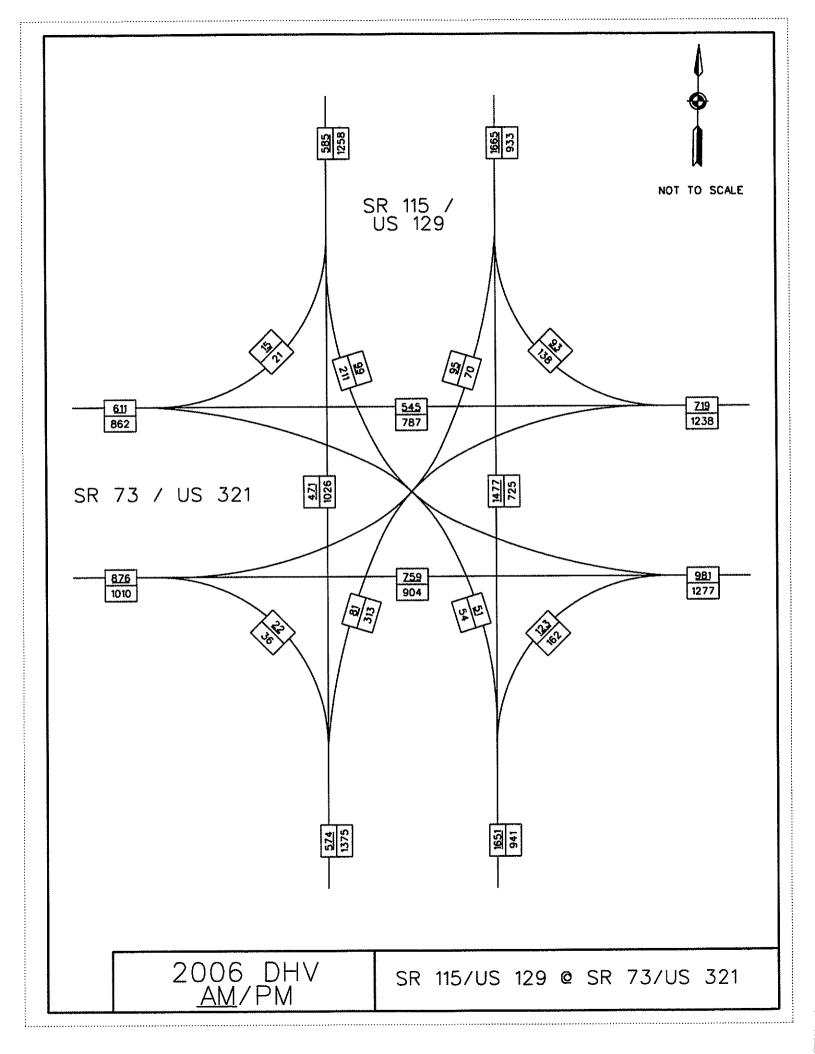


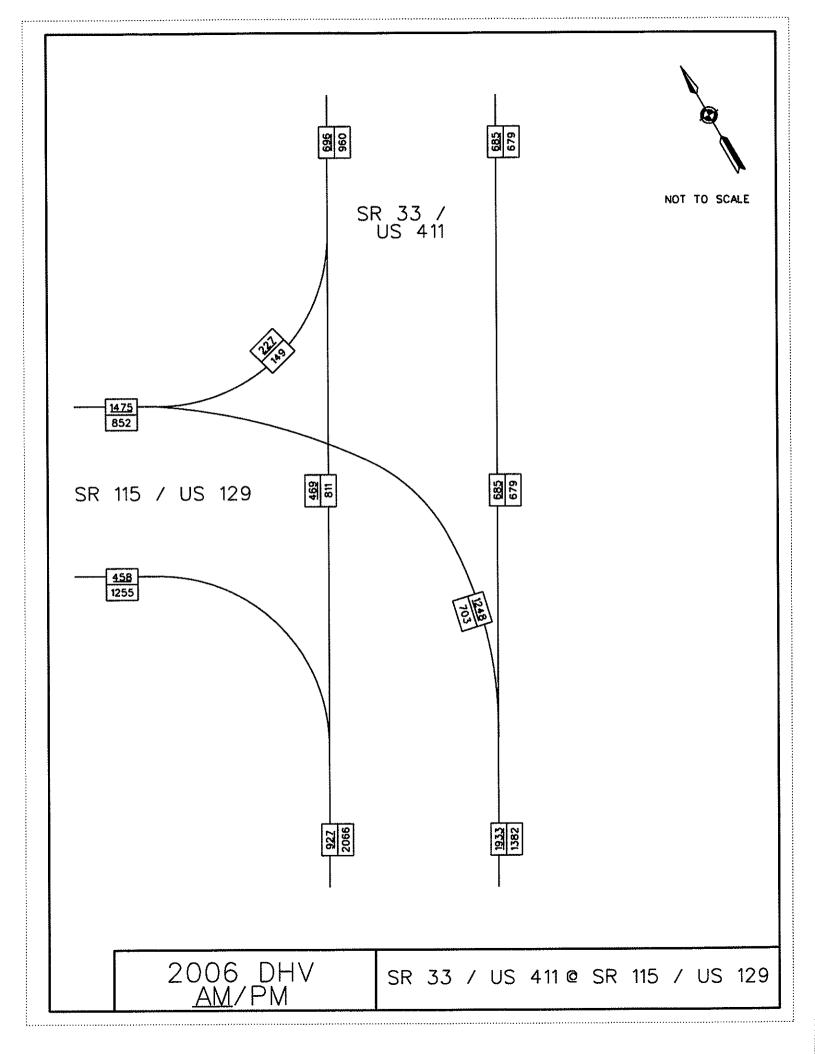


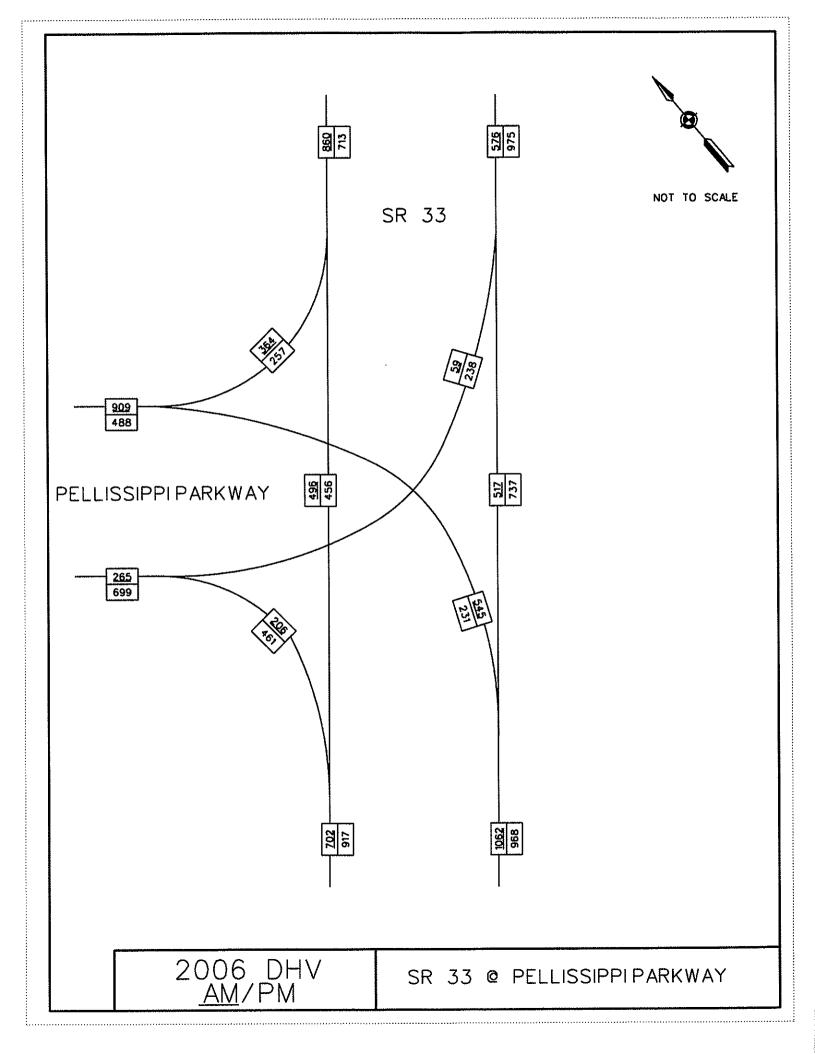


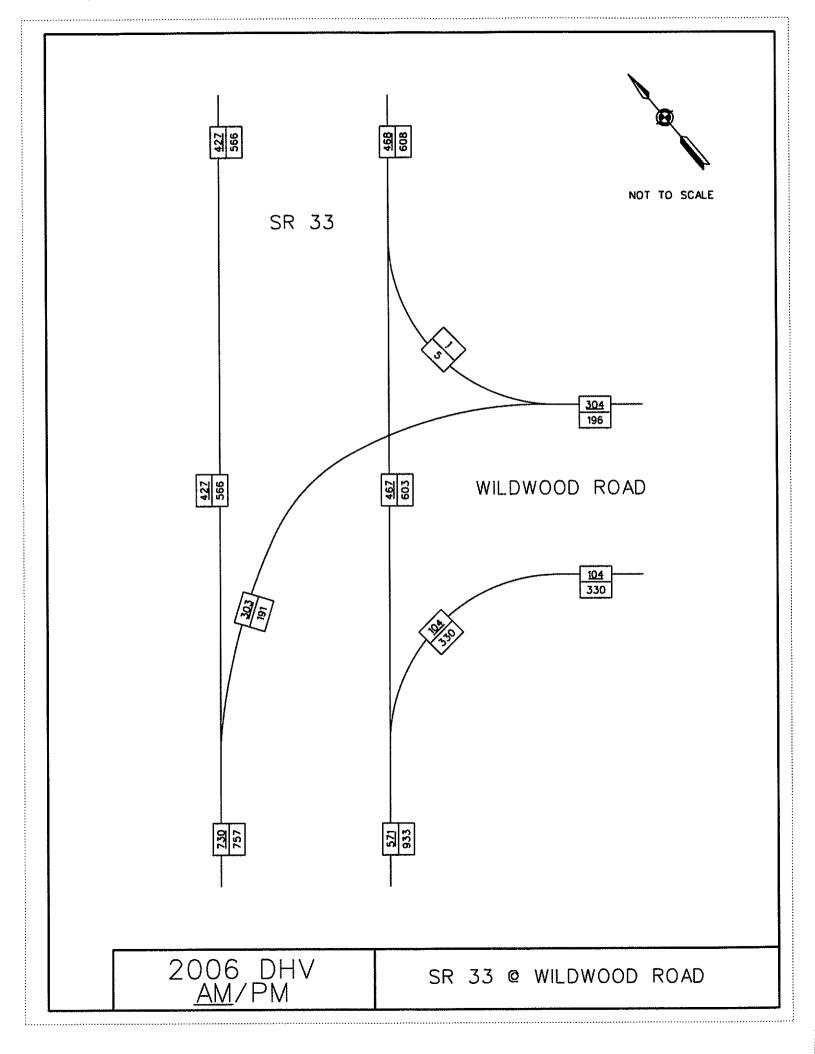


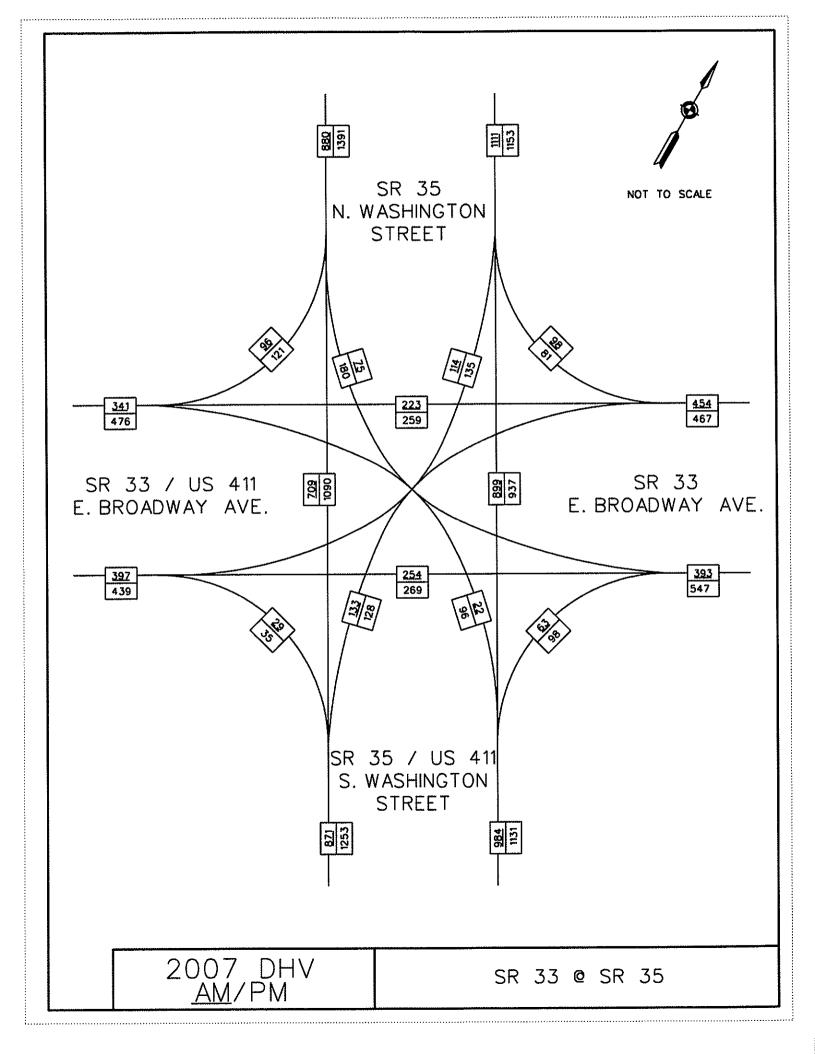


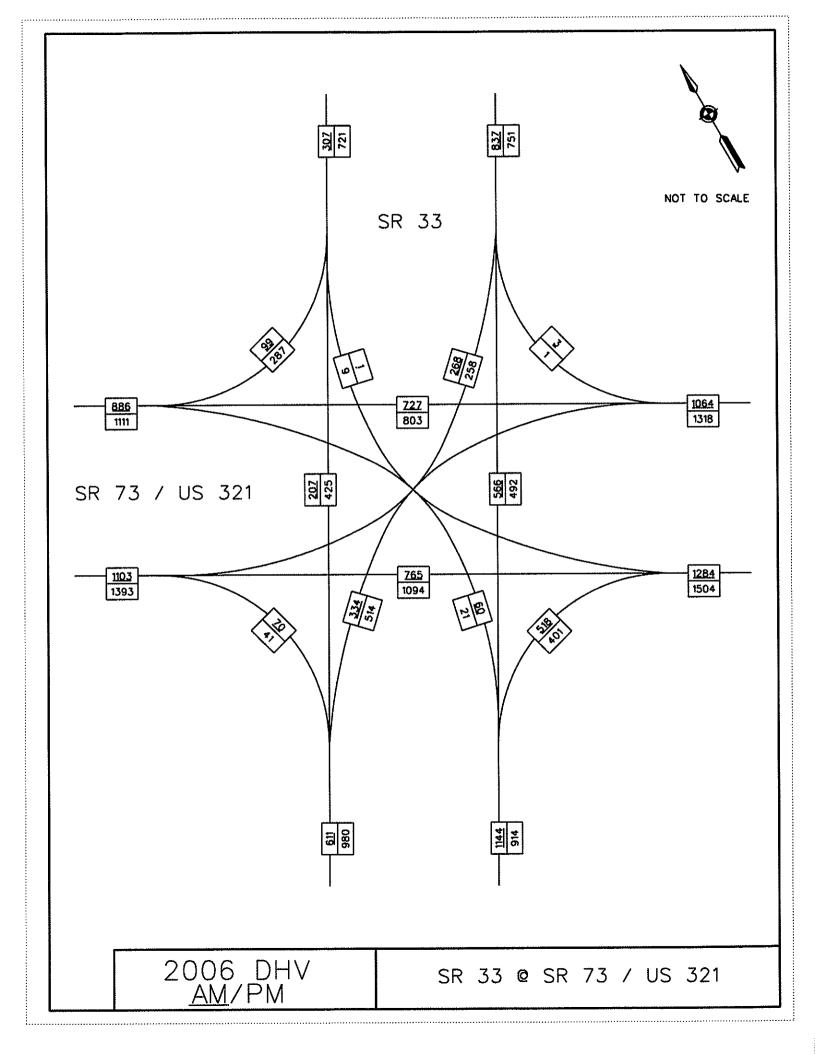


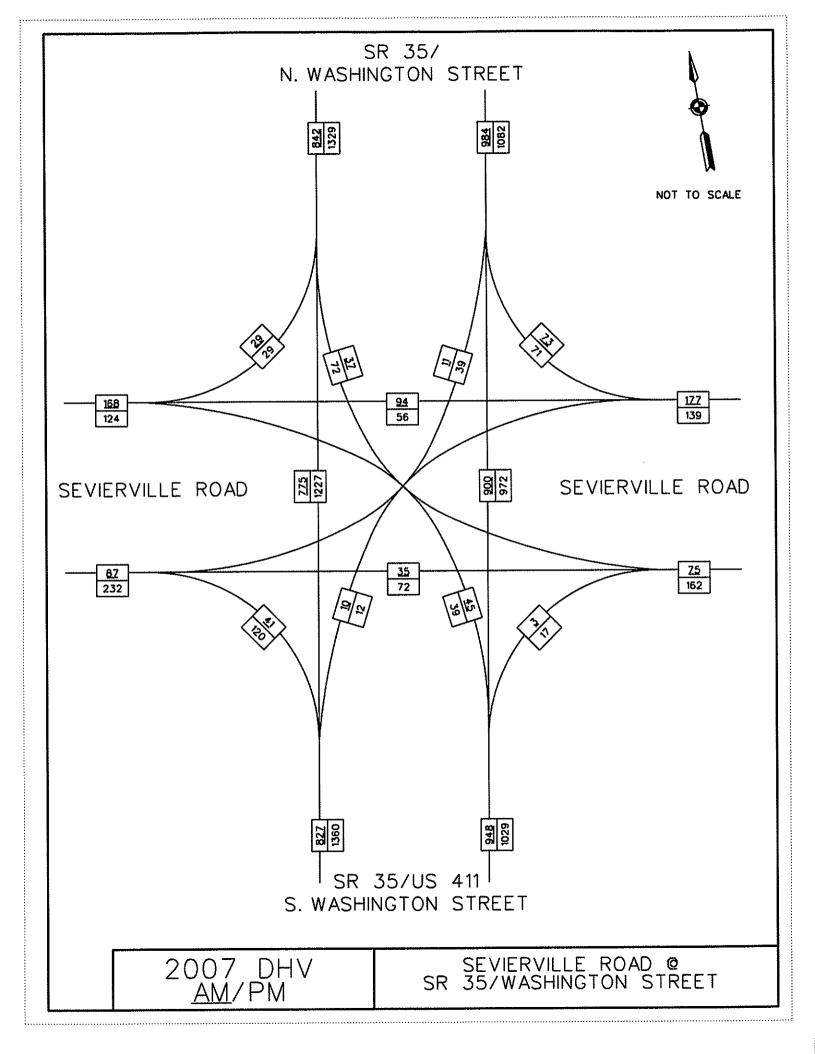


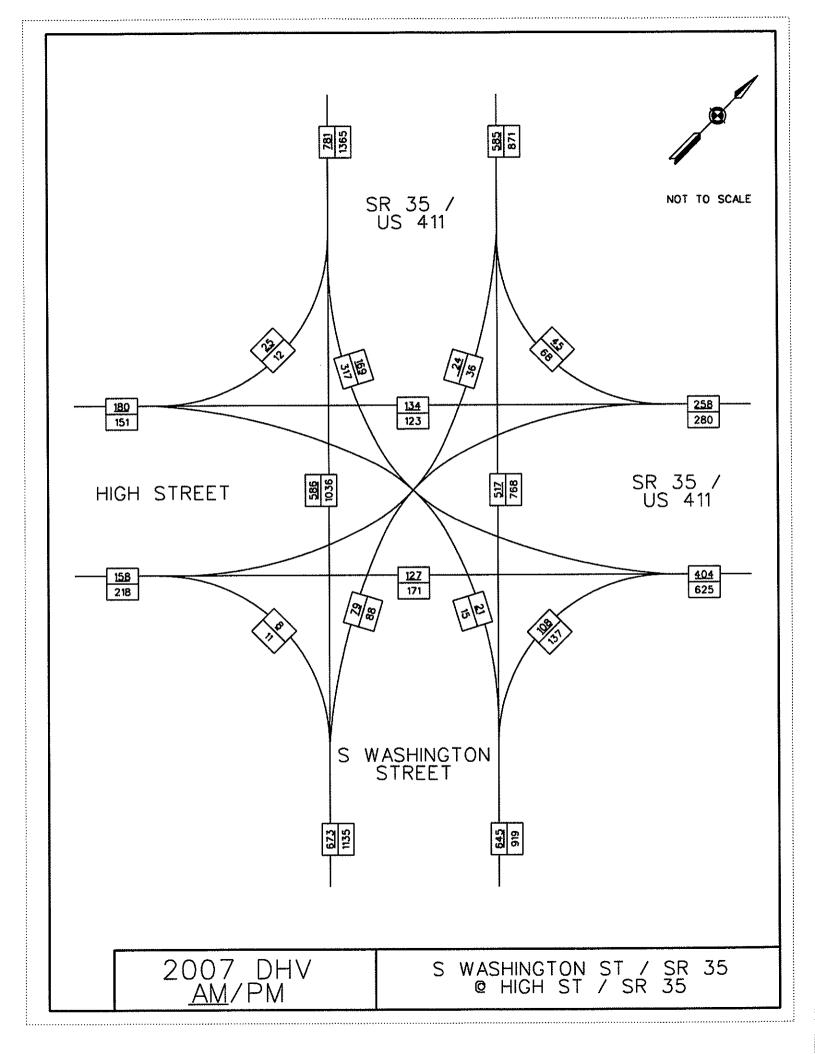


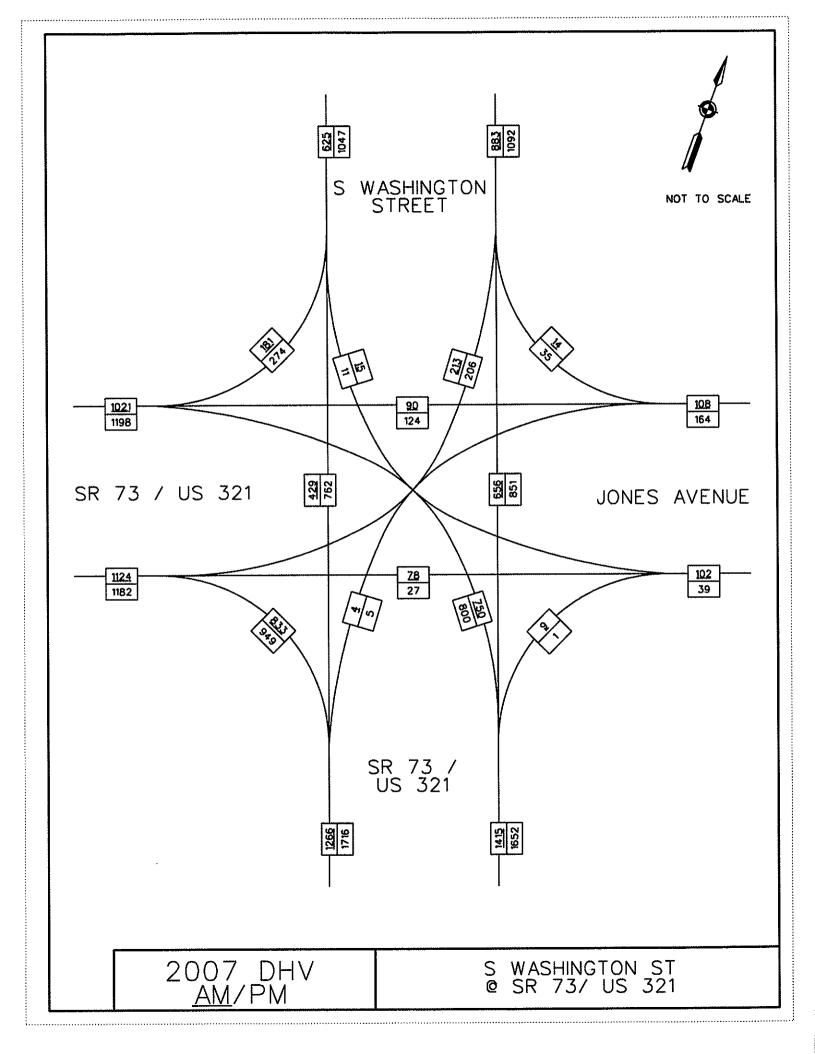


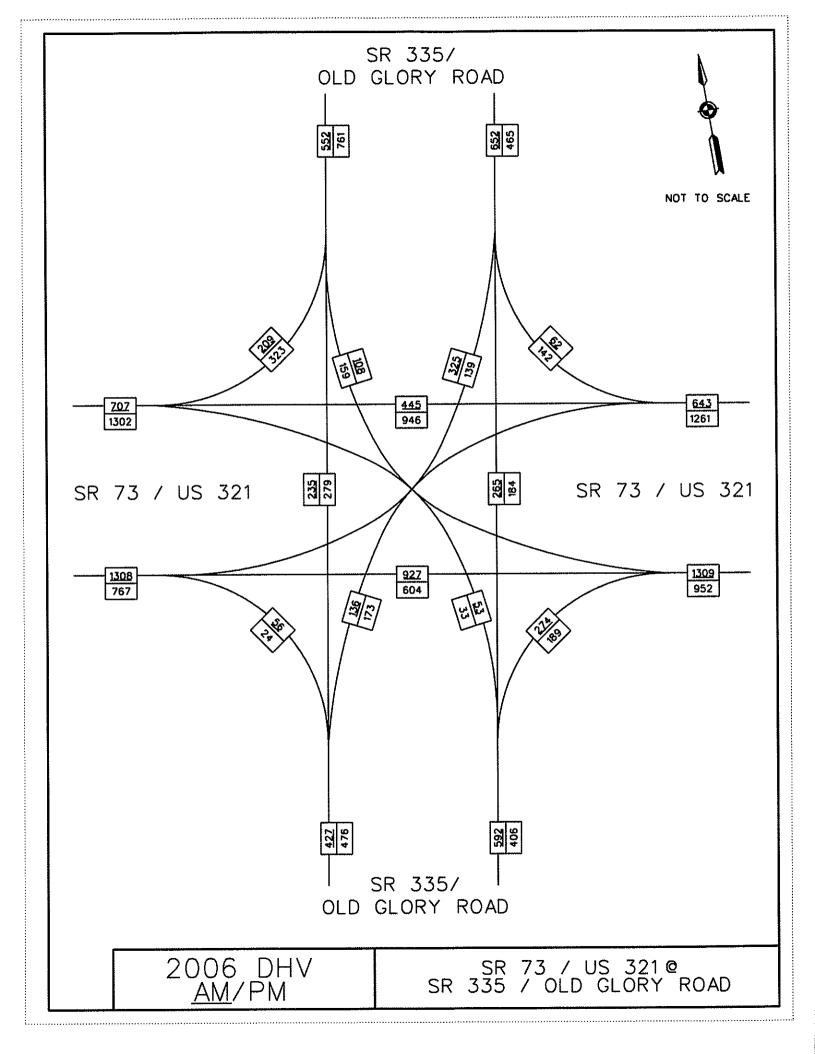




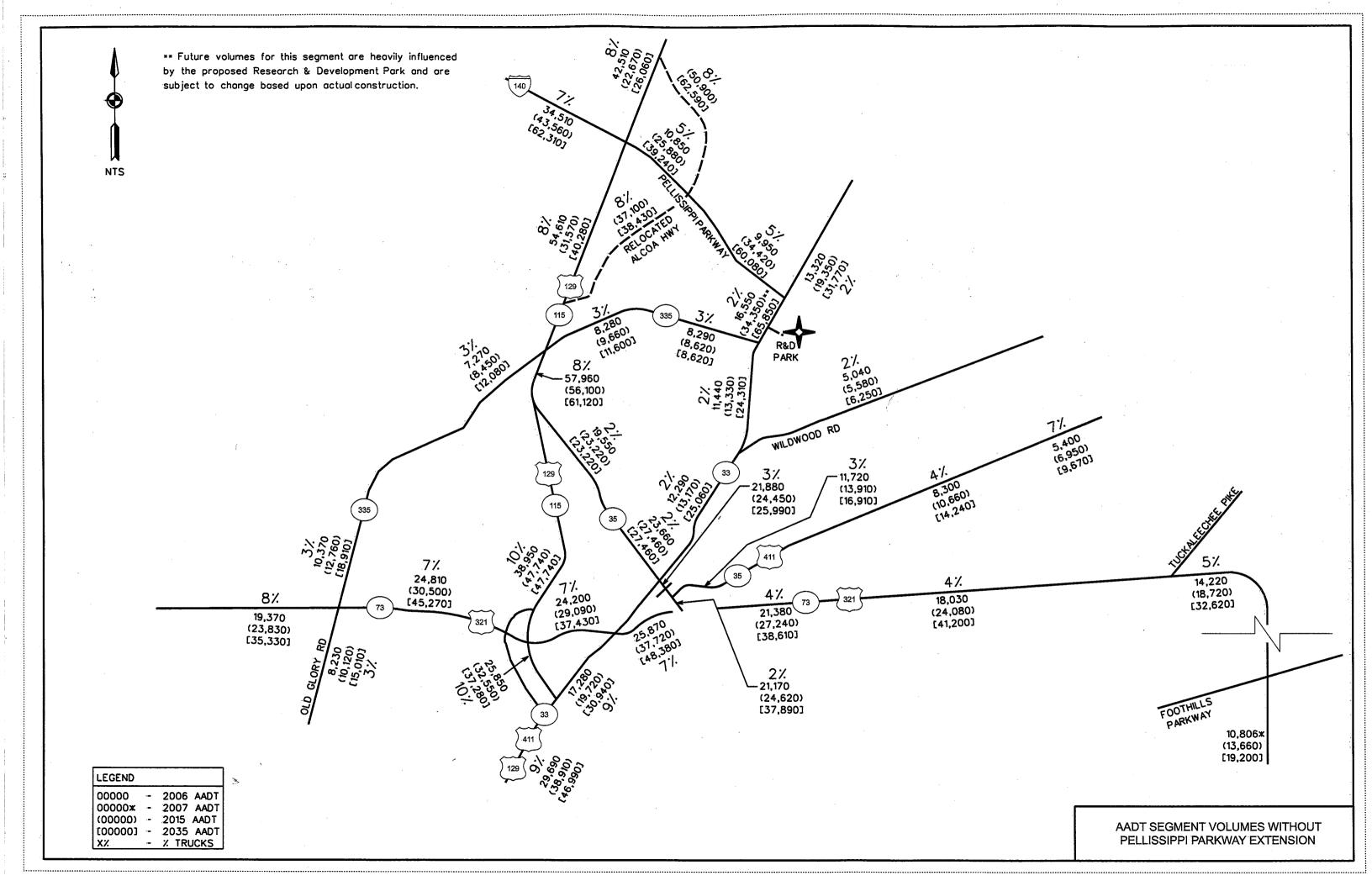


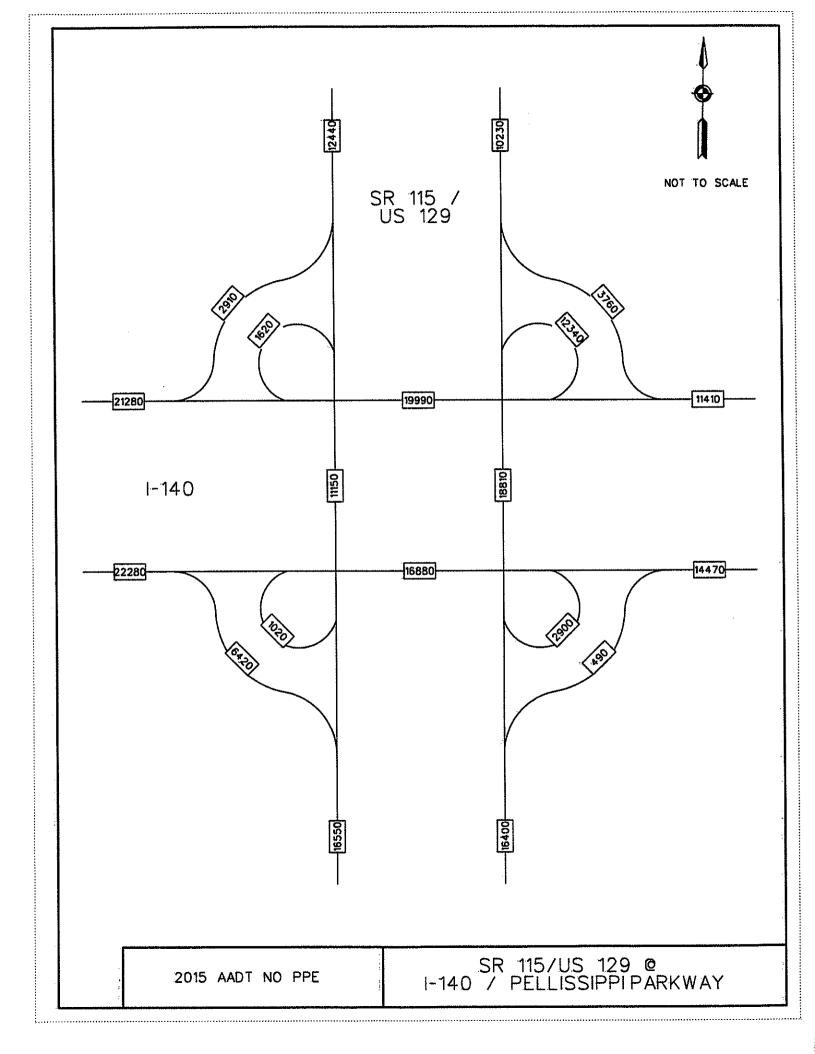


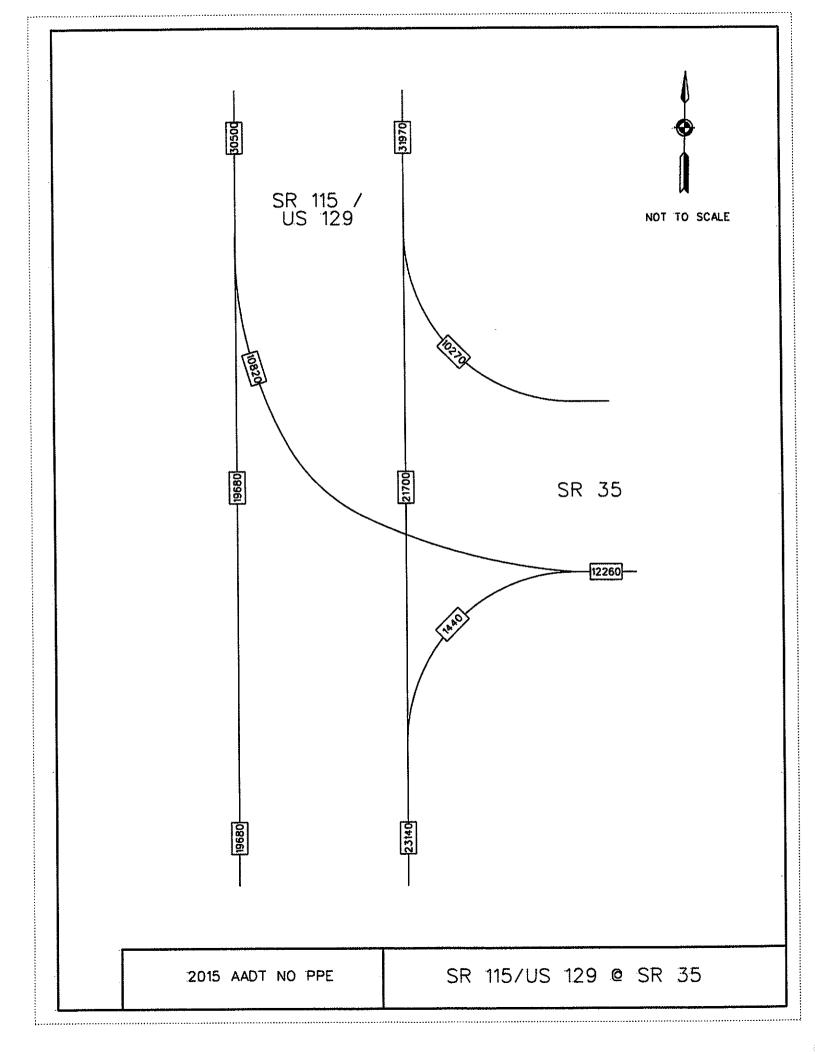


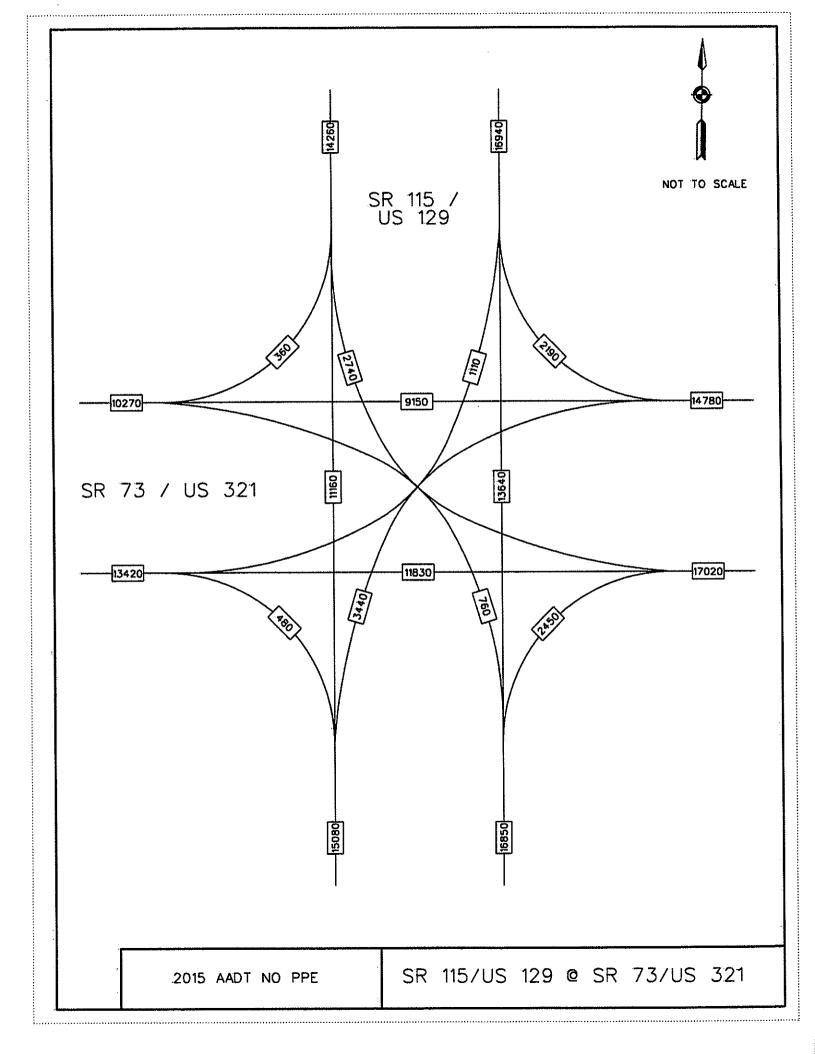


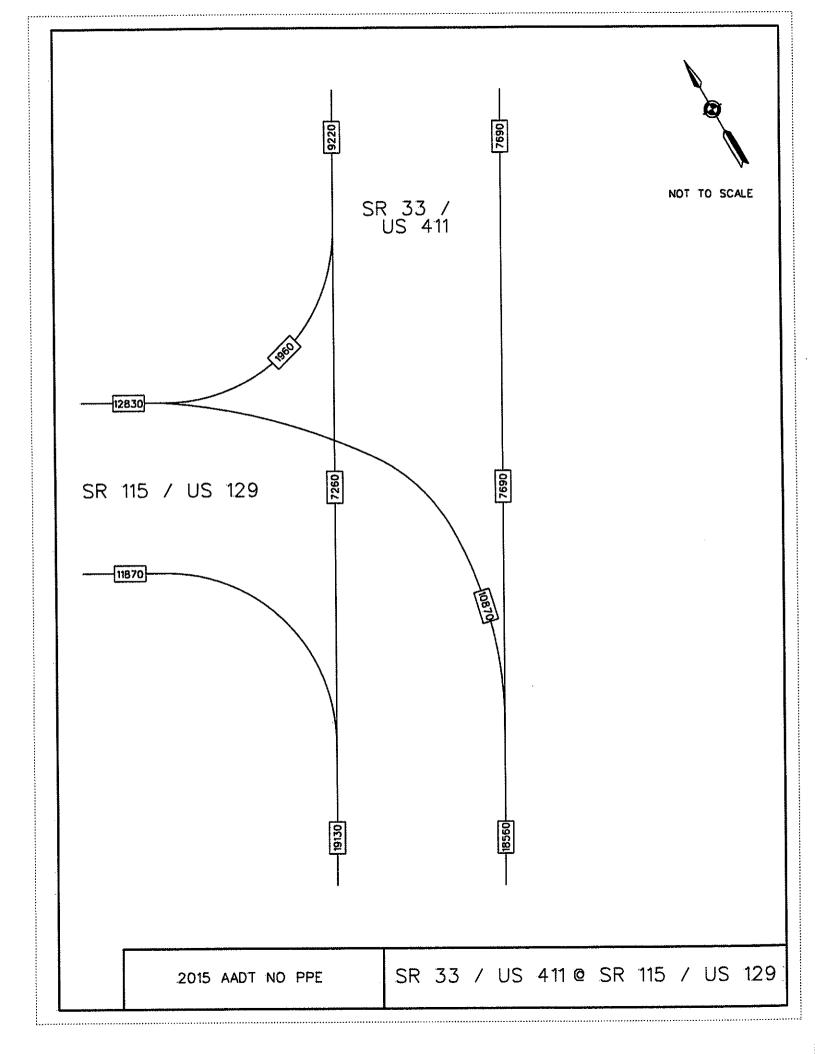
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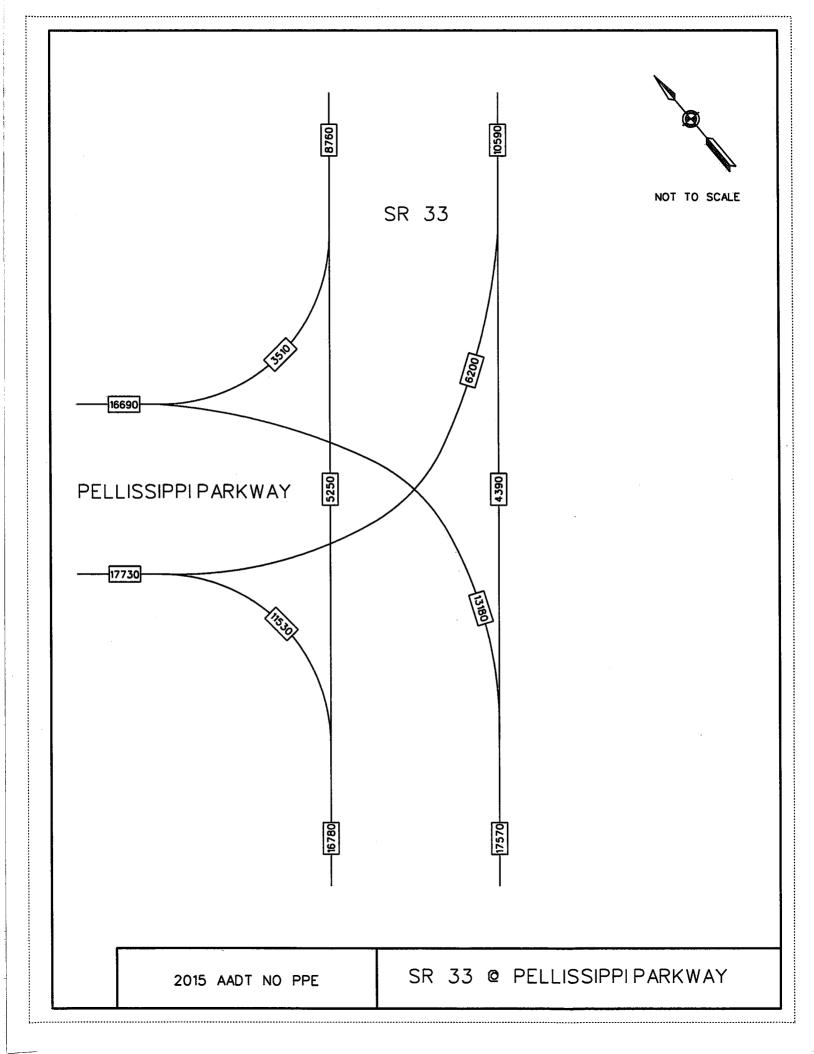


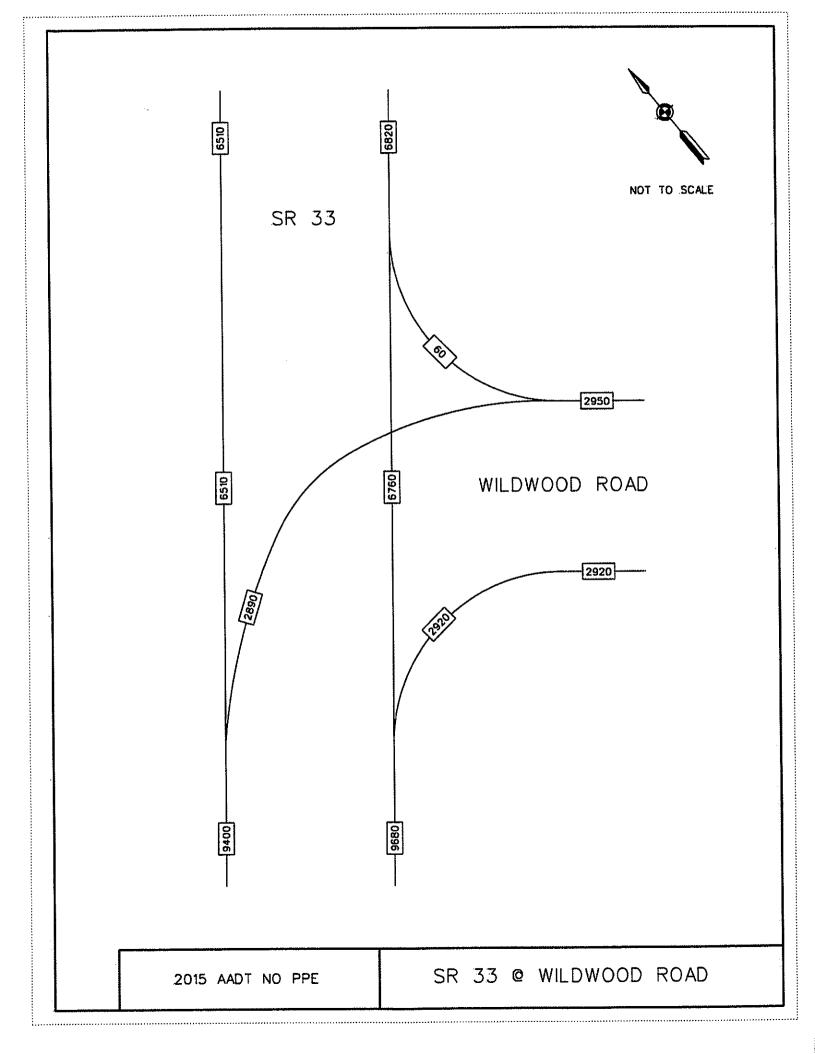


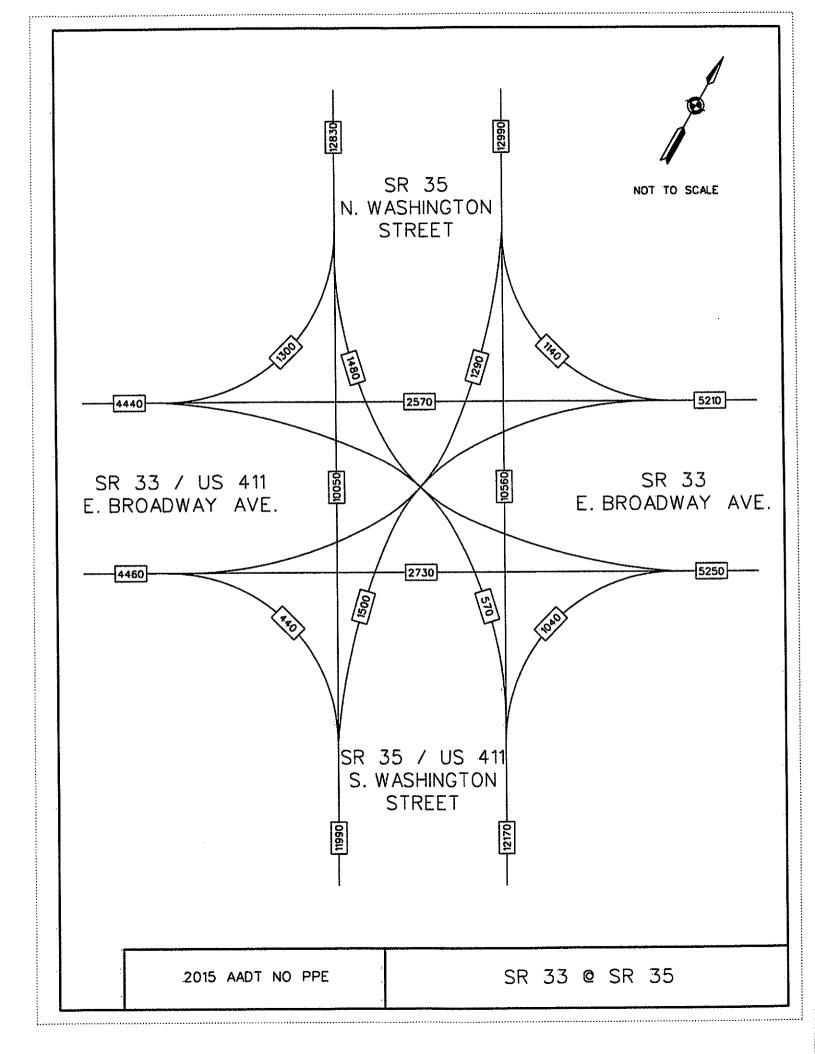


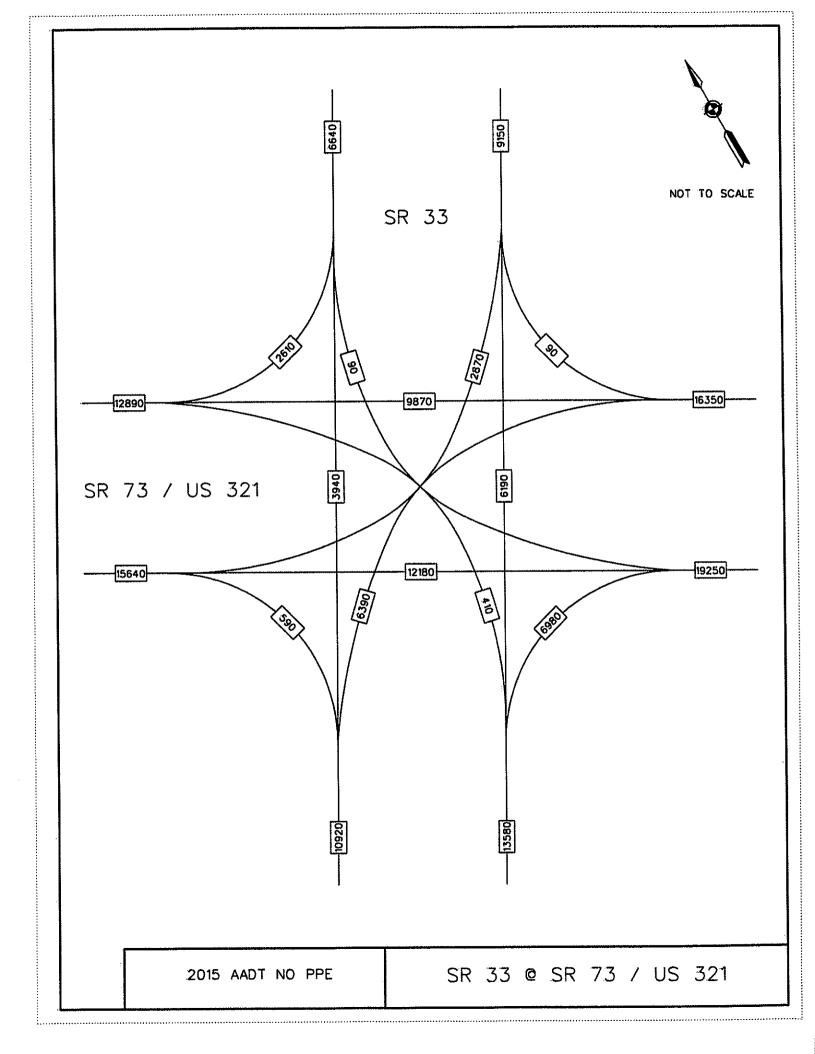


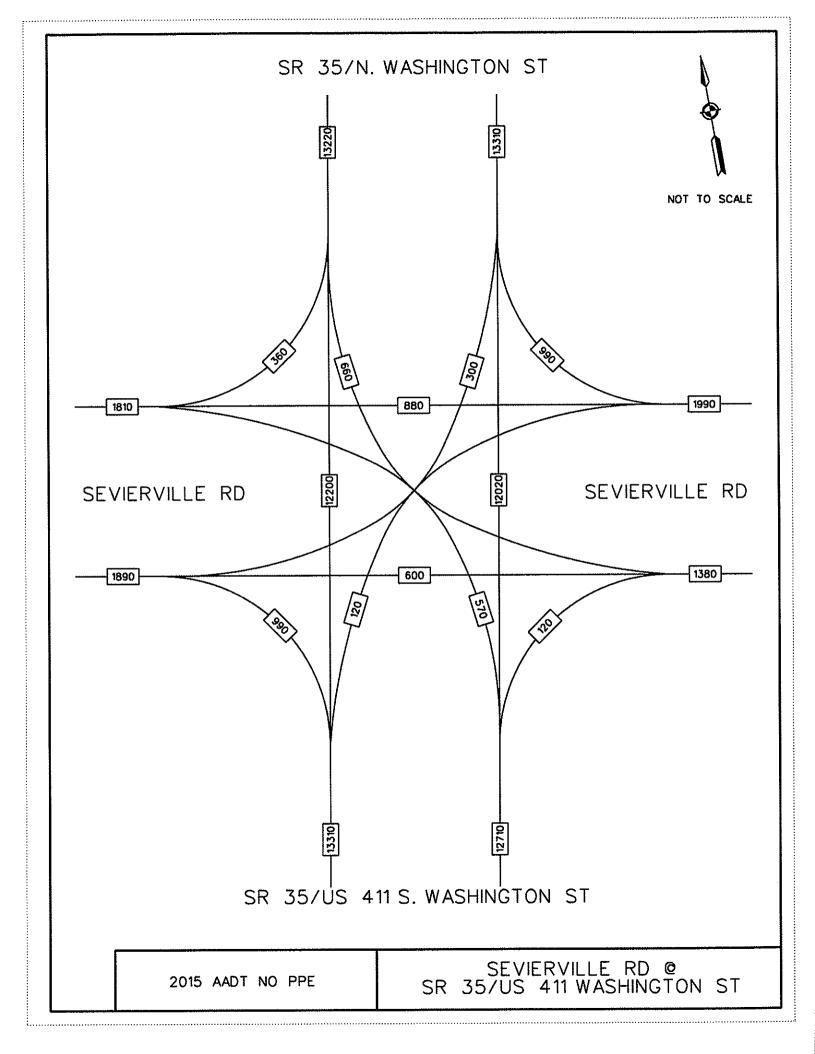


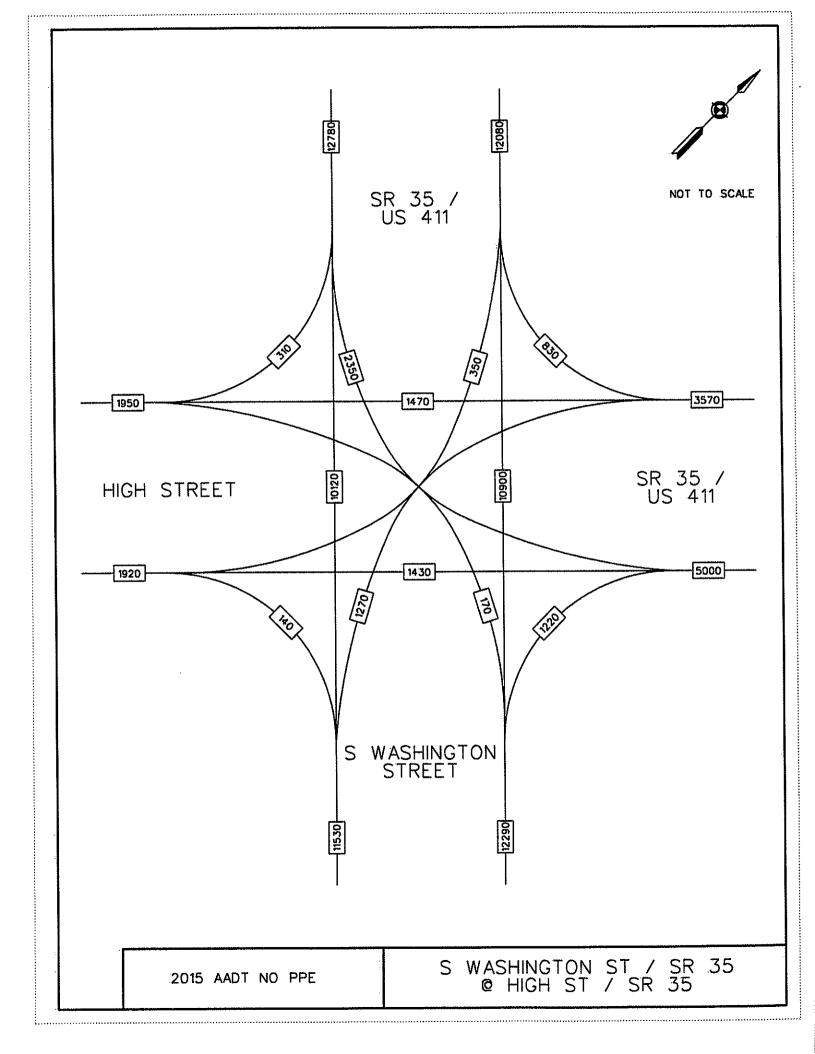


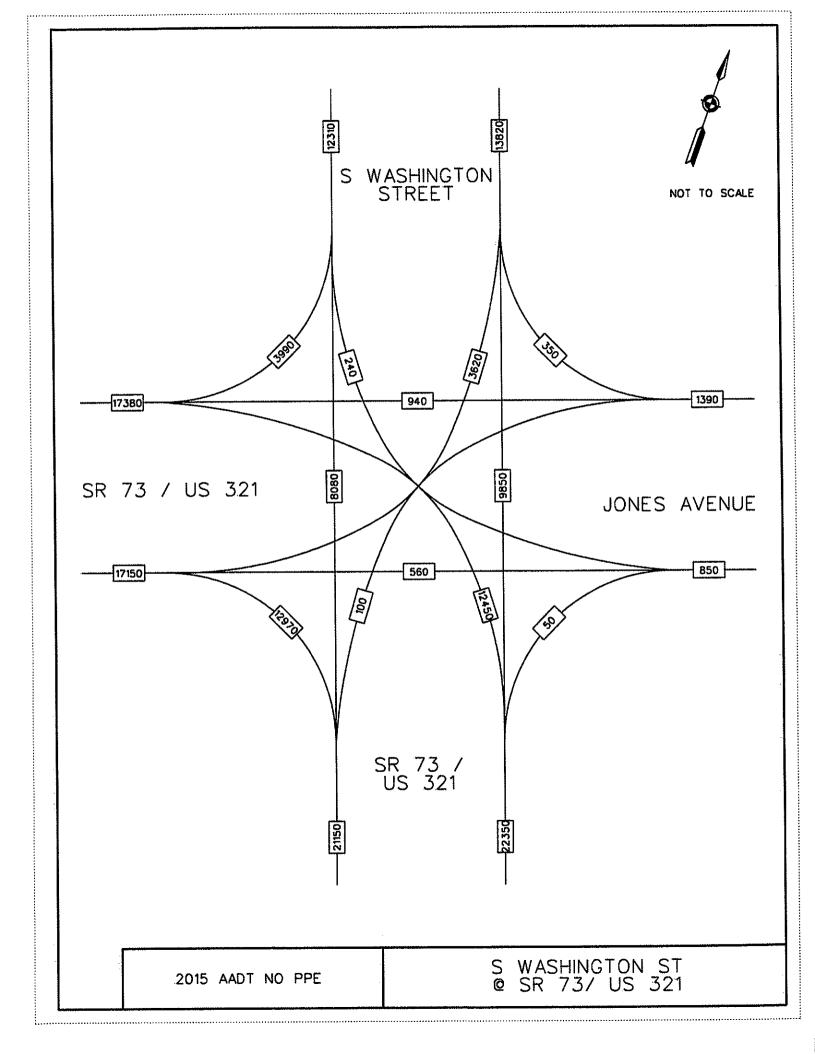


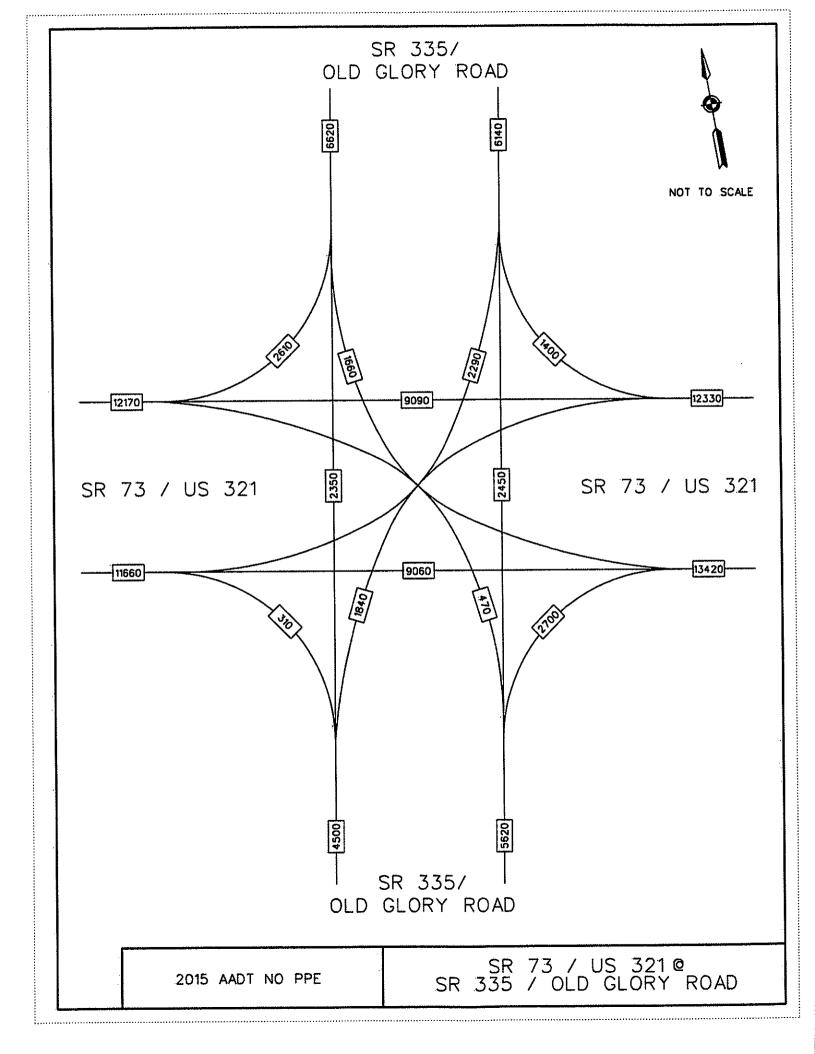


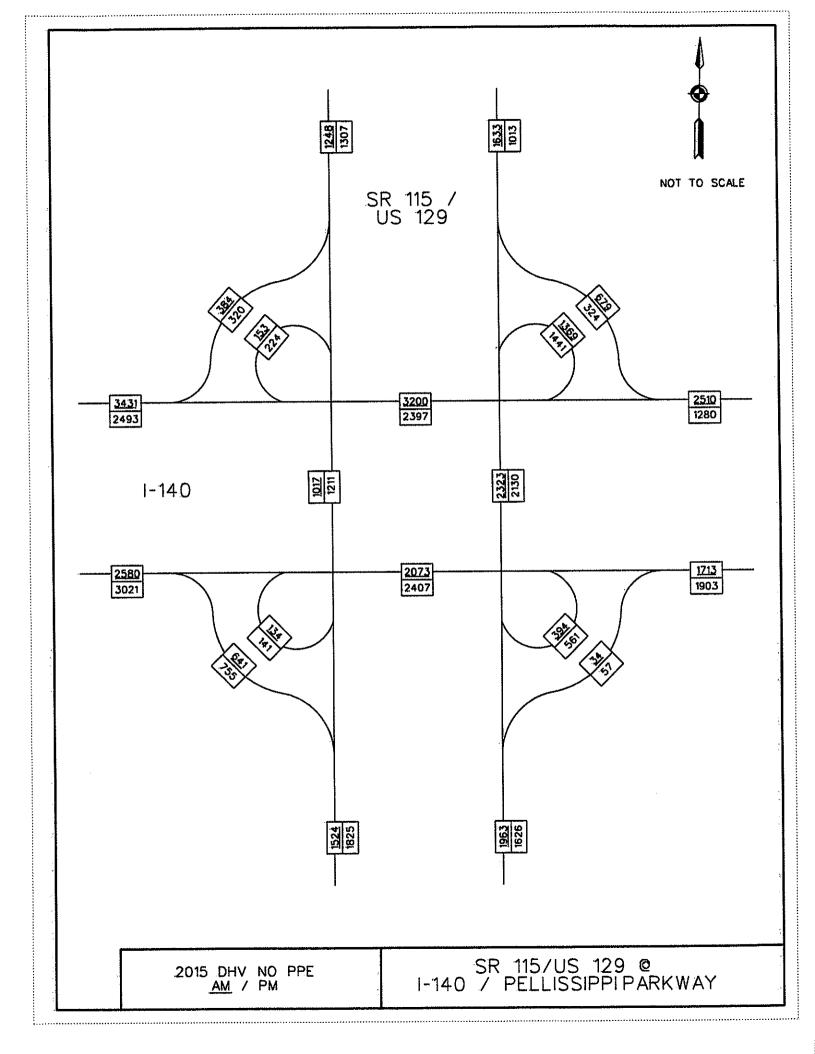


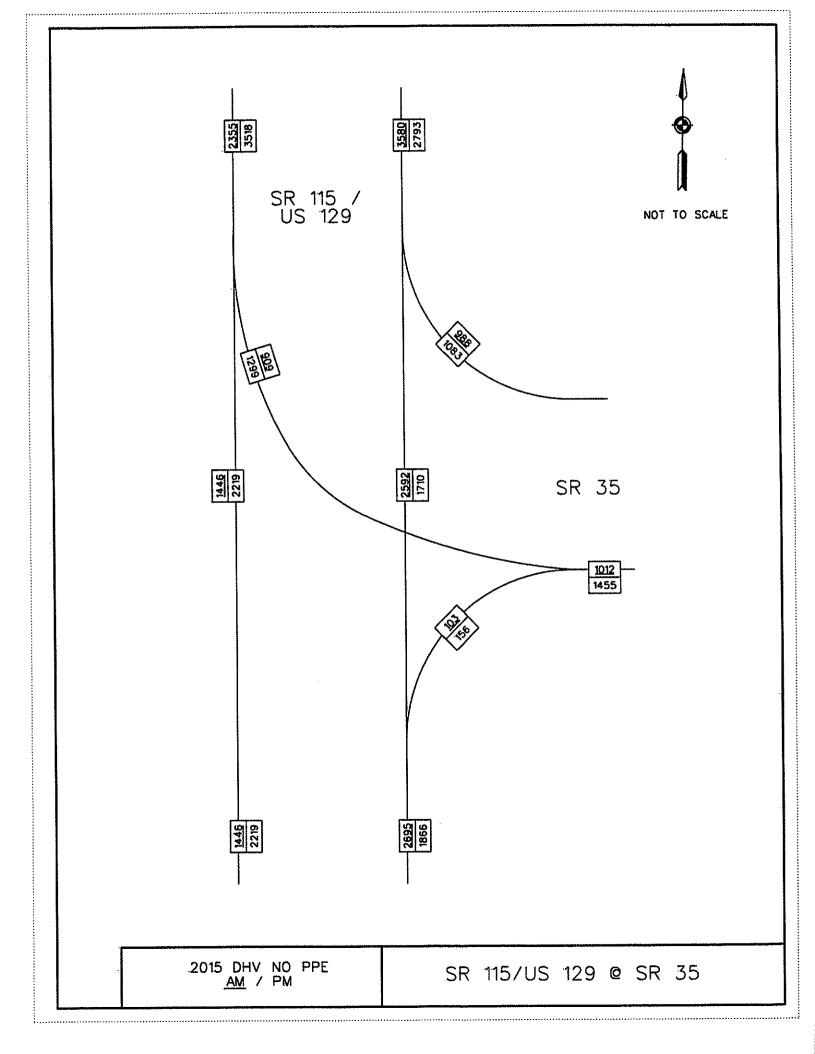


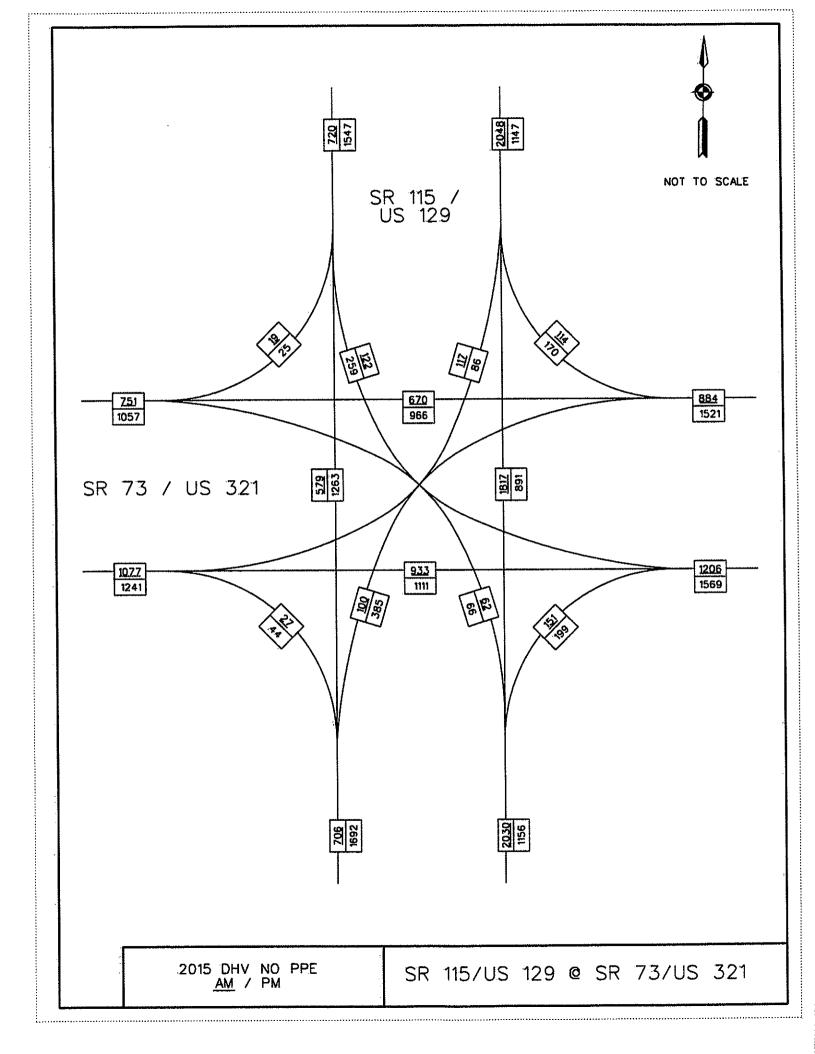


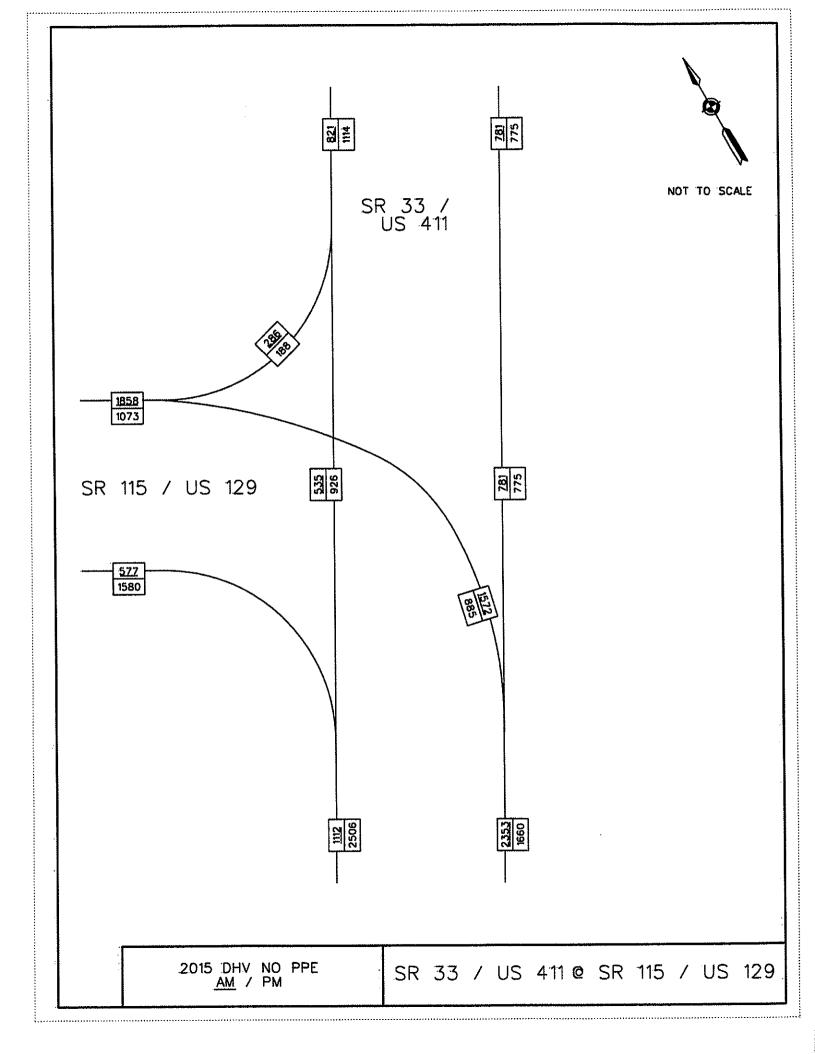


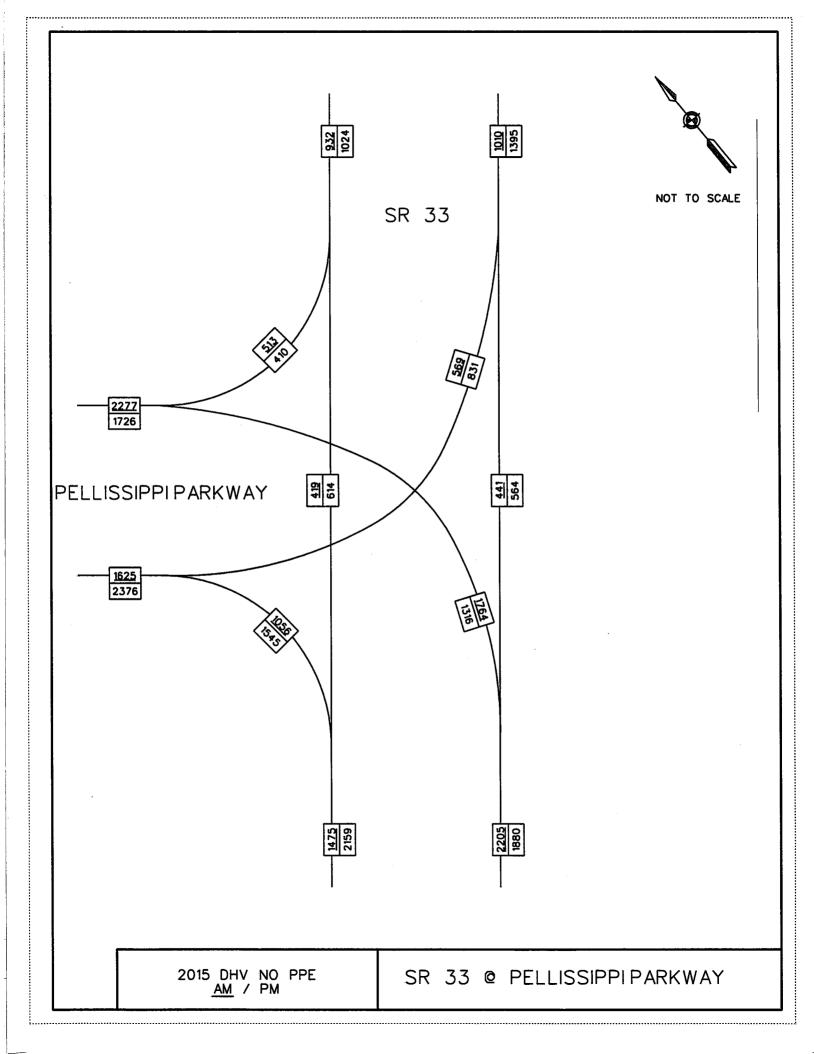


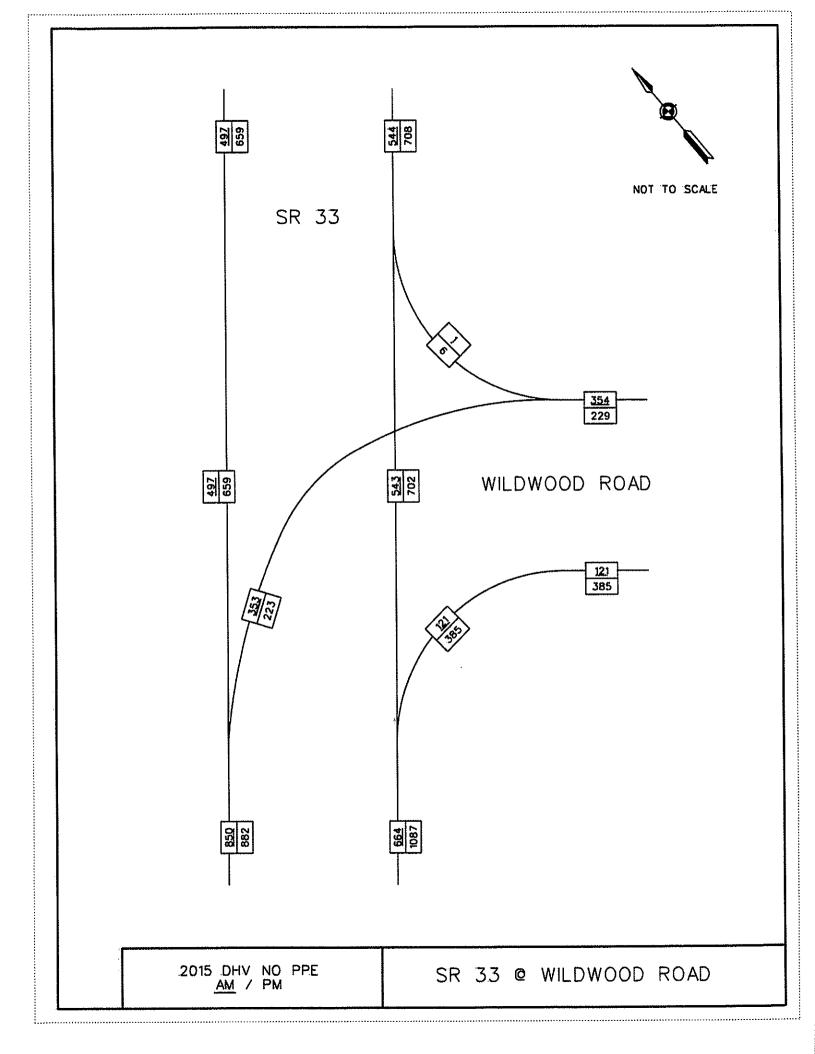


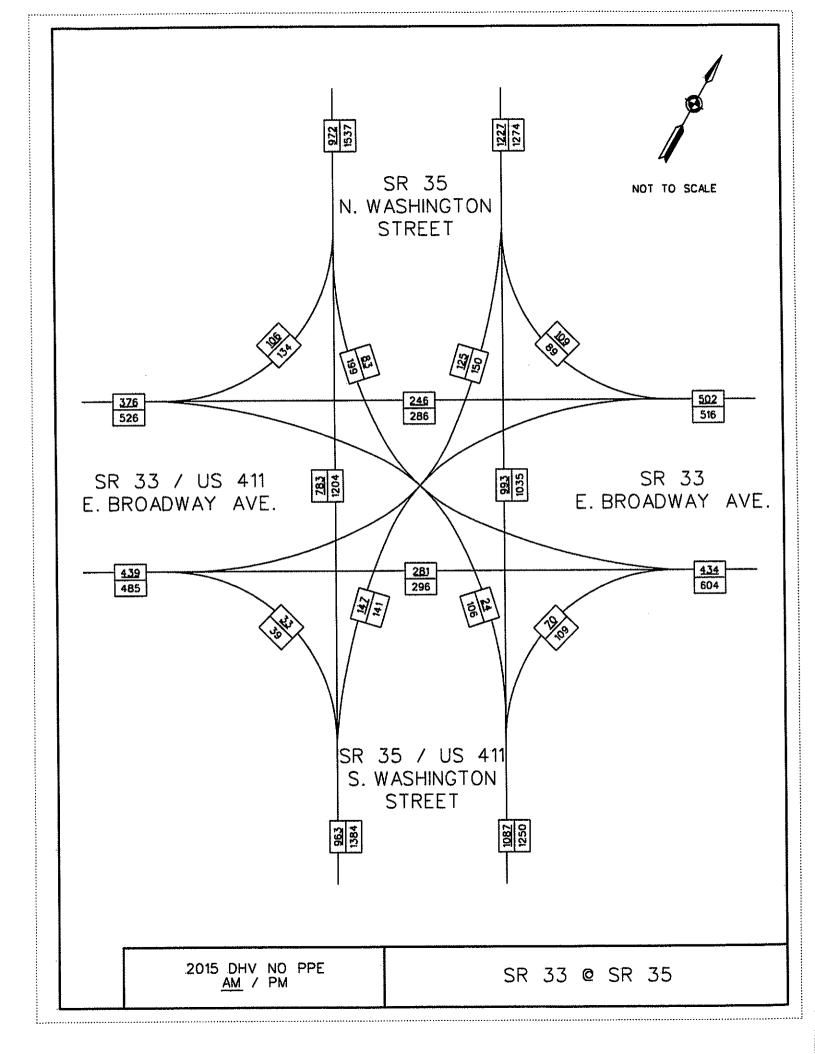


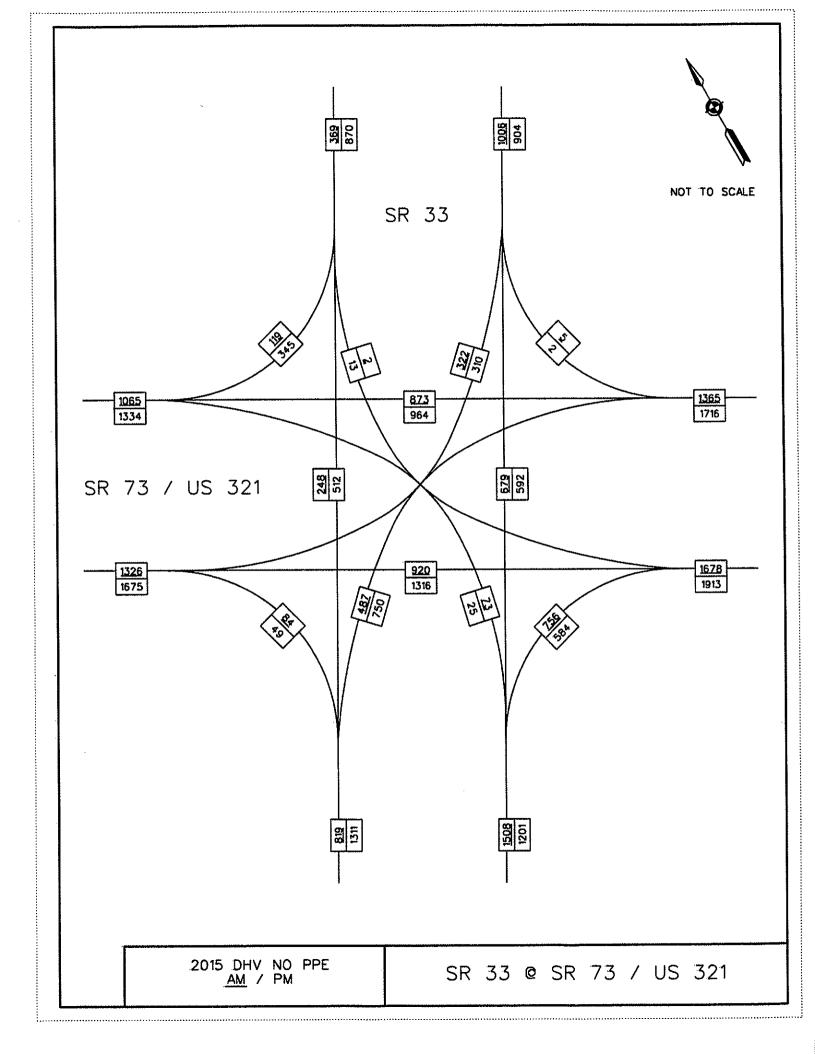


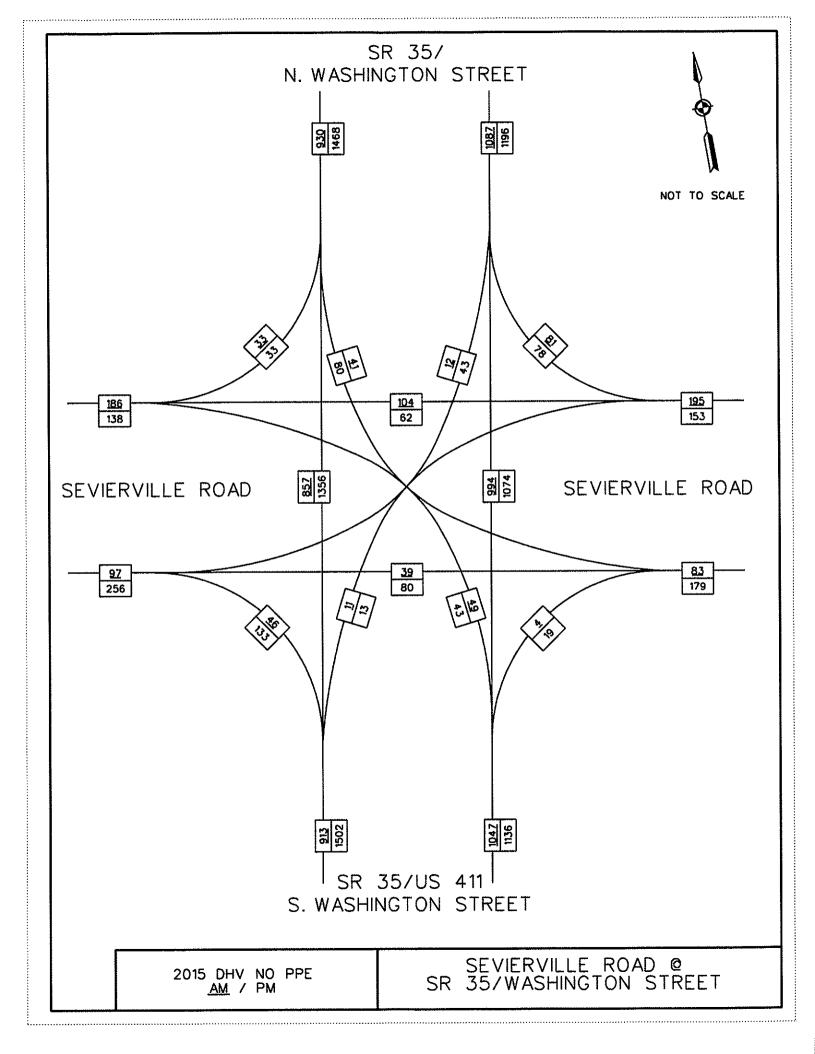


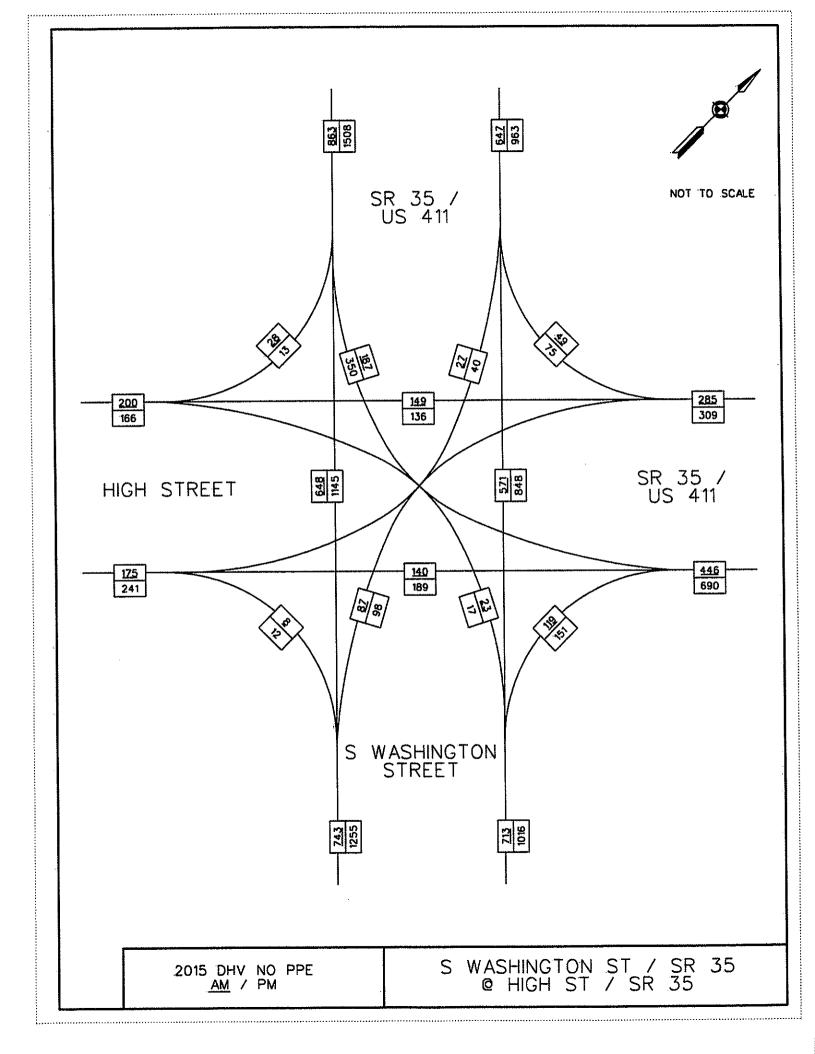


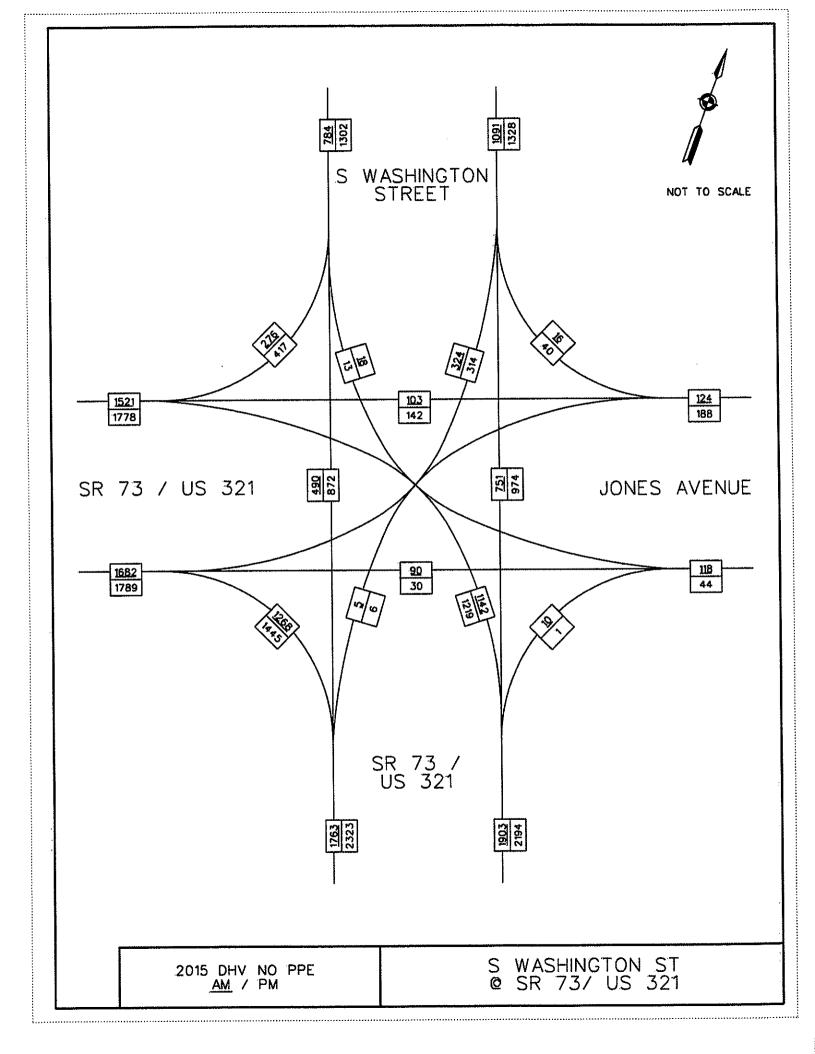


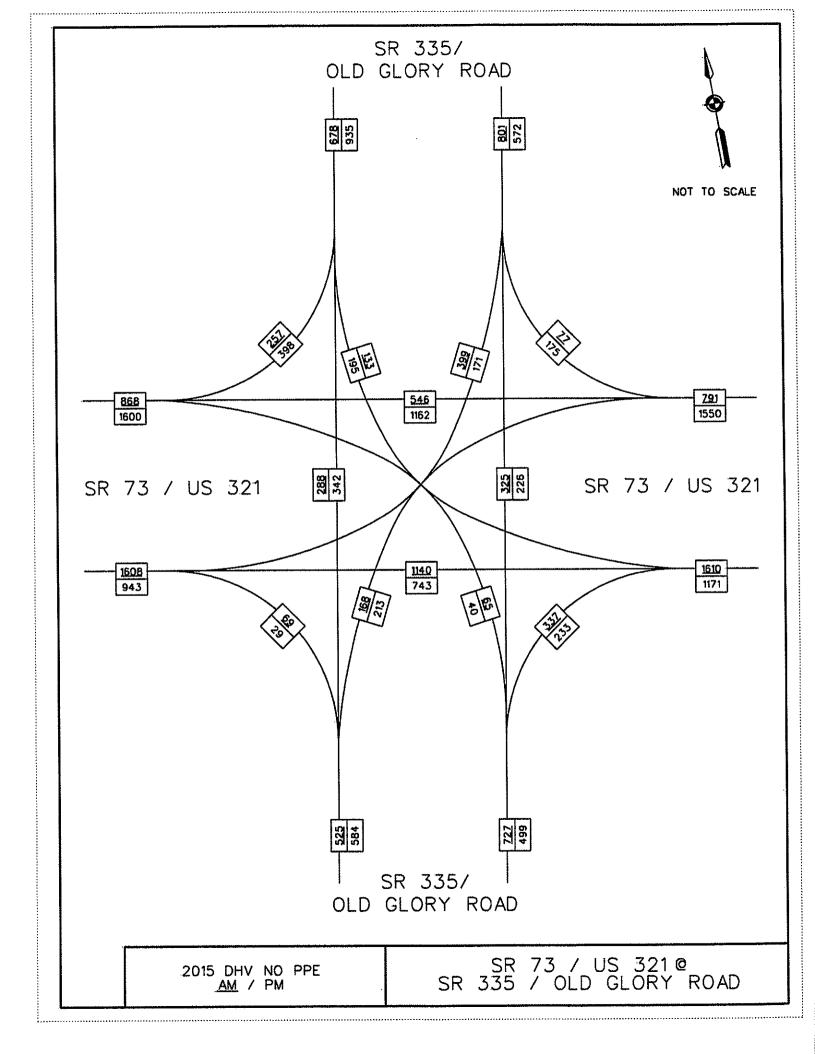




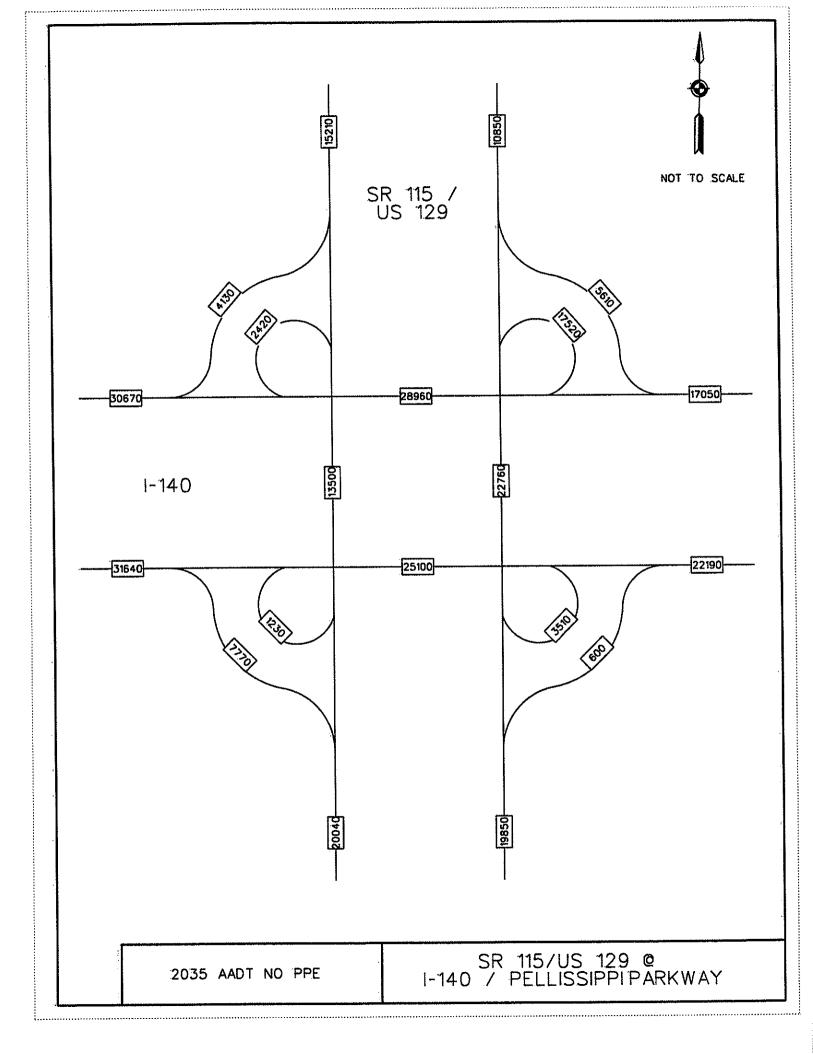


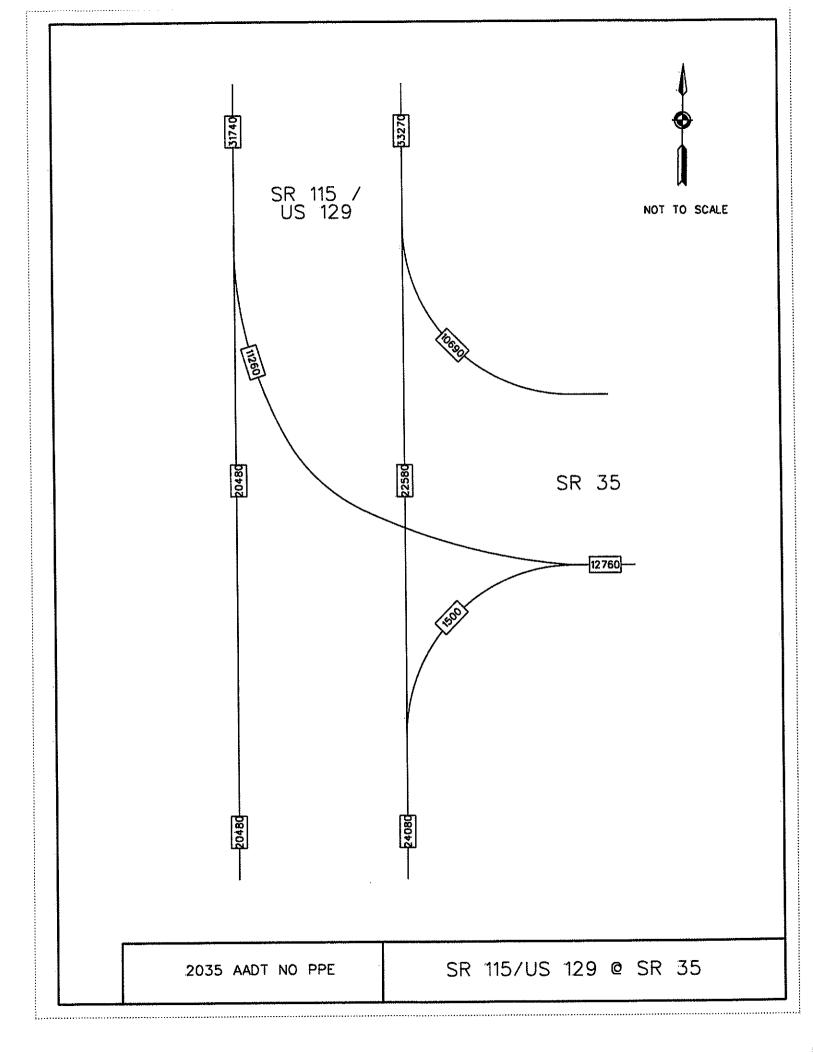


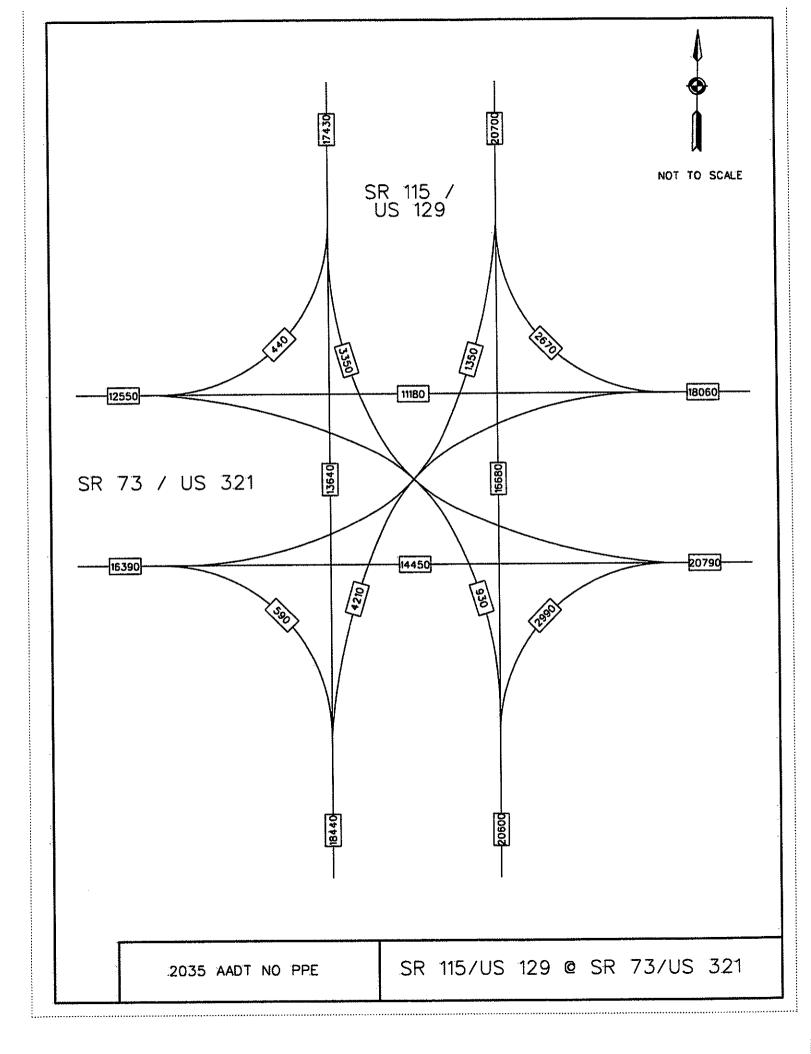


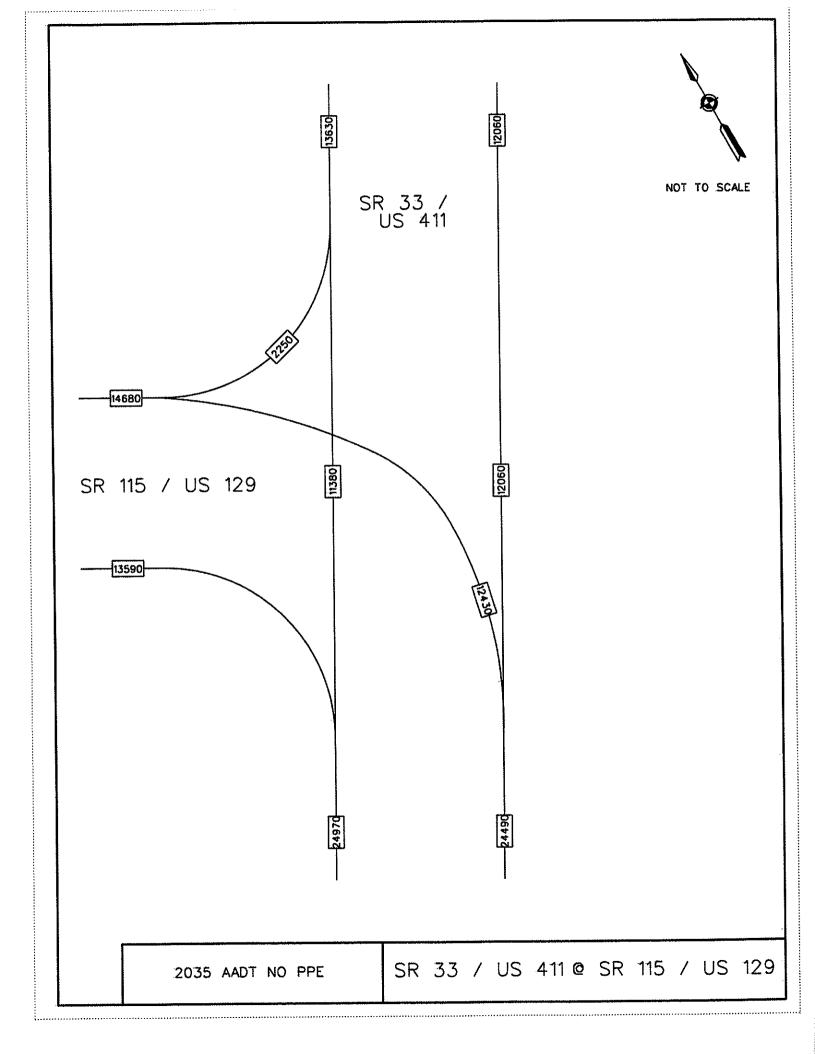


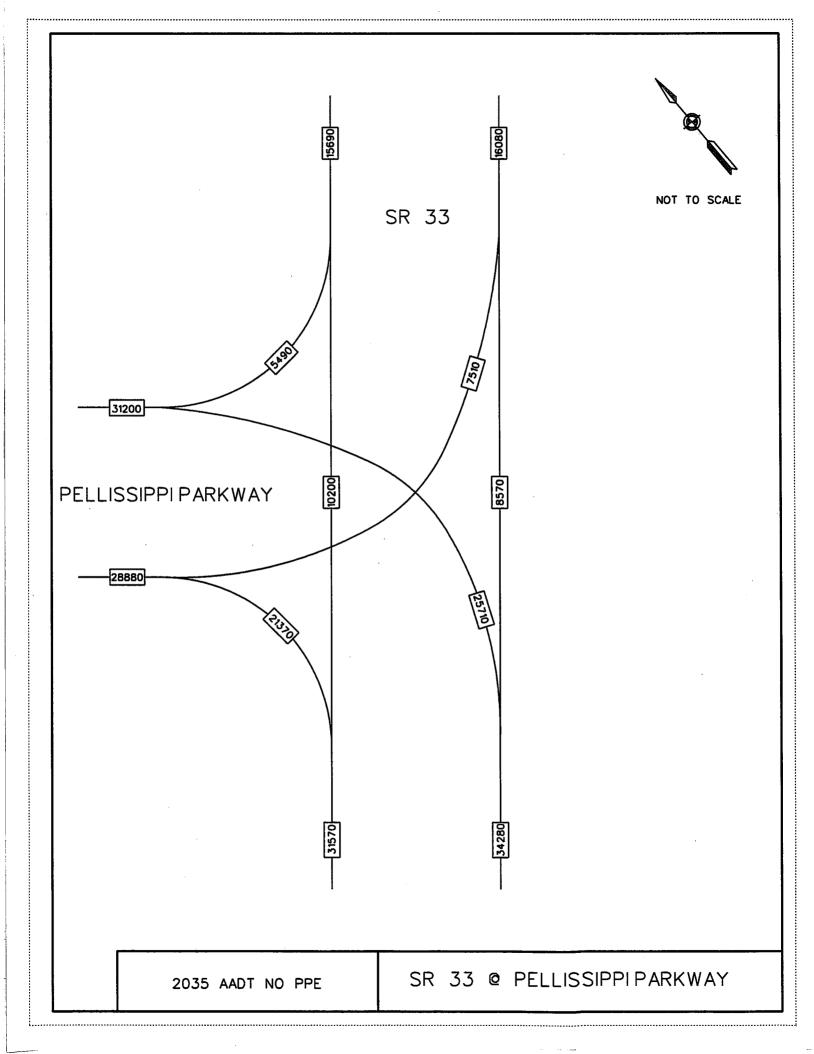
## NO BUILD-2035

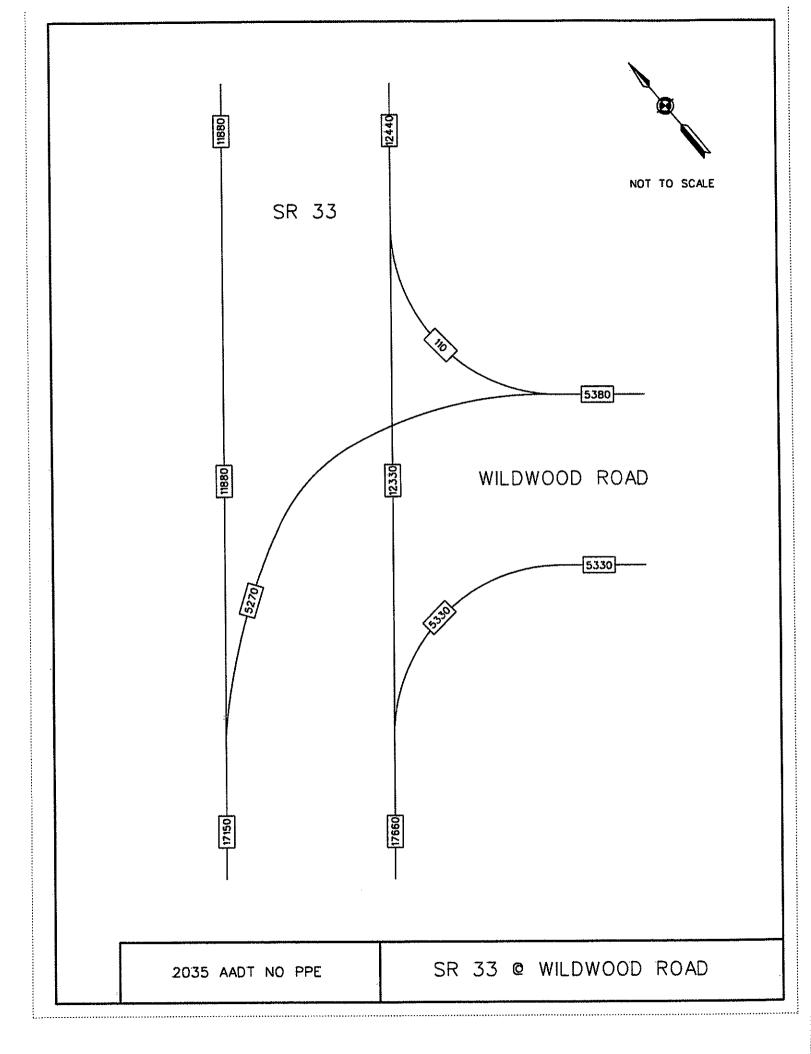


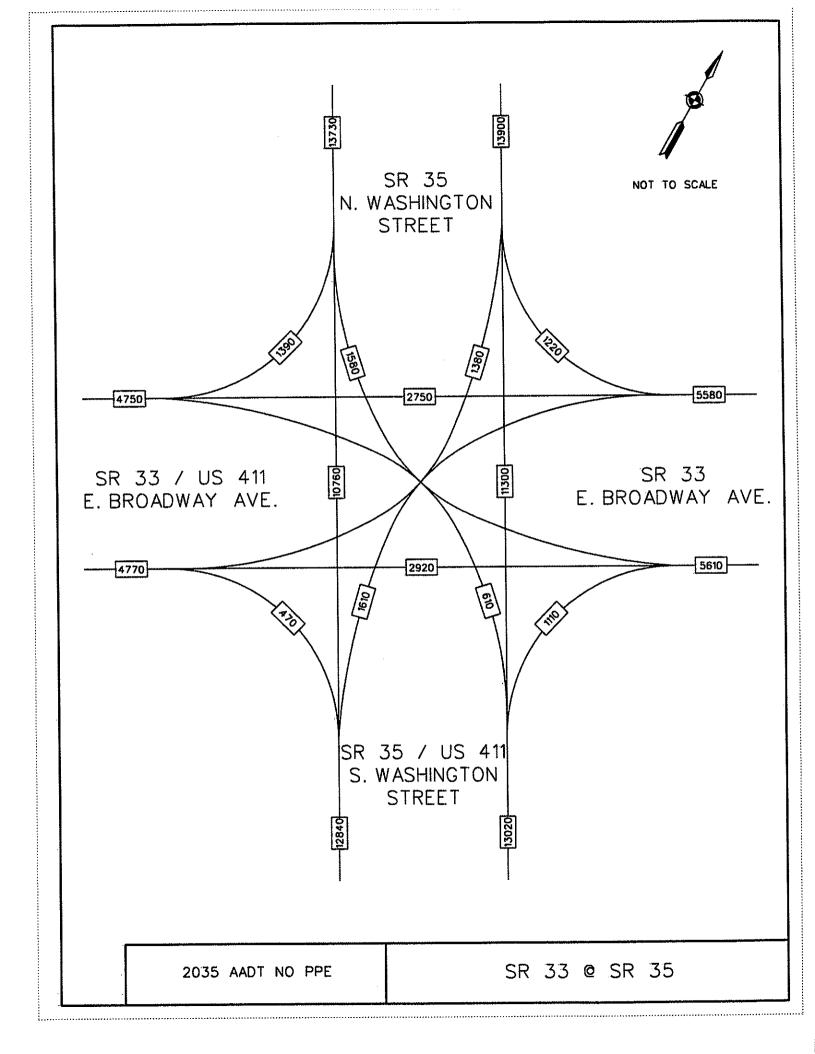


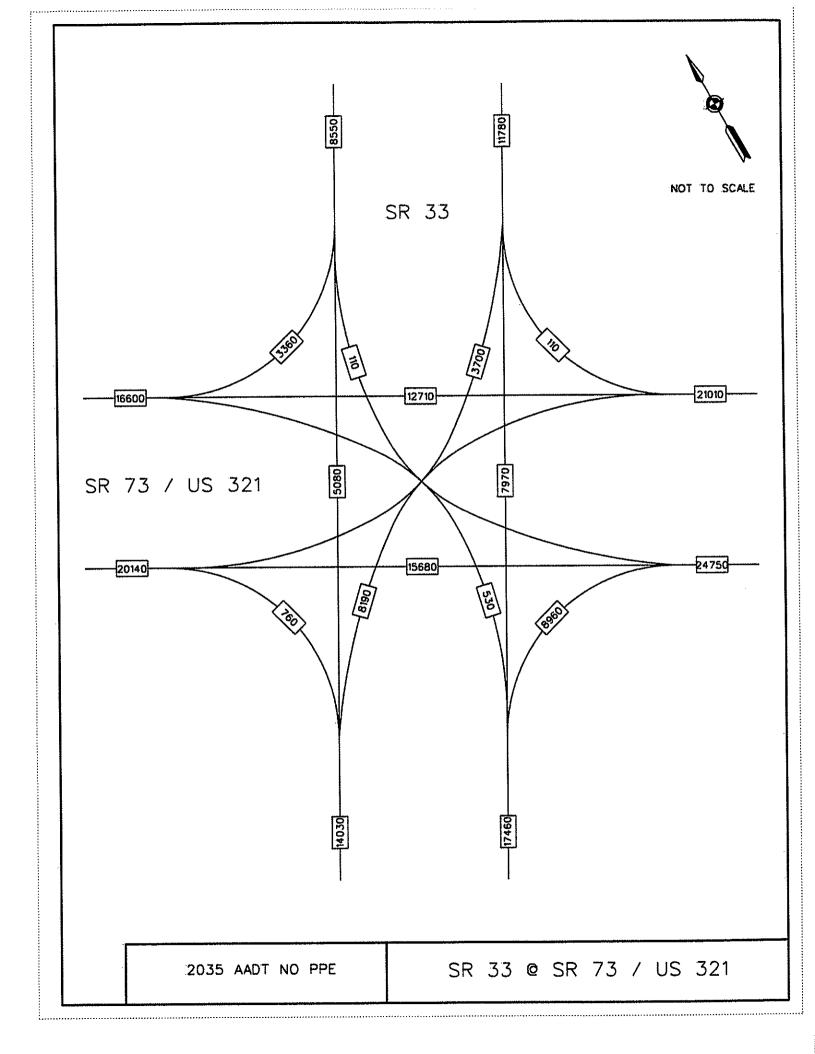


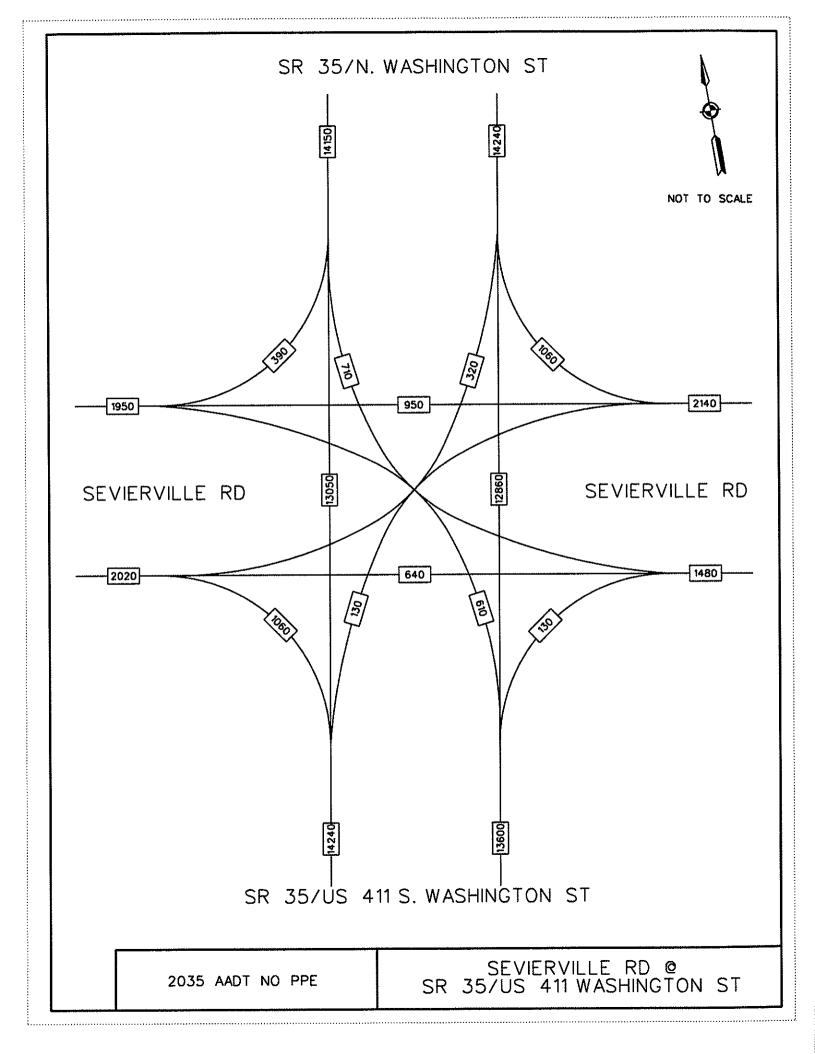


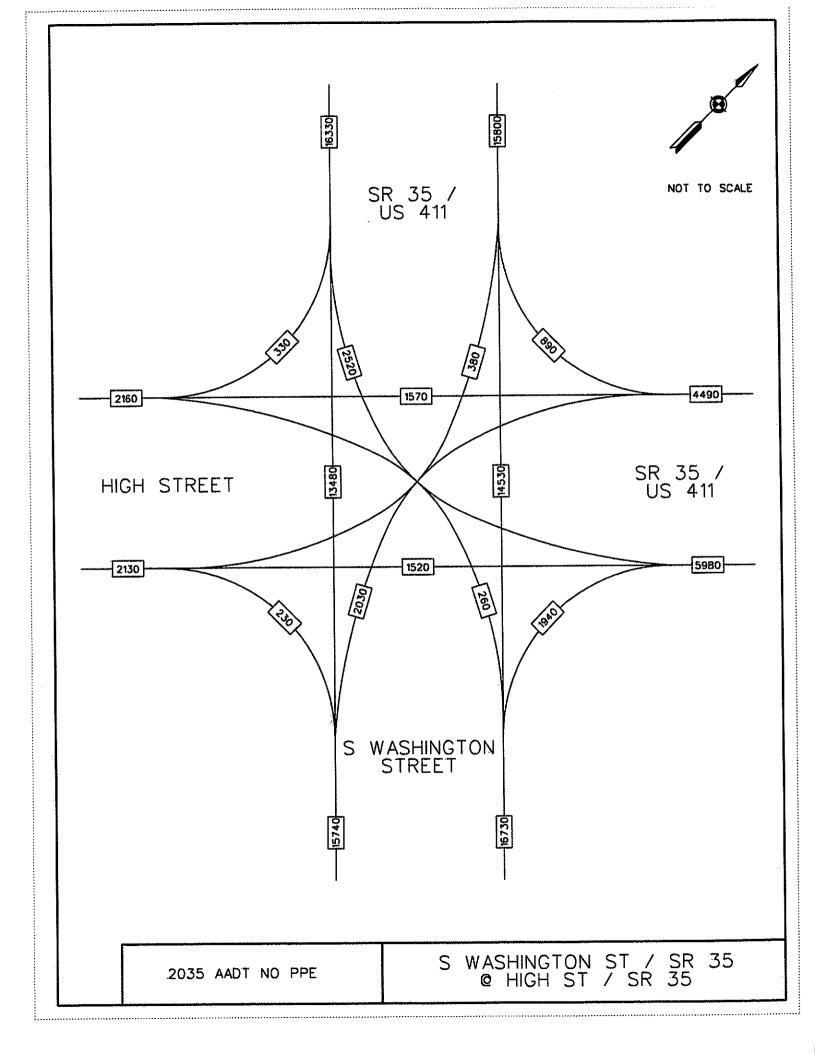


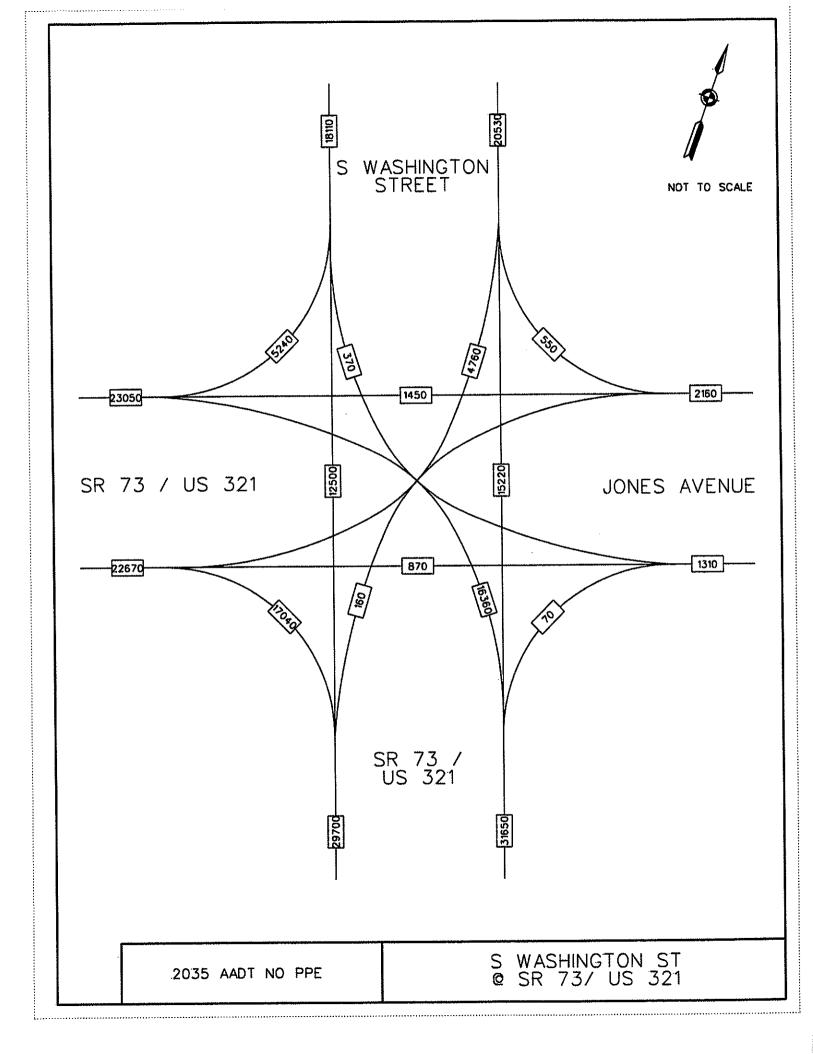


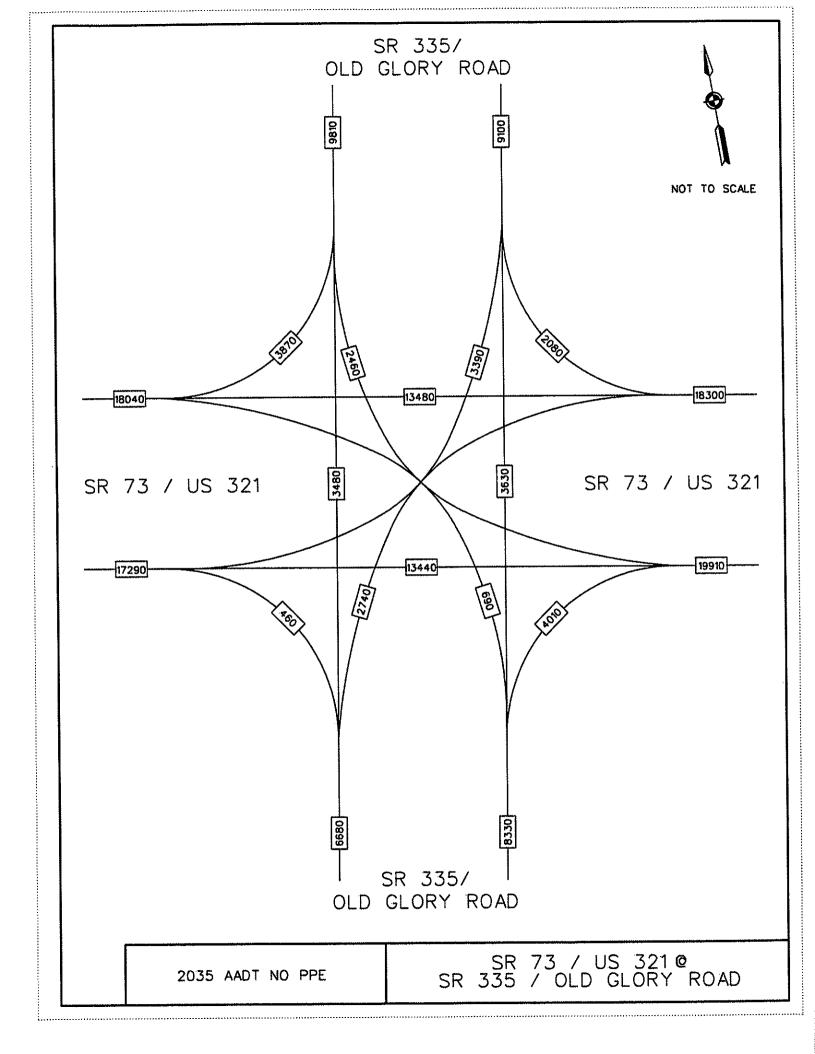


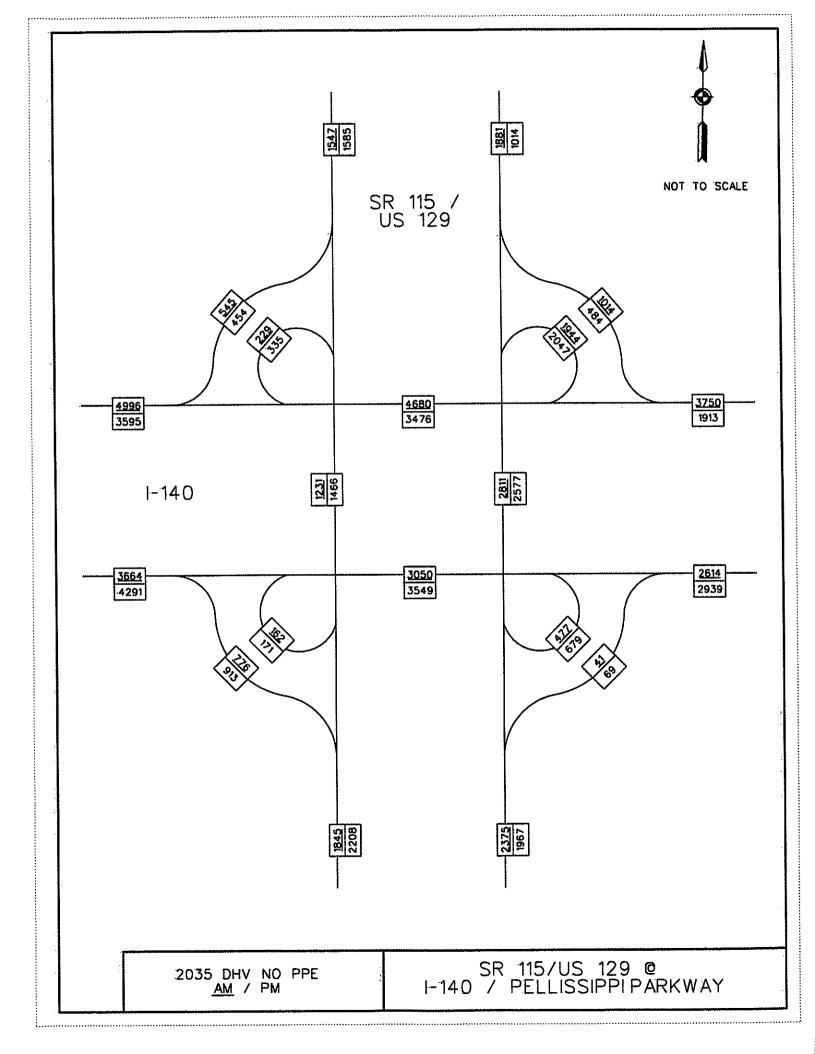


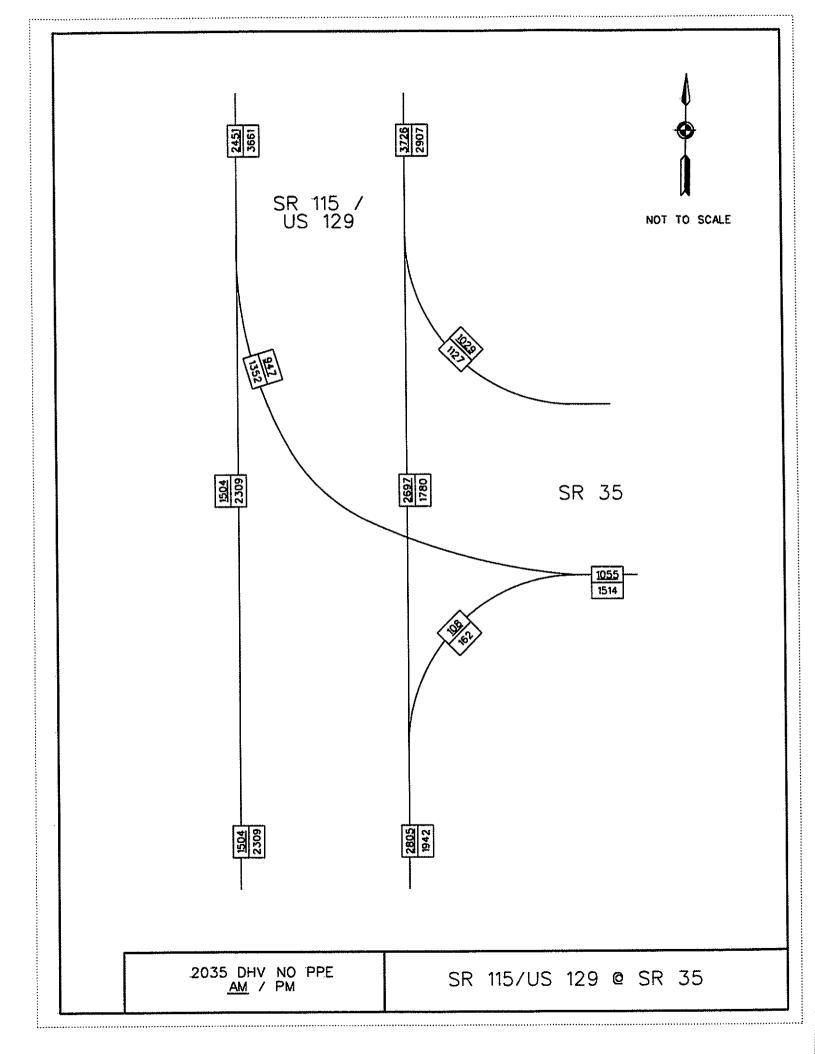


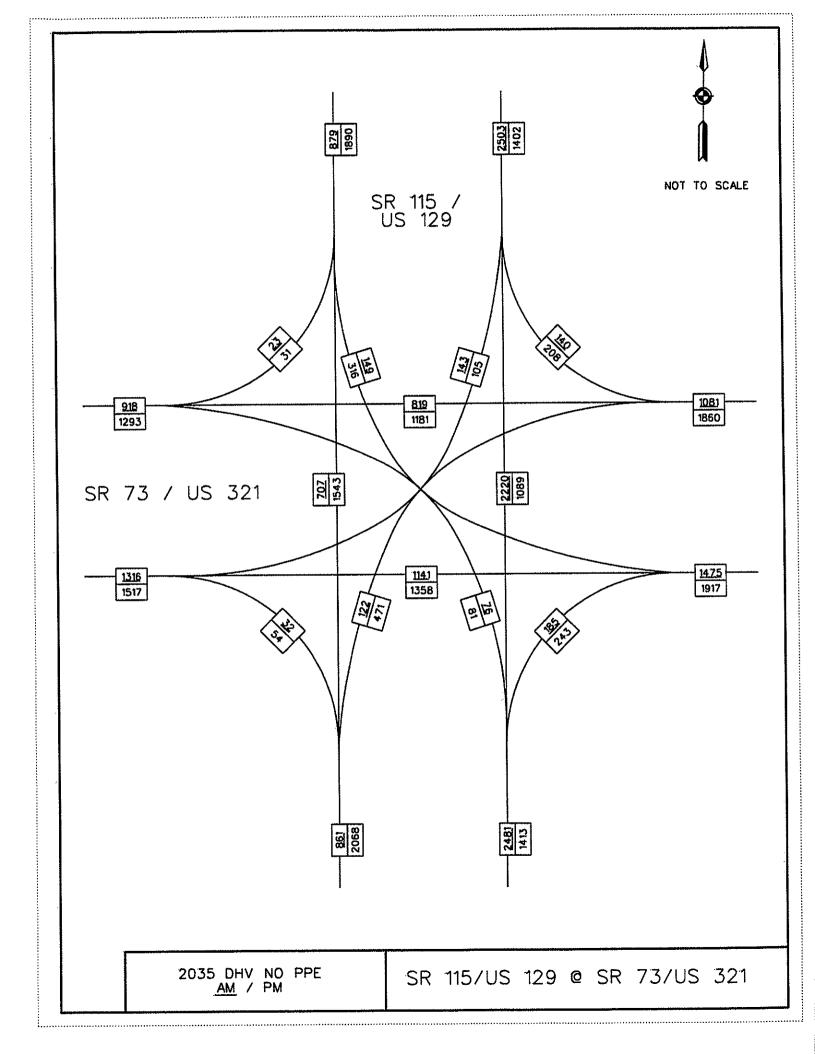


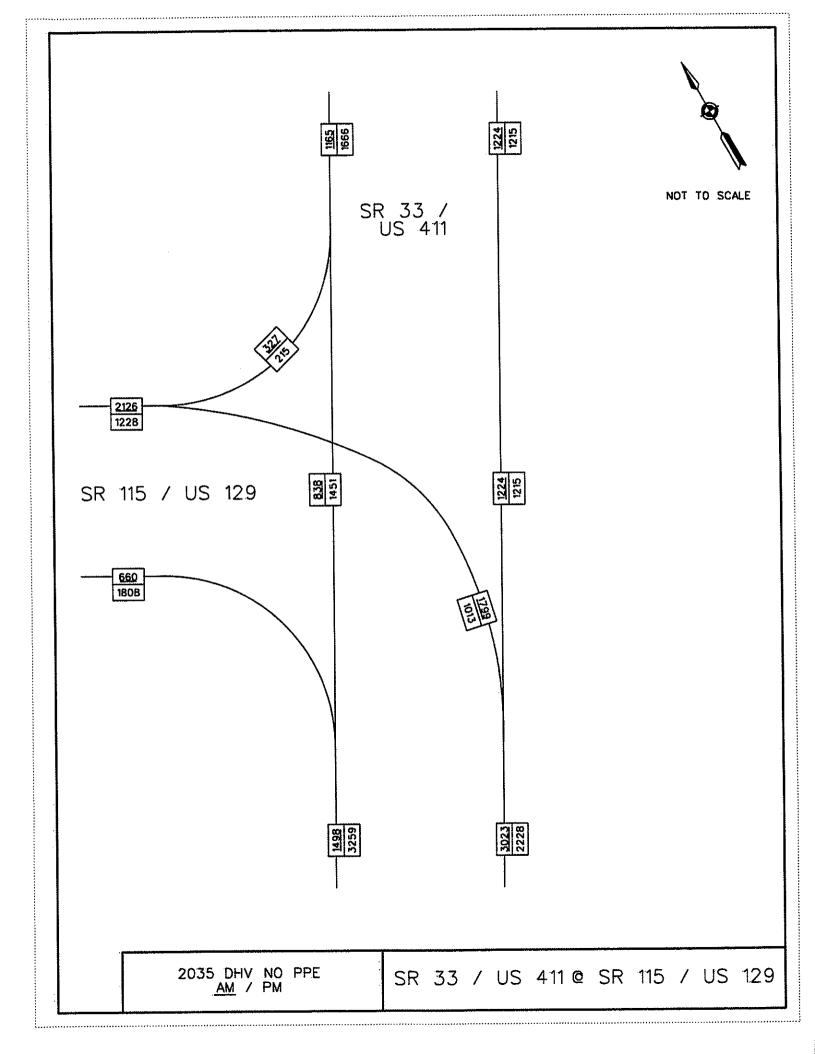


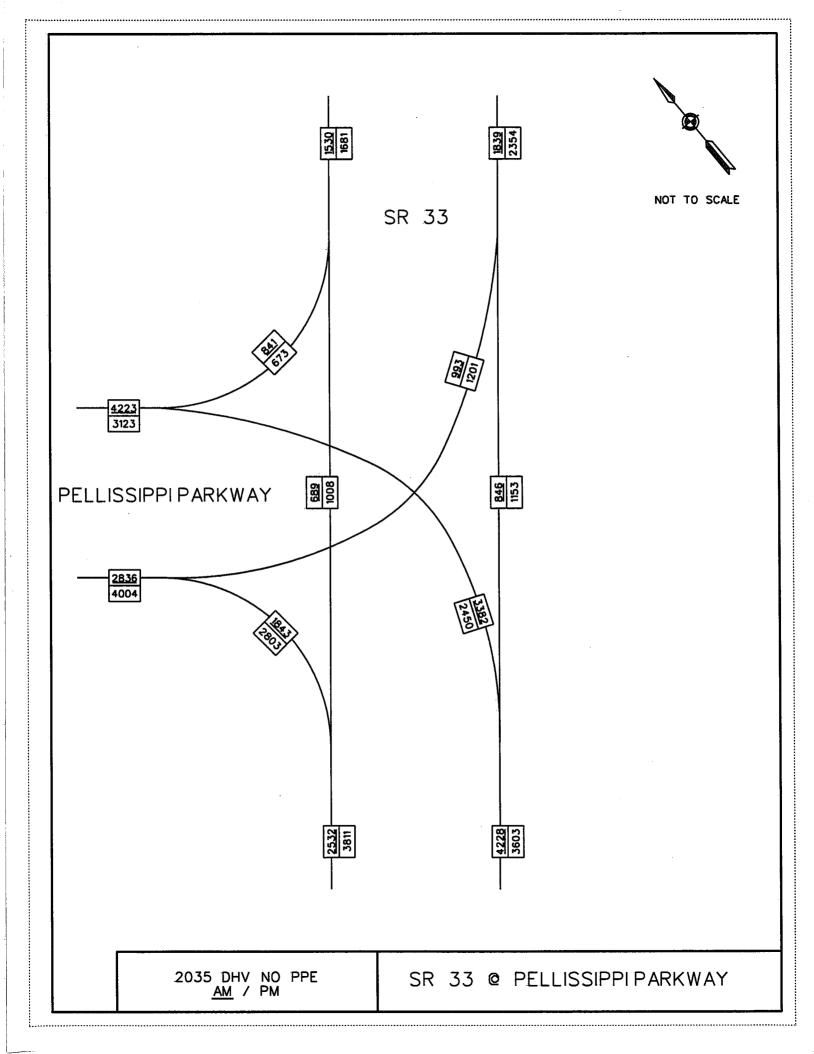


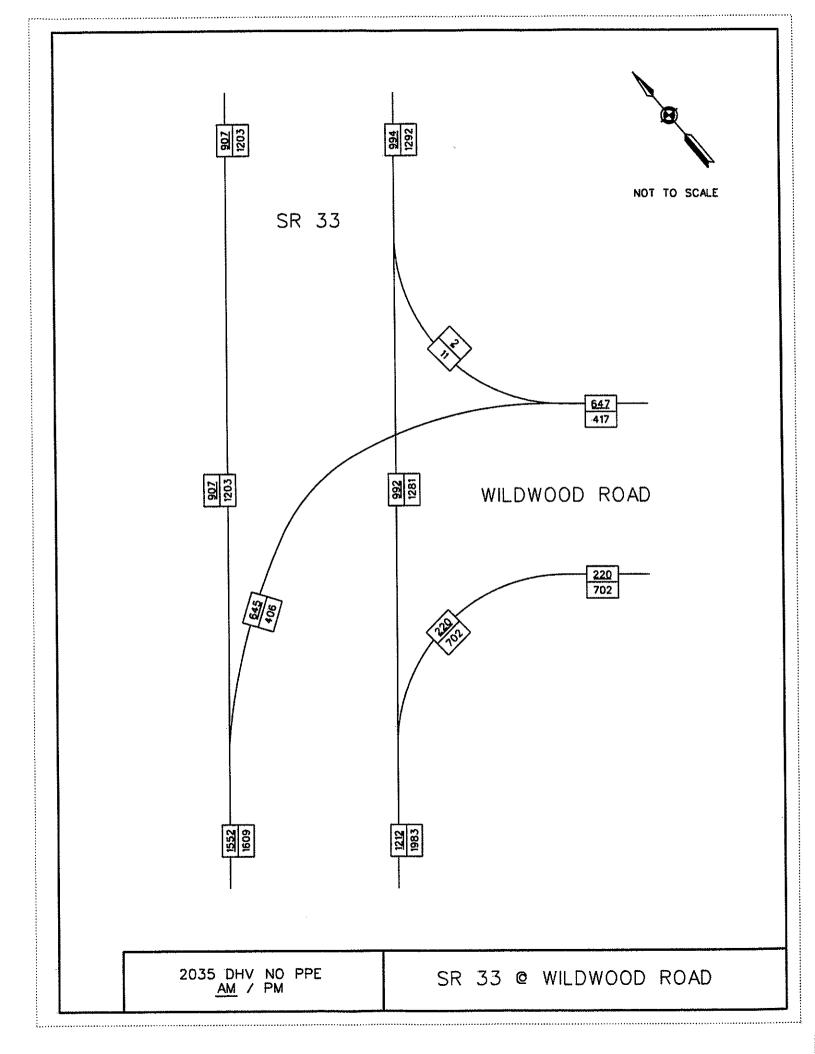


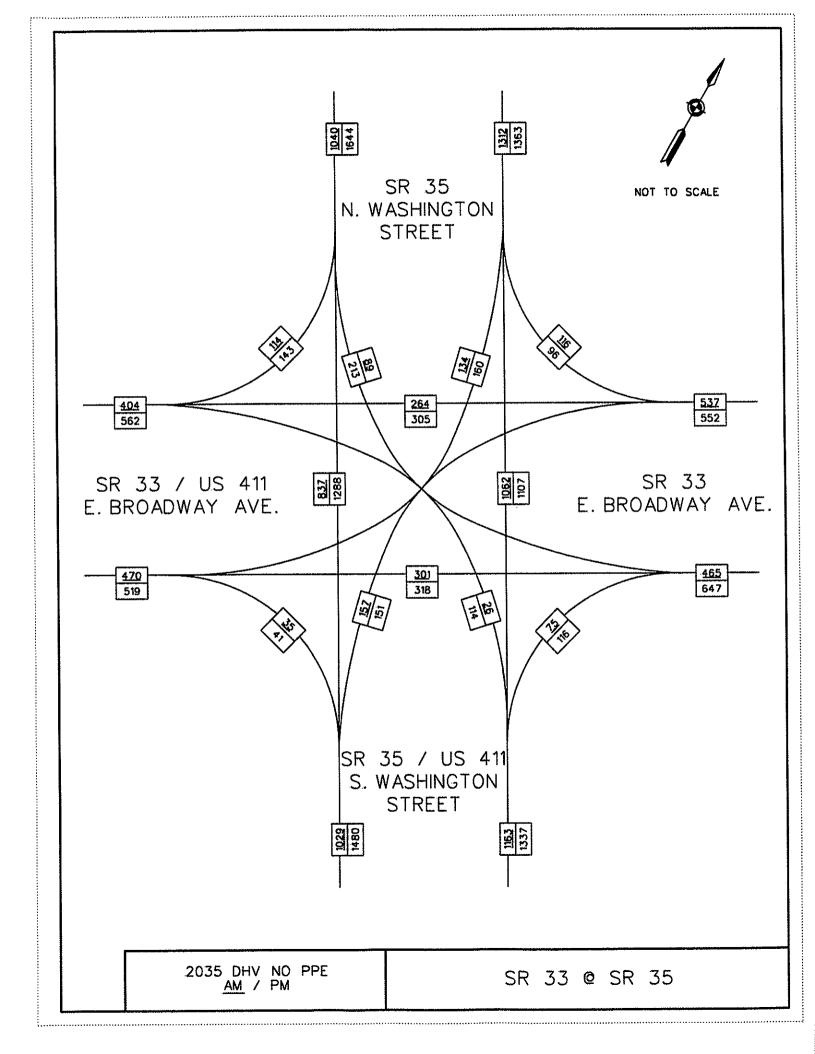


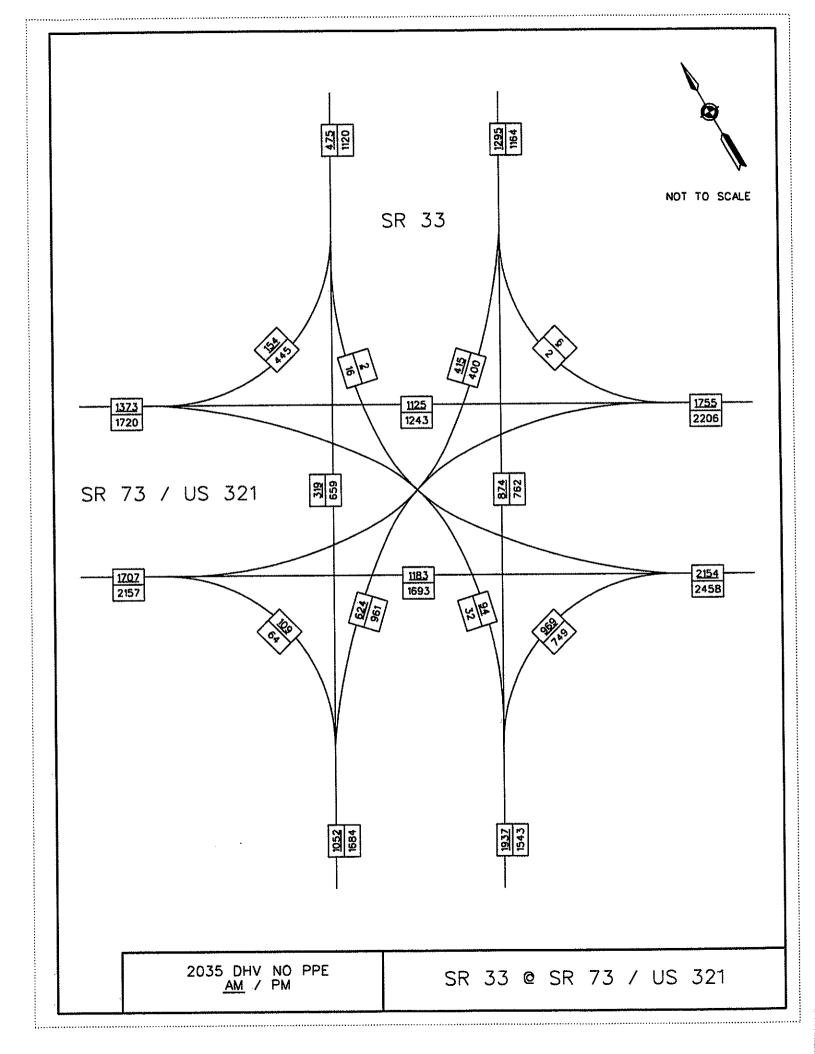


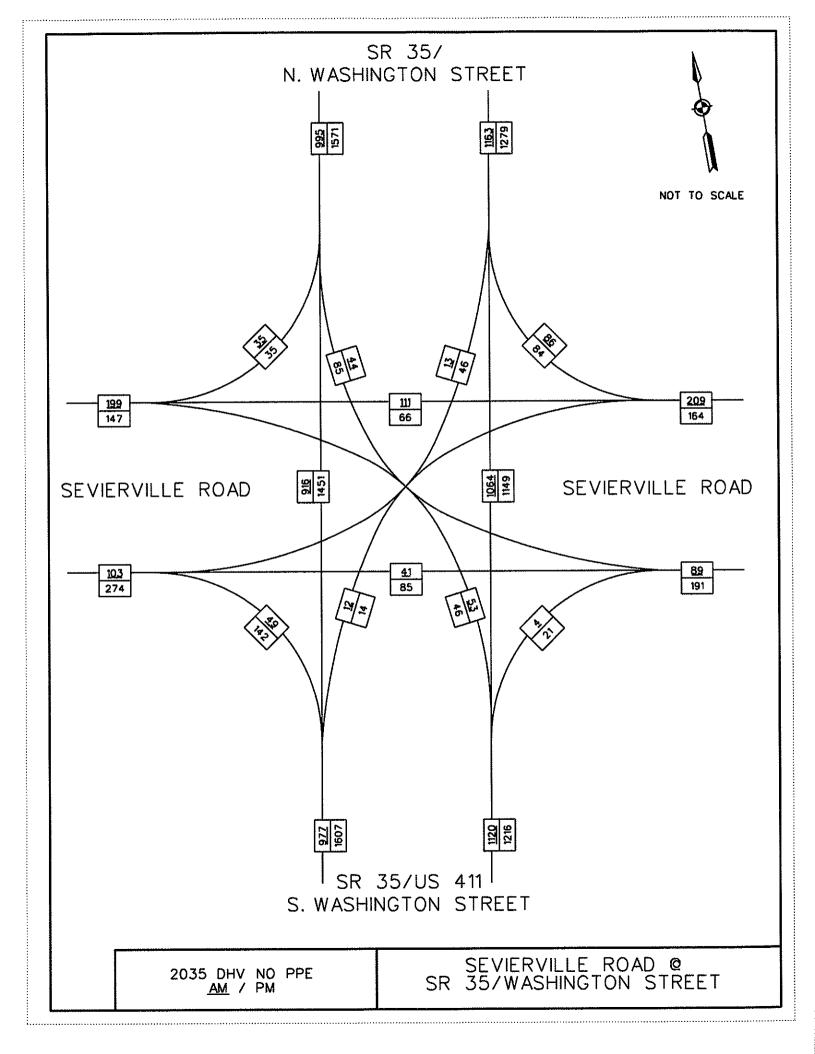


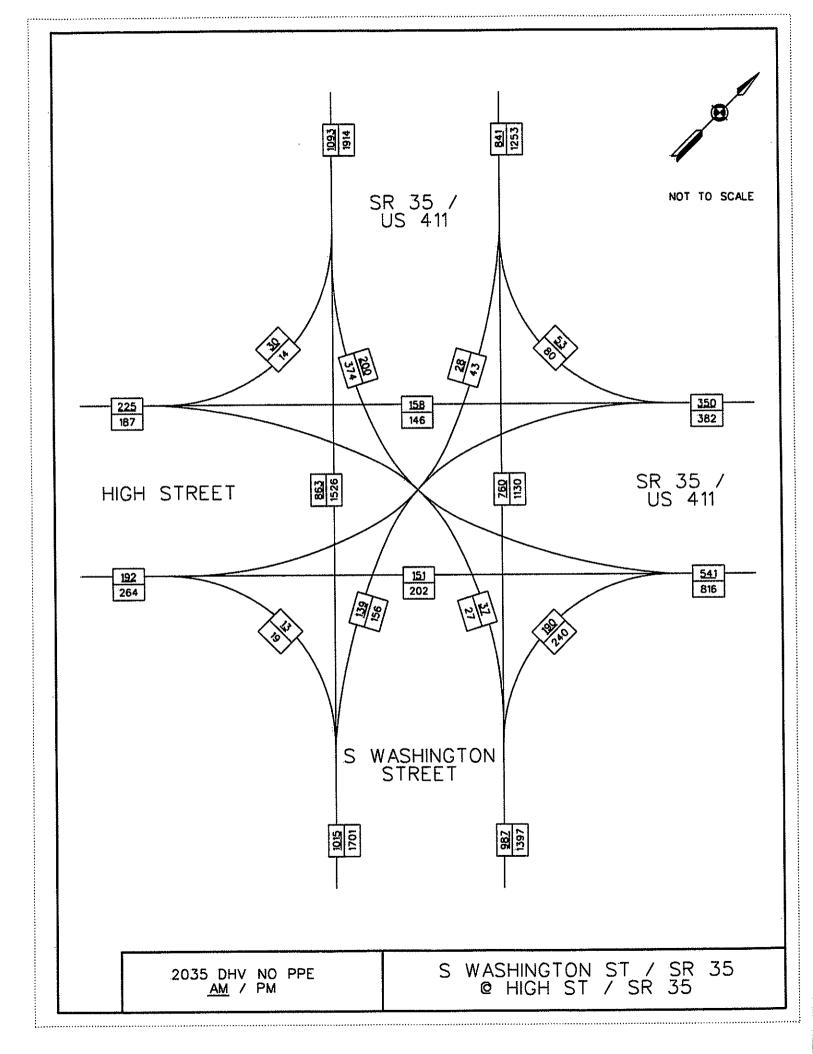


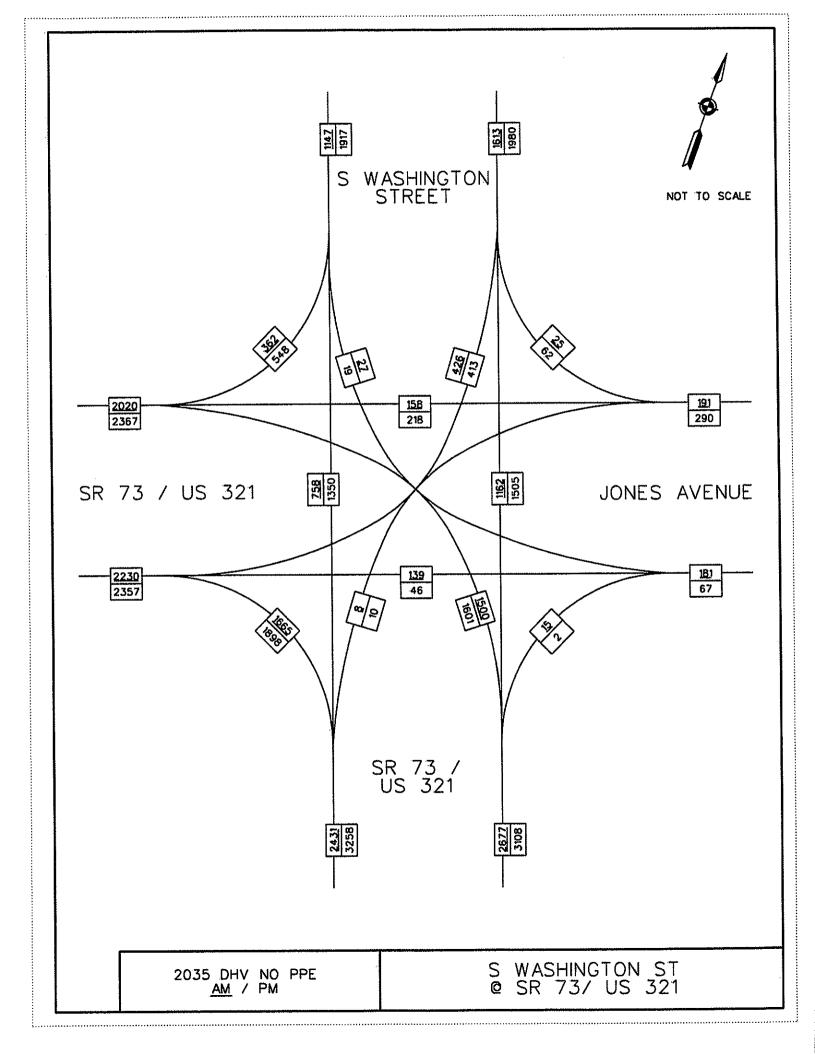


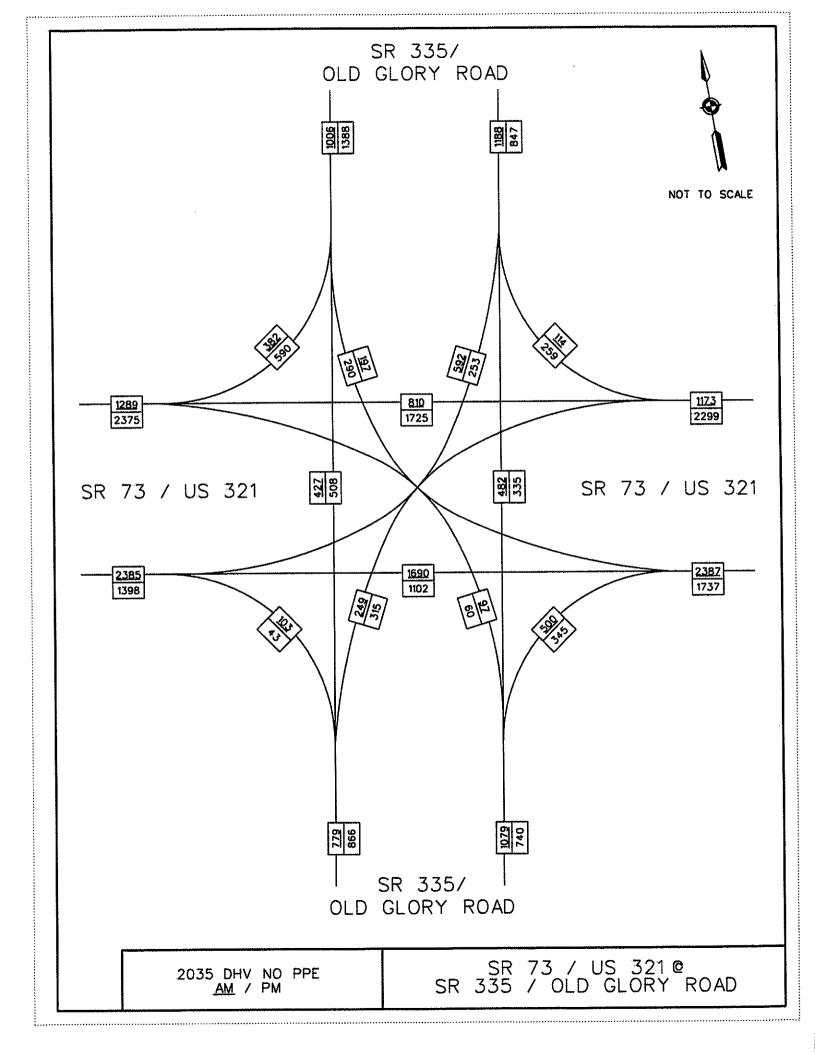




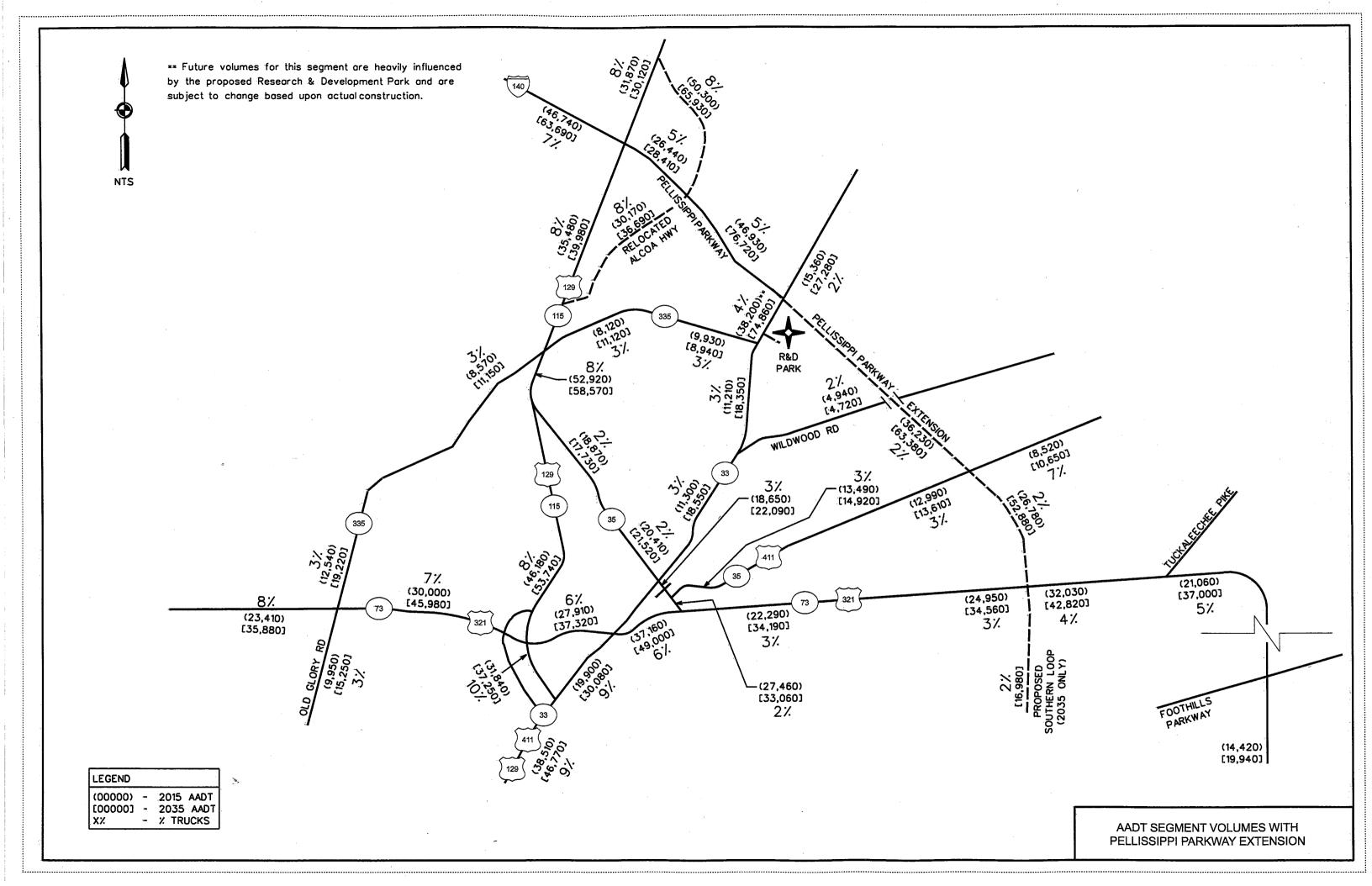


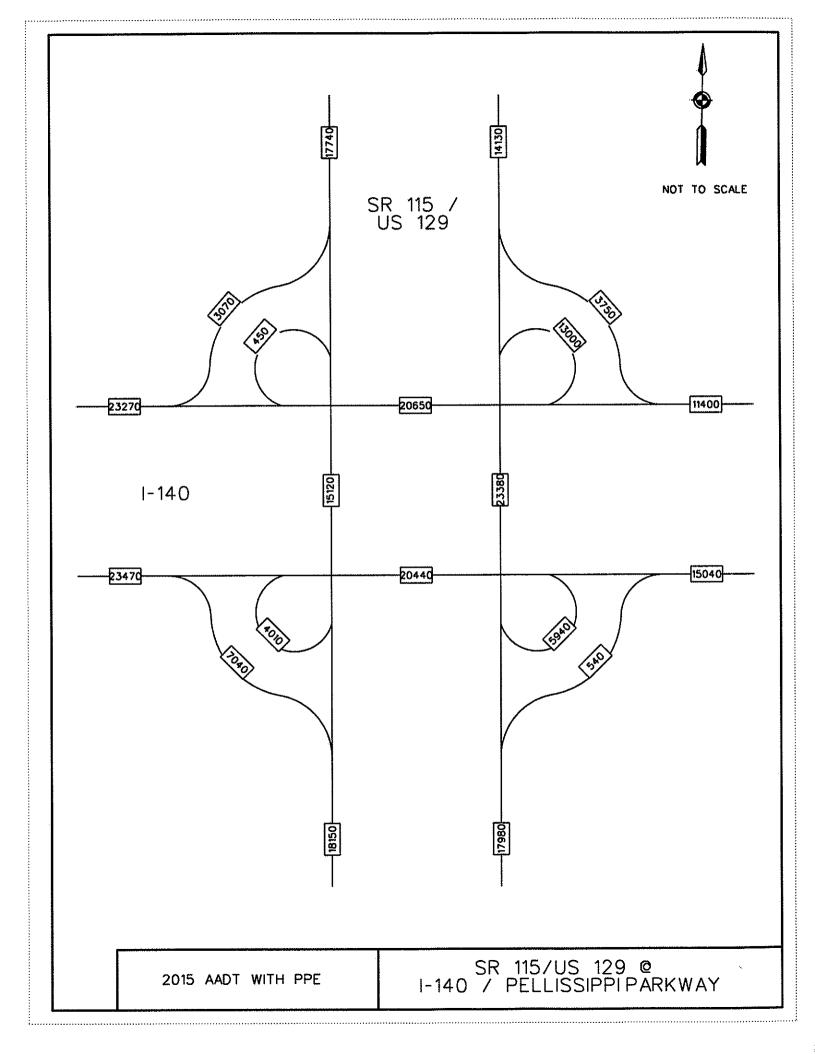


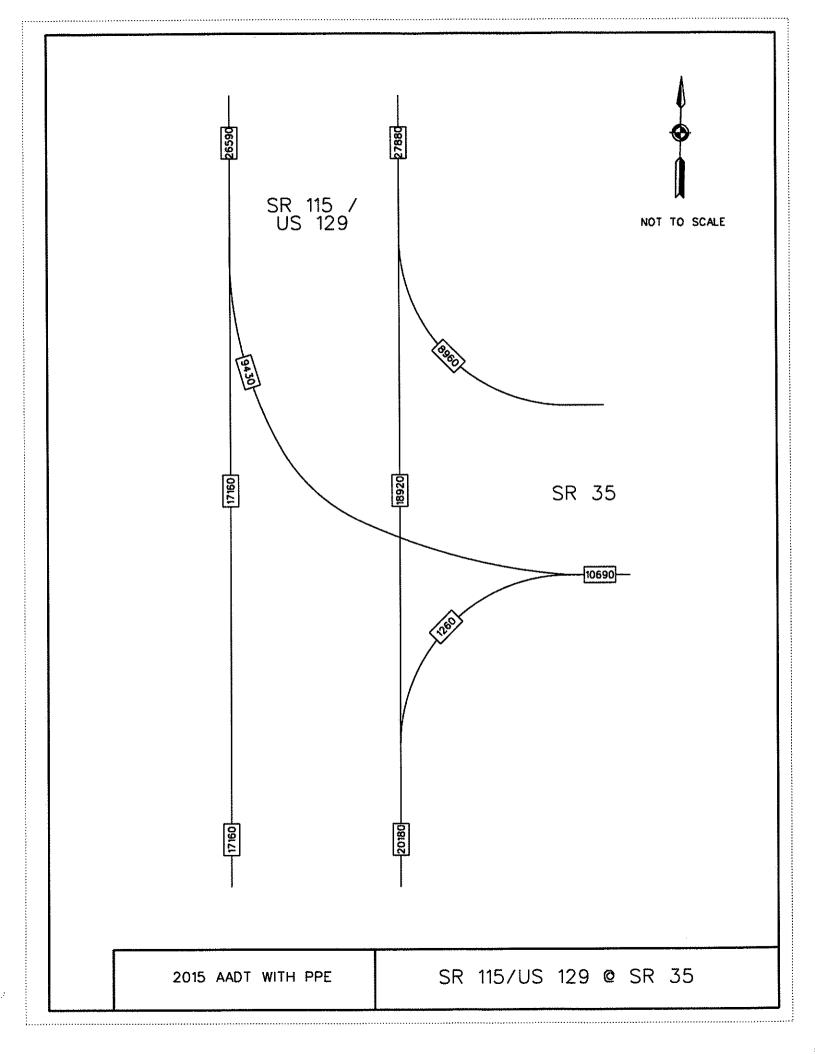


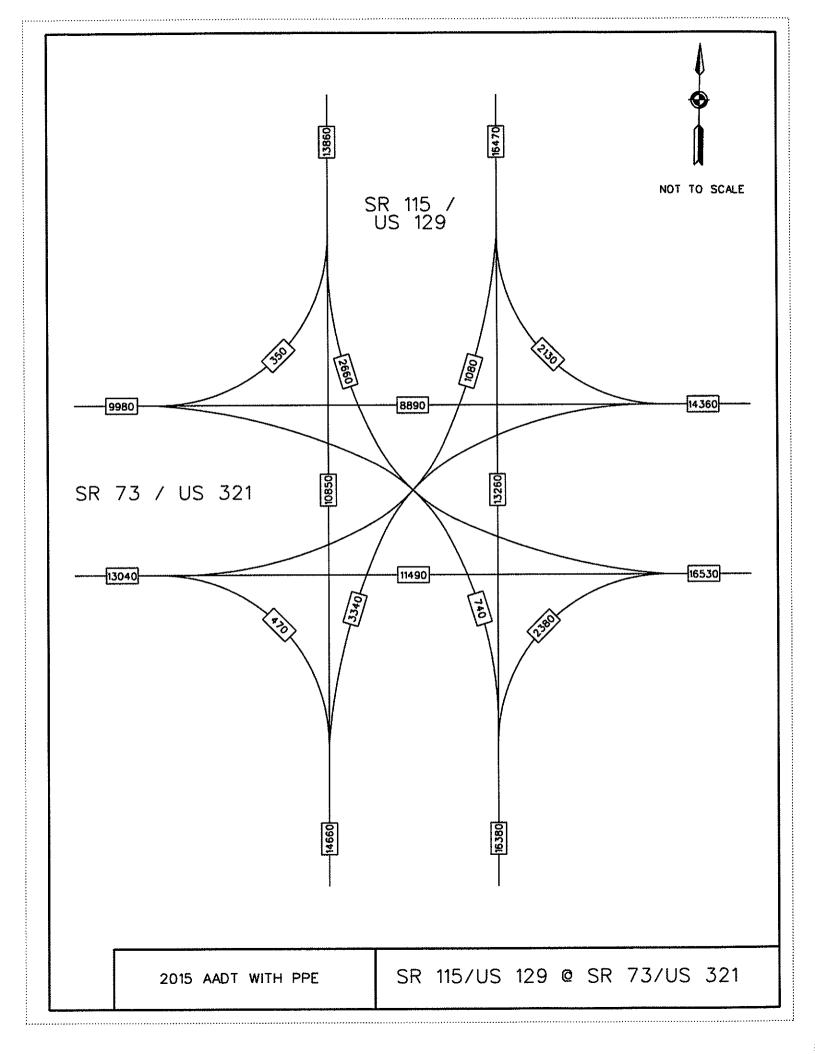


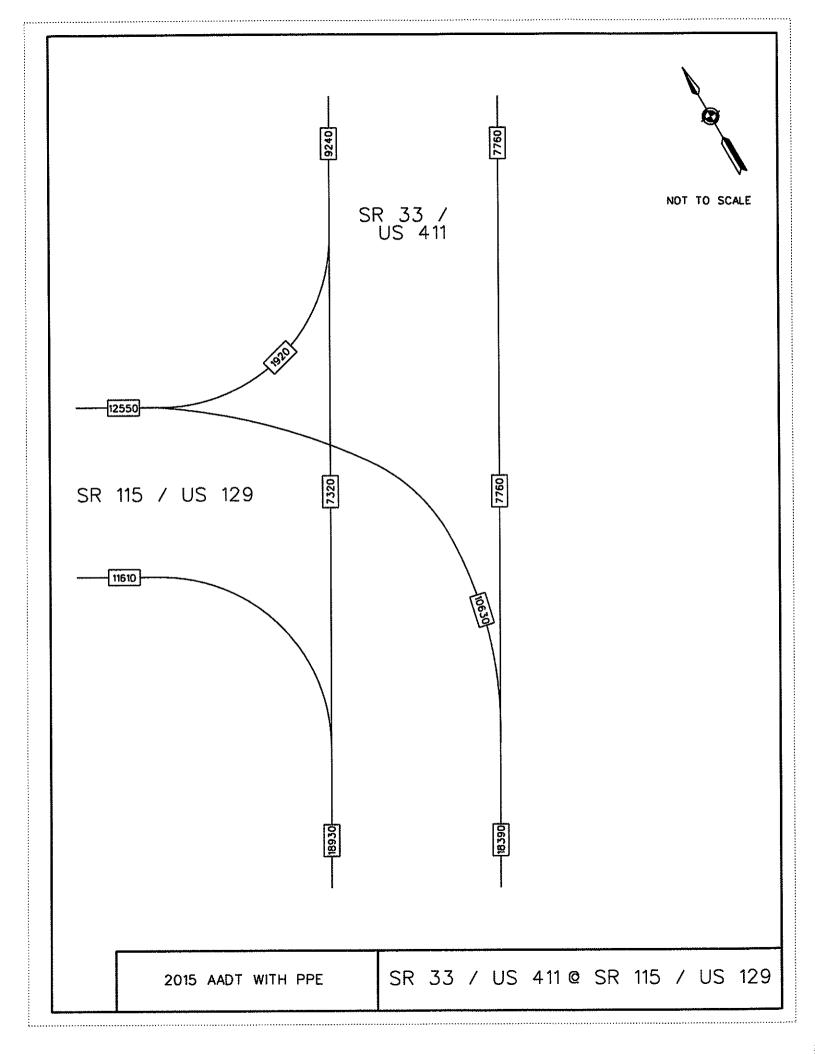
## **BUILD PPE-2015**

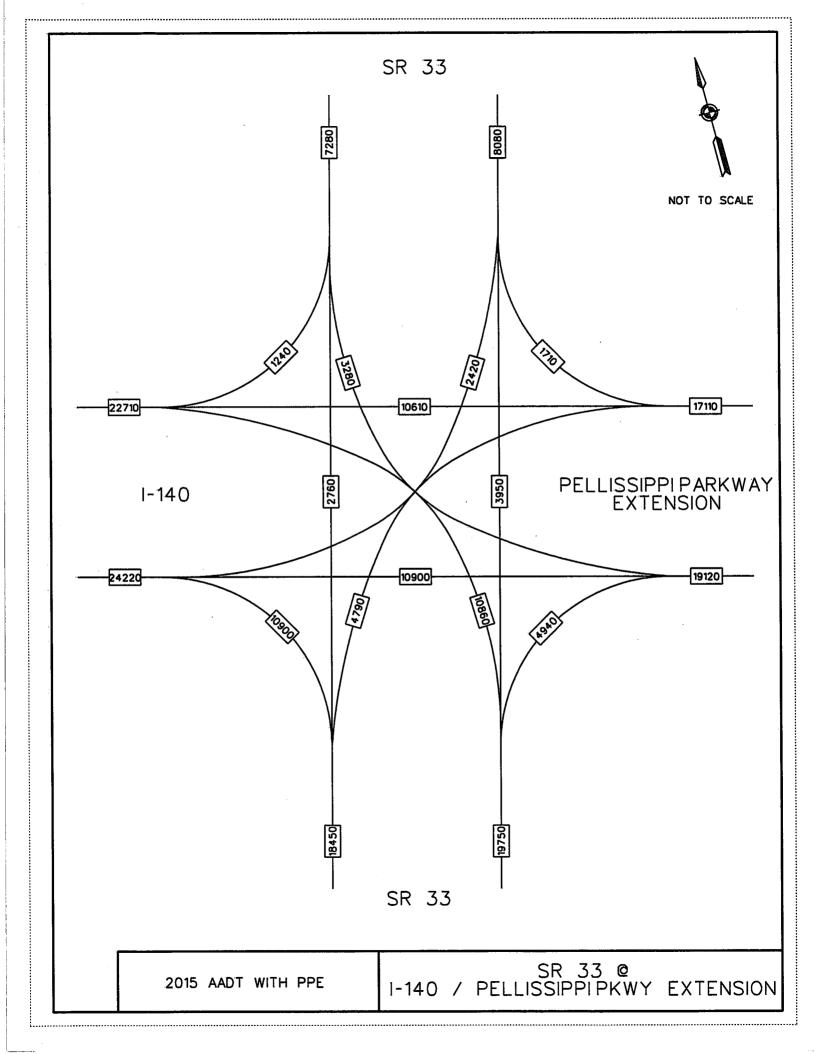


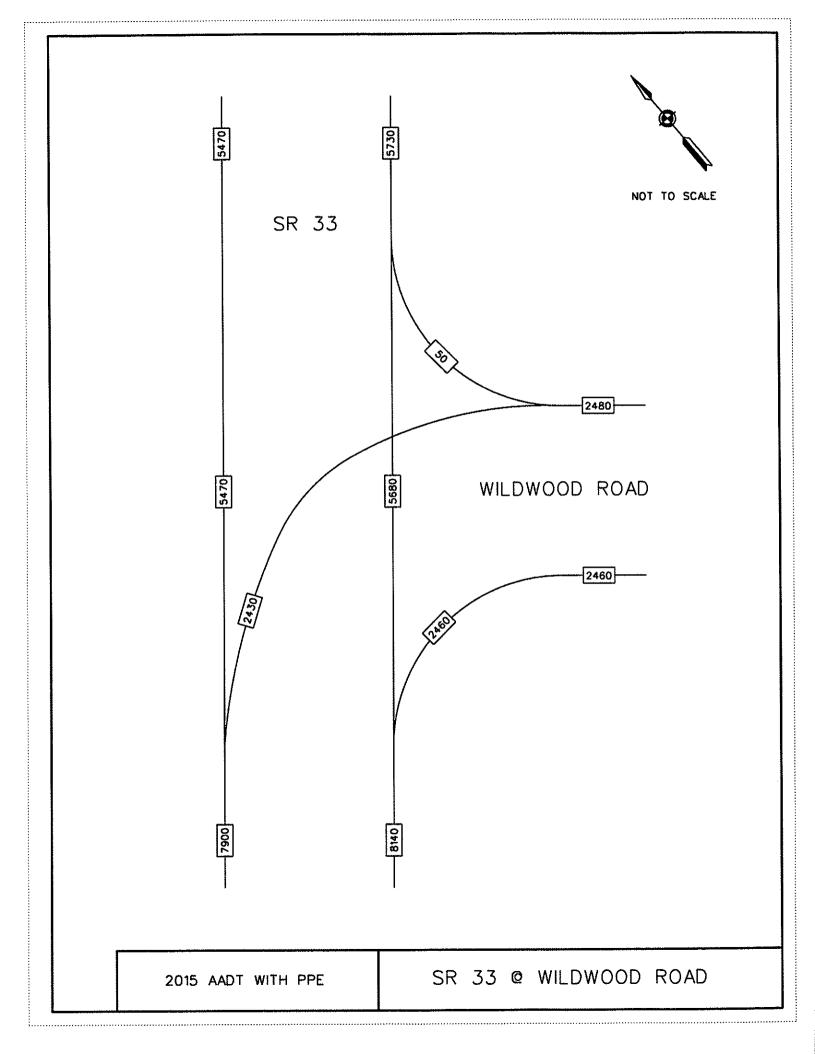


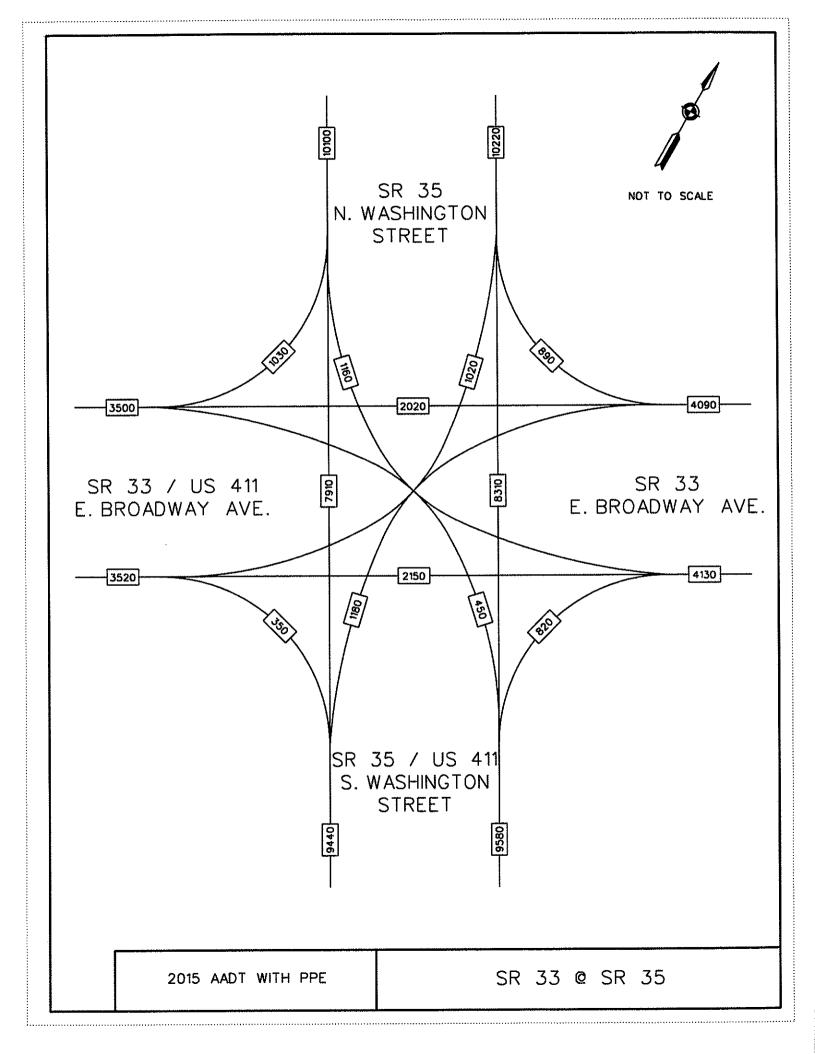


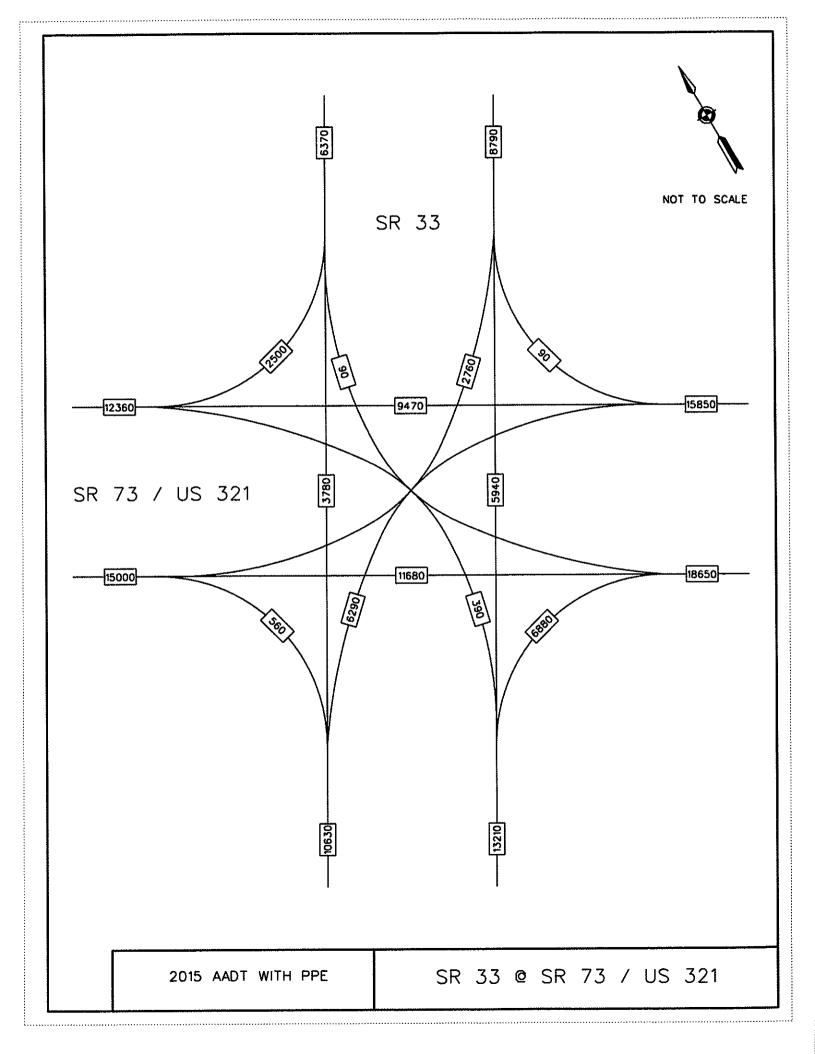


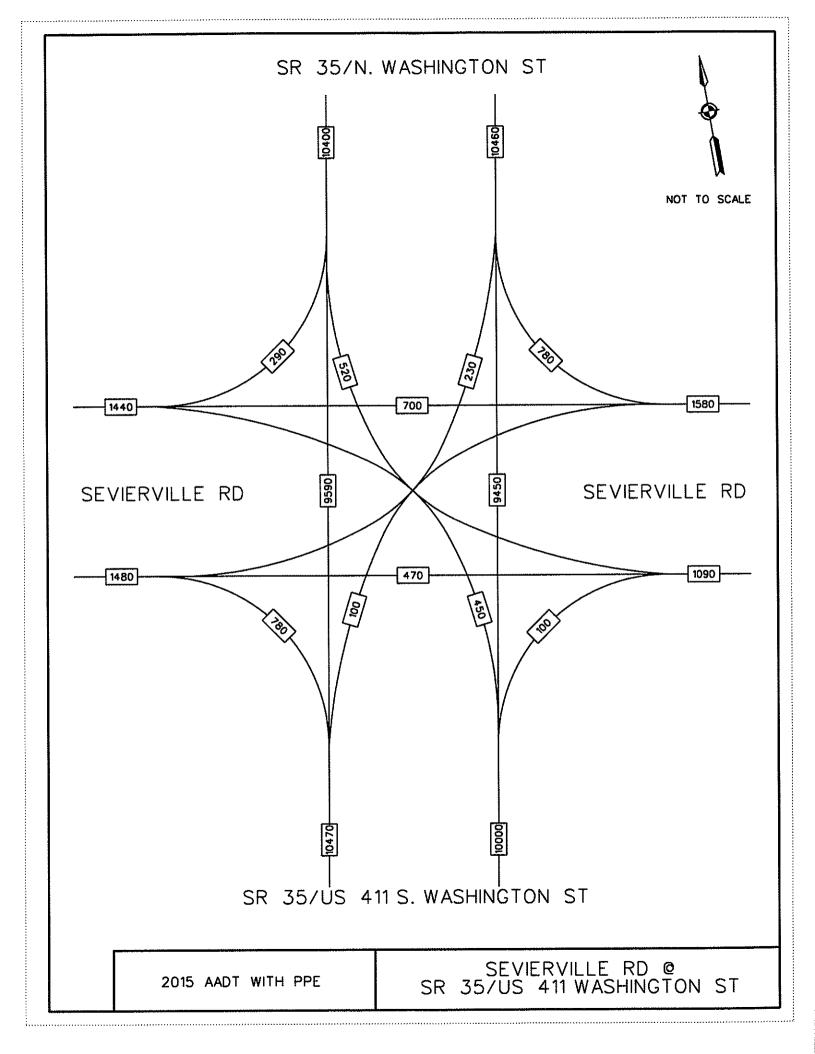


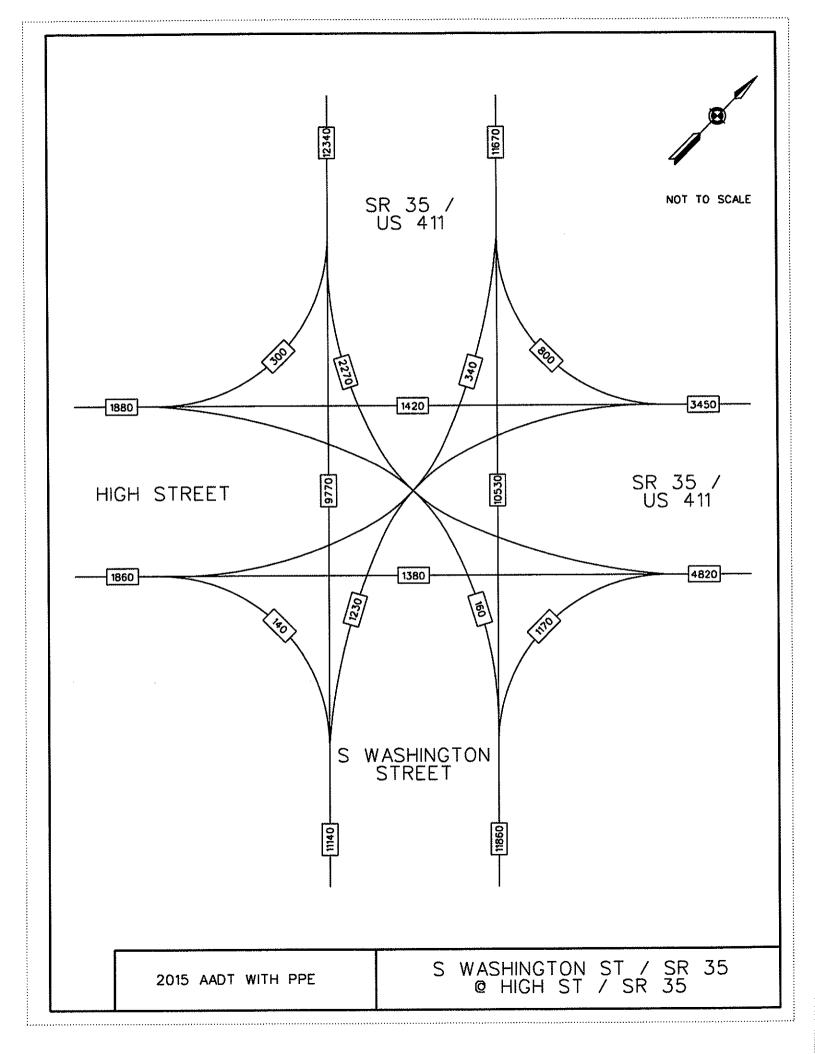


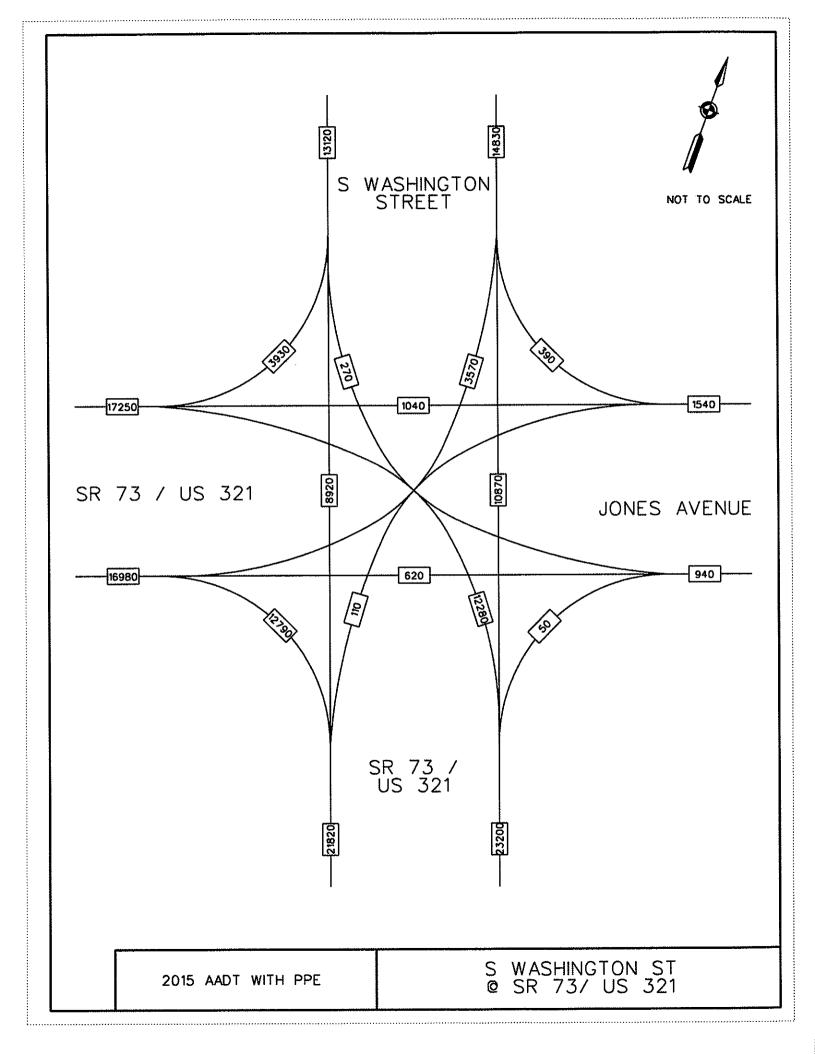


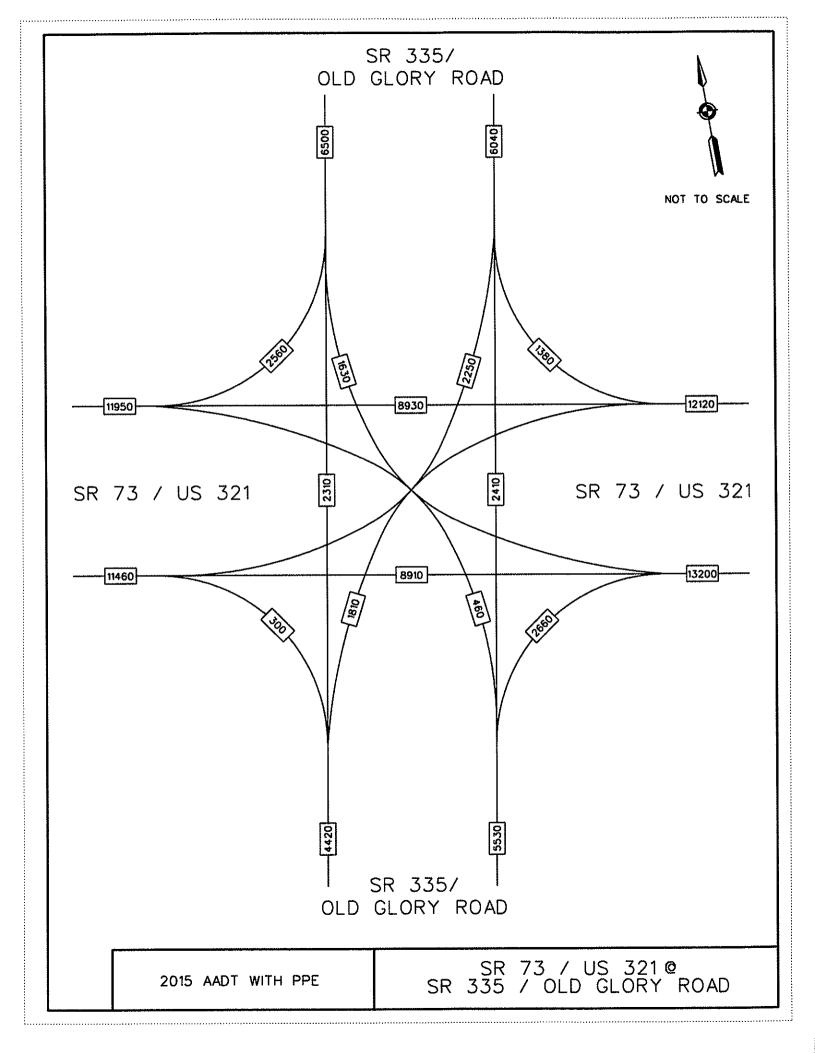


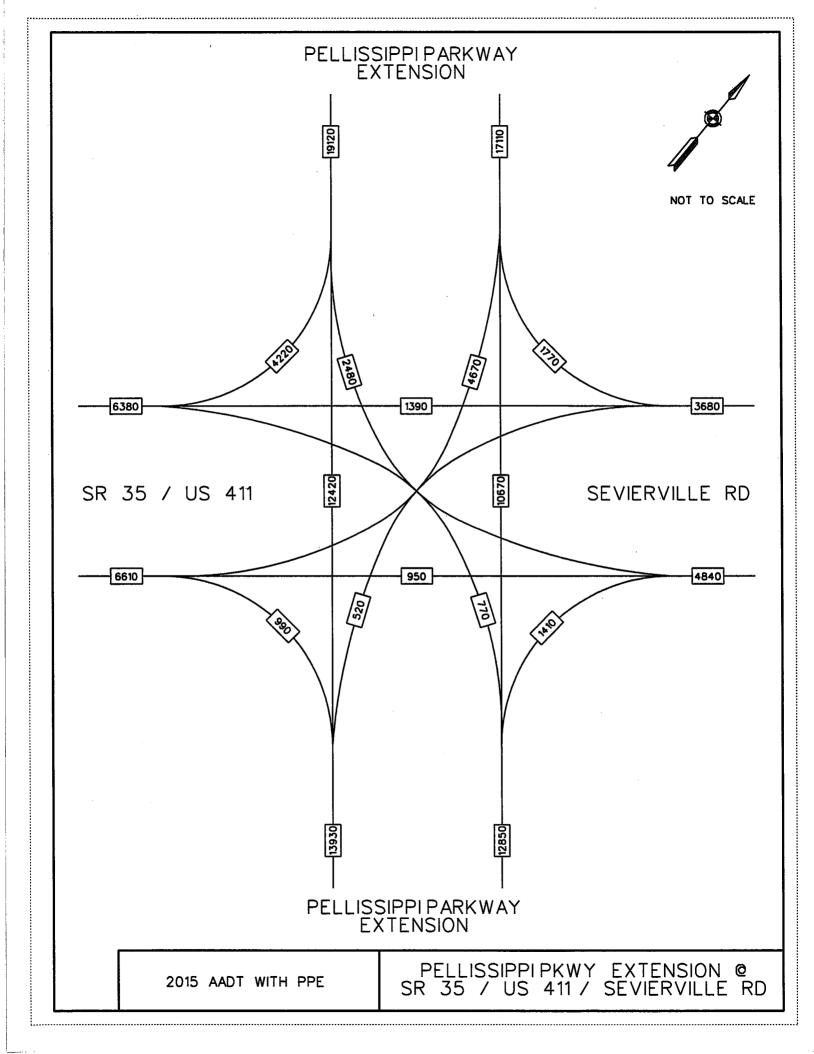


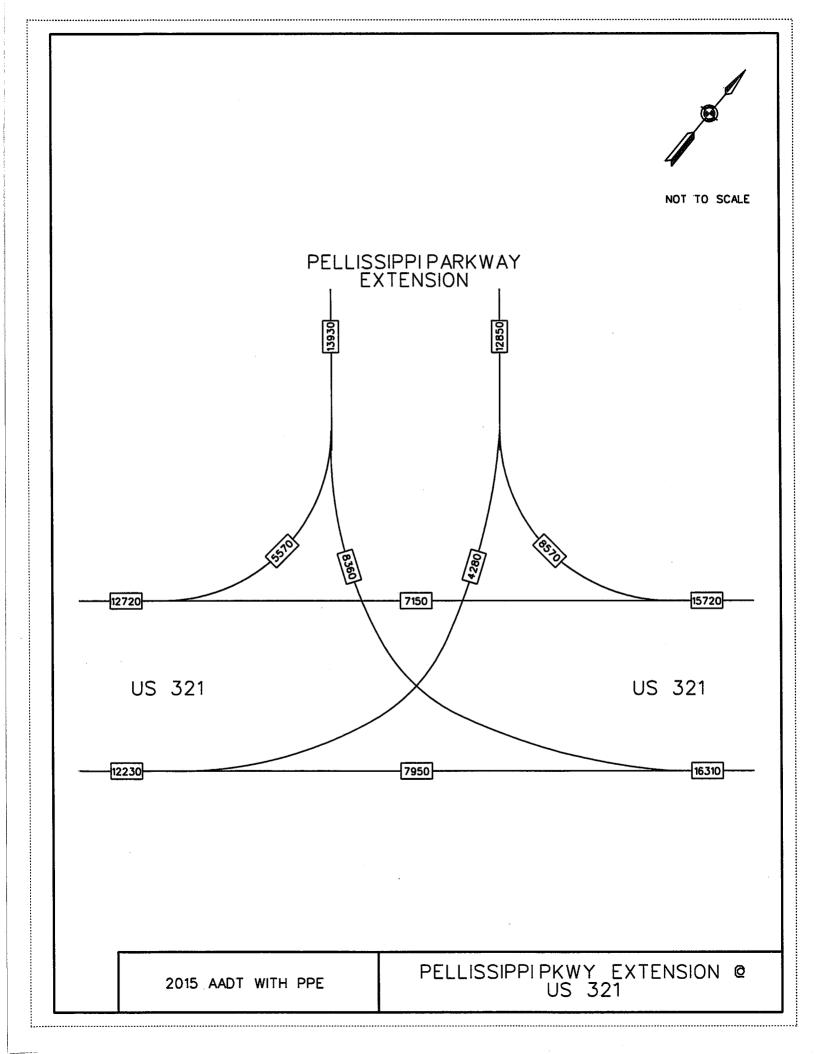


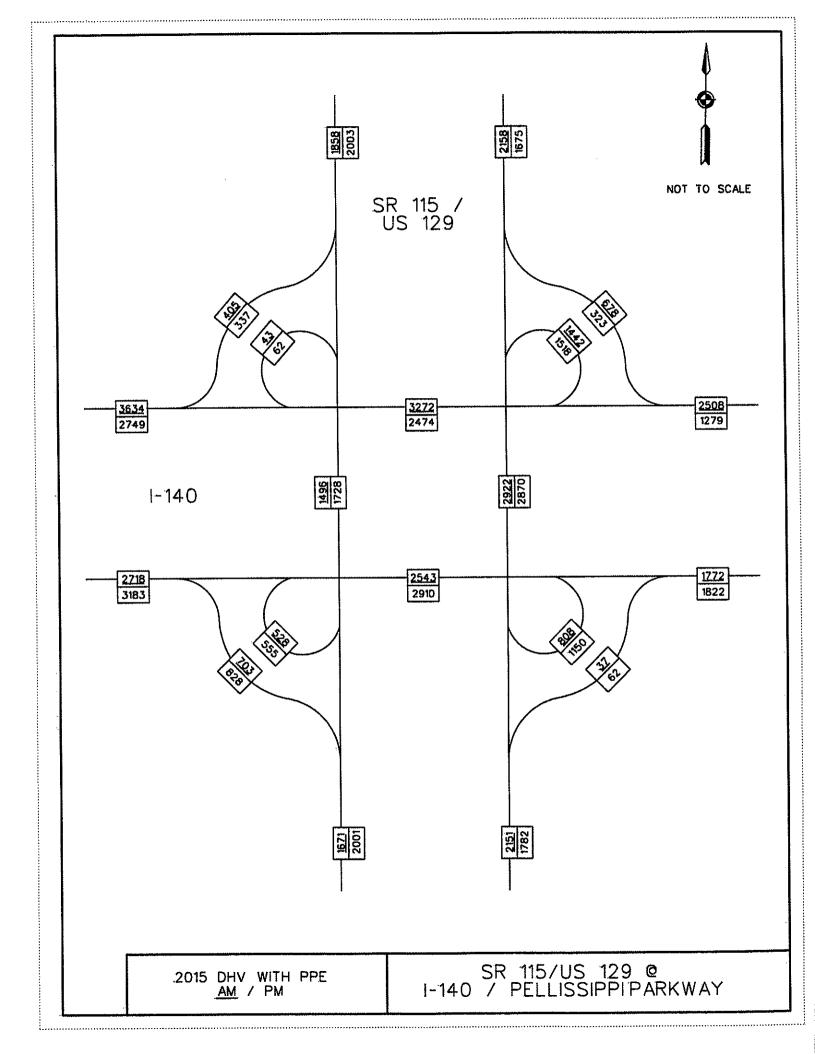


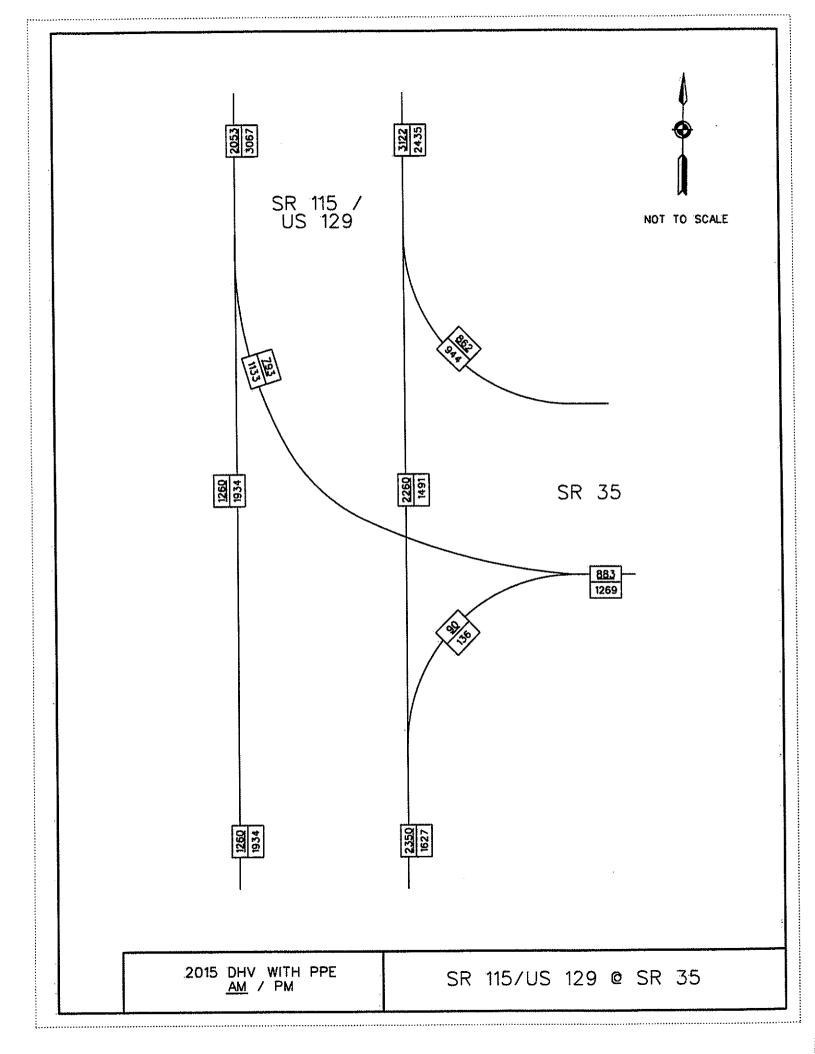


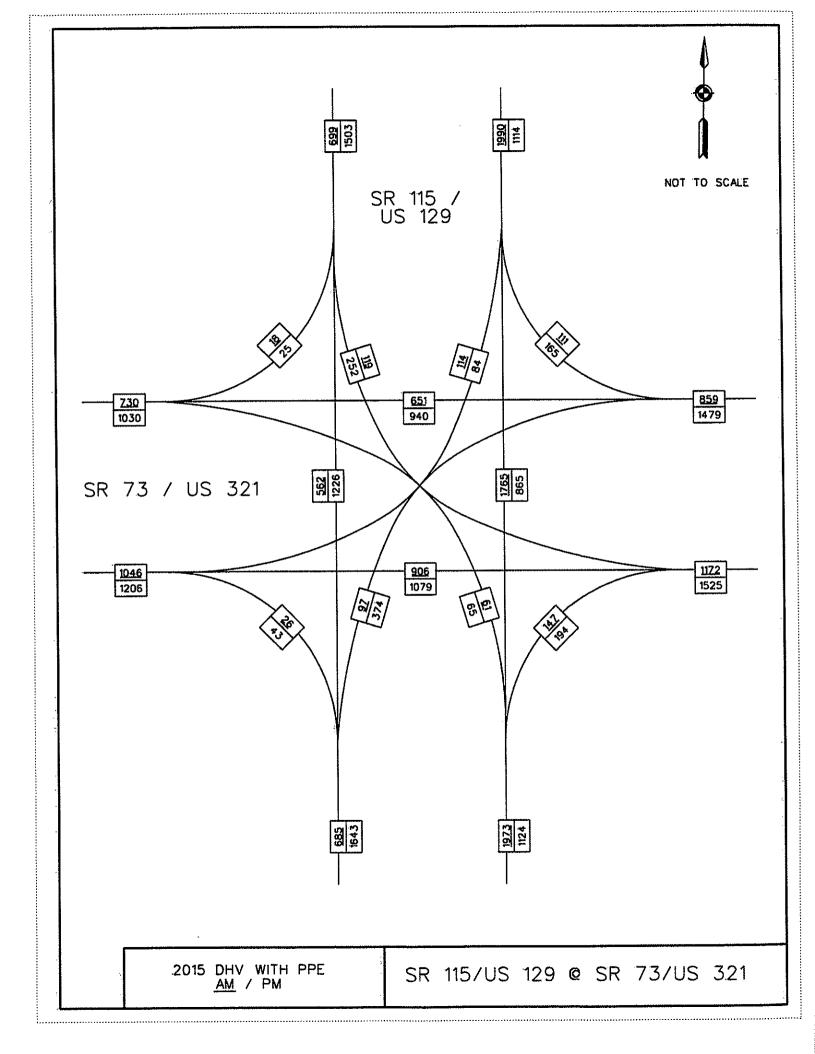


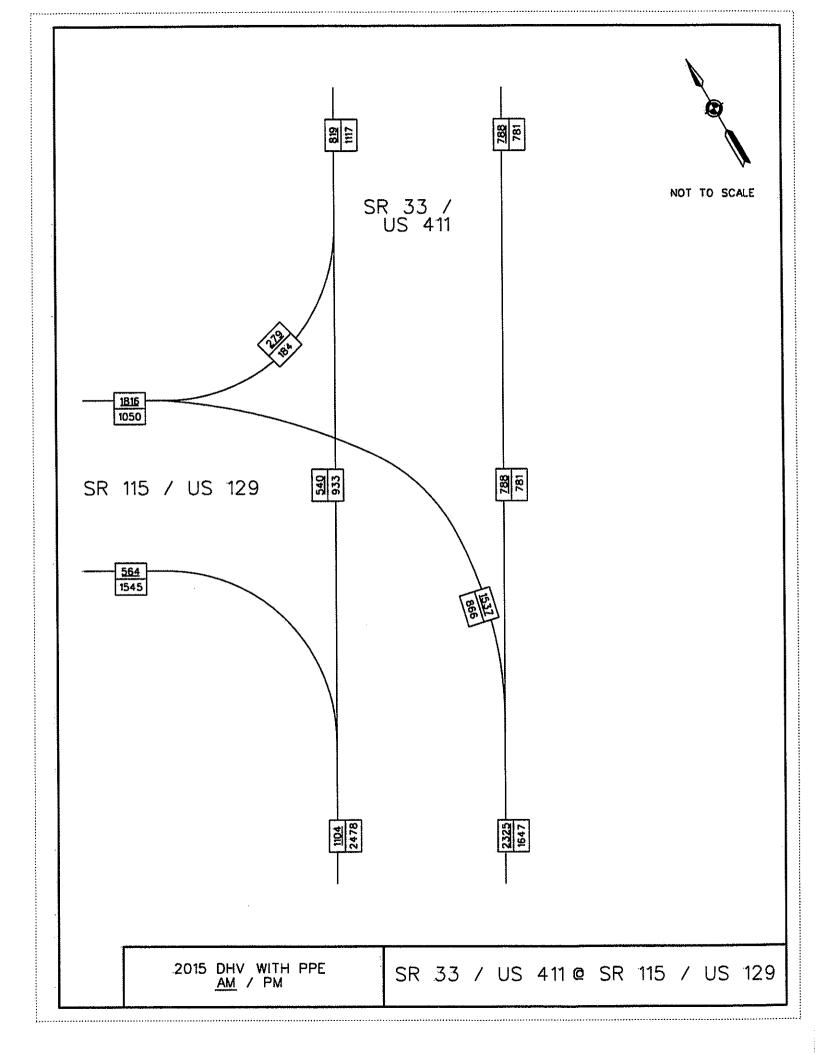


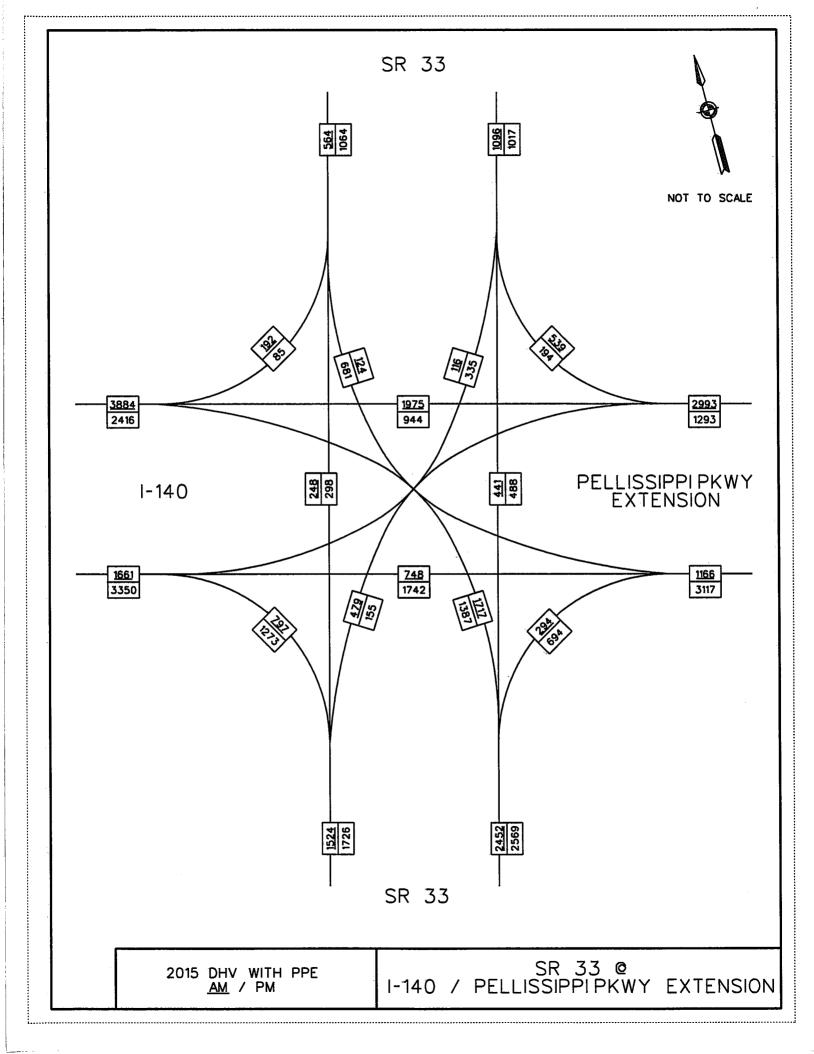


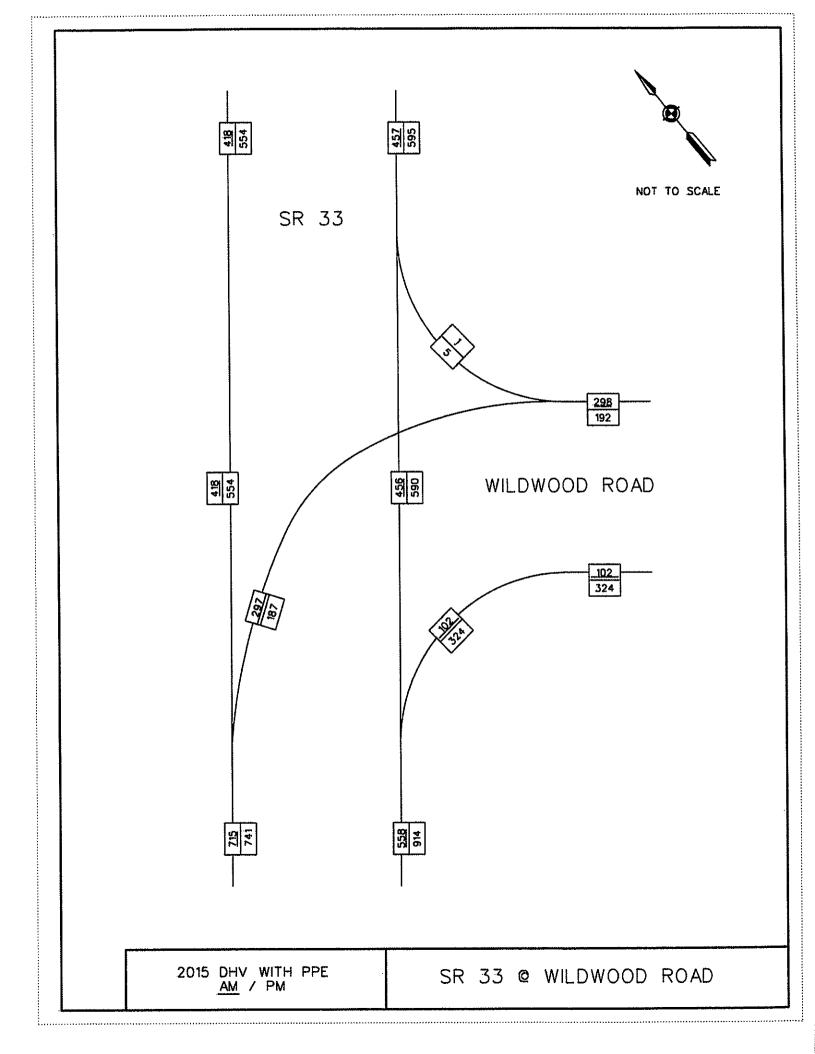


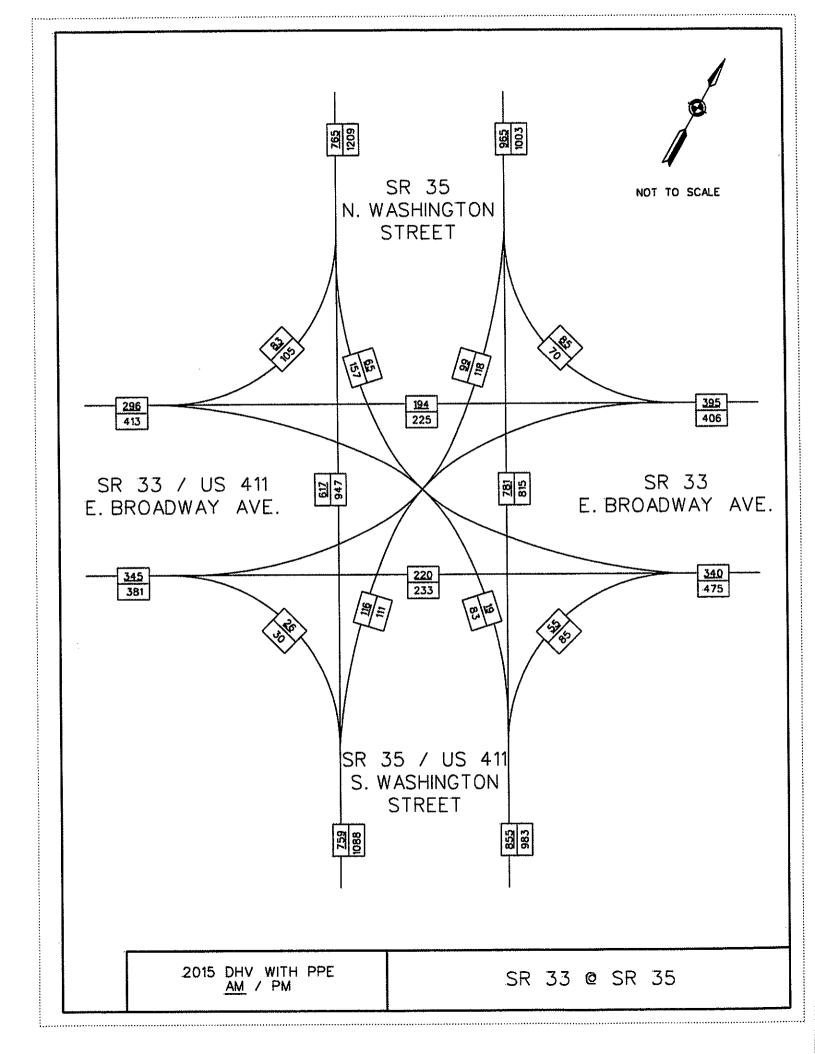


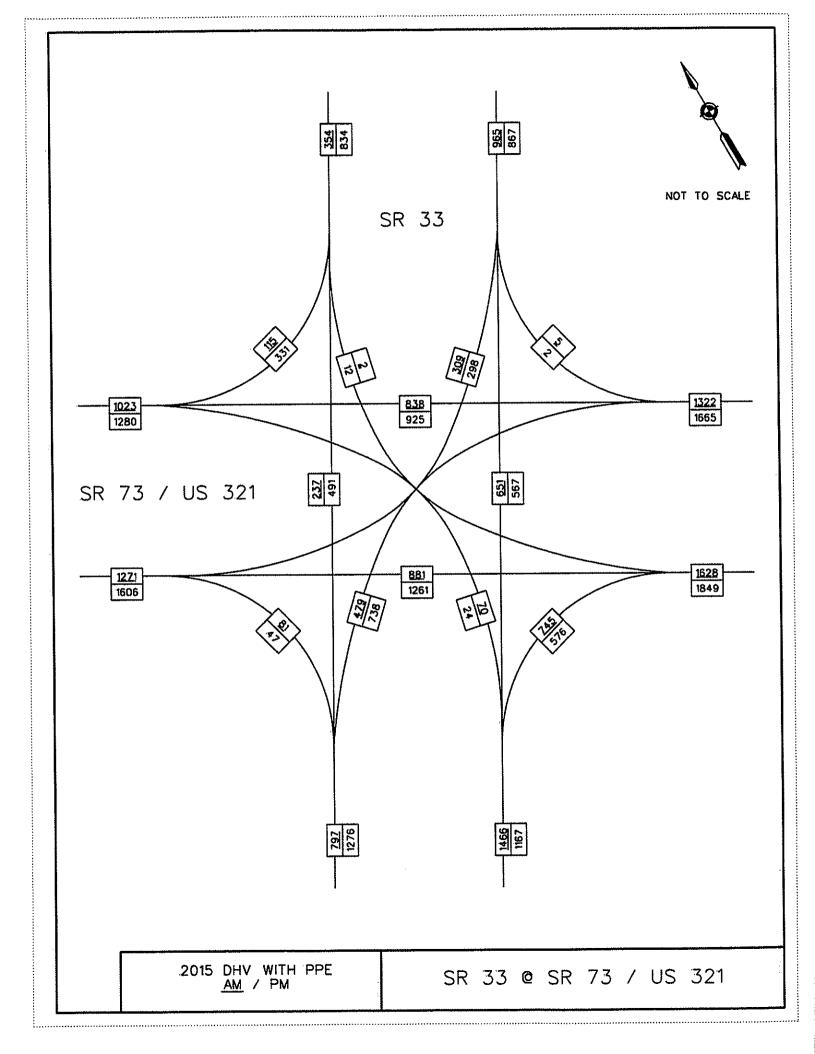


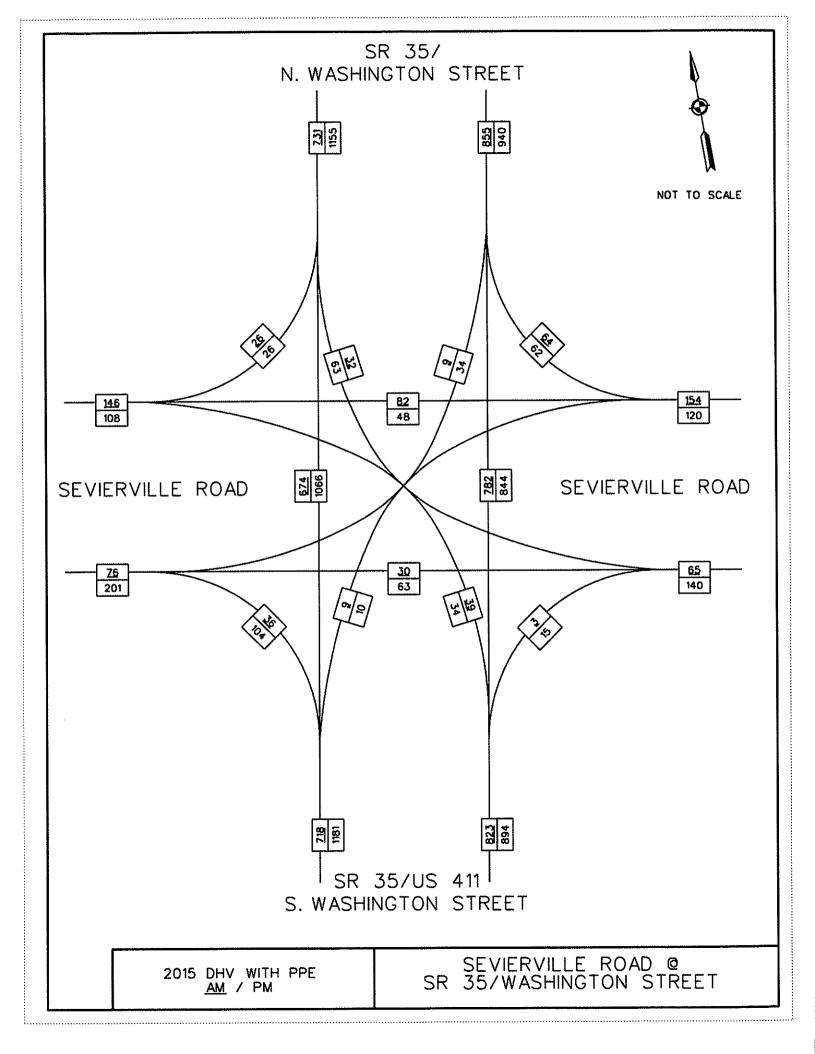


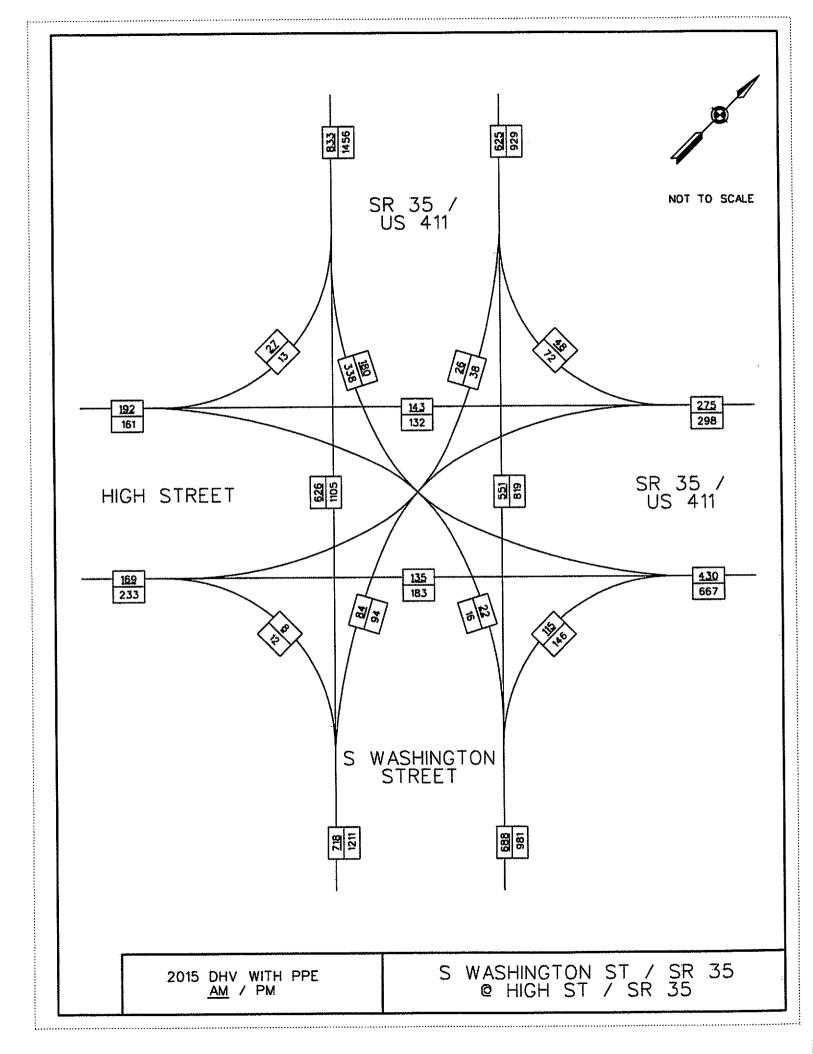


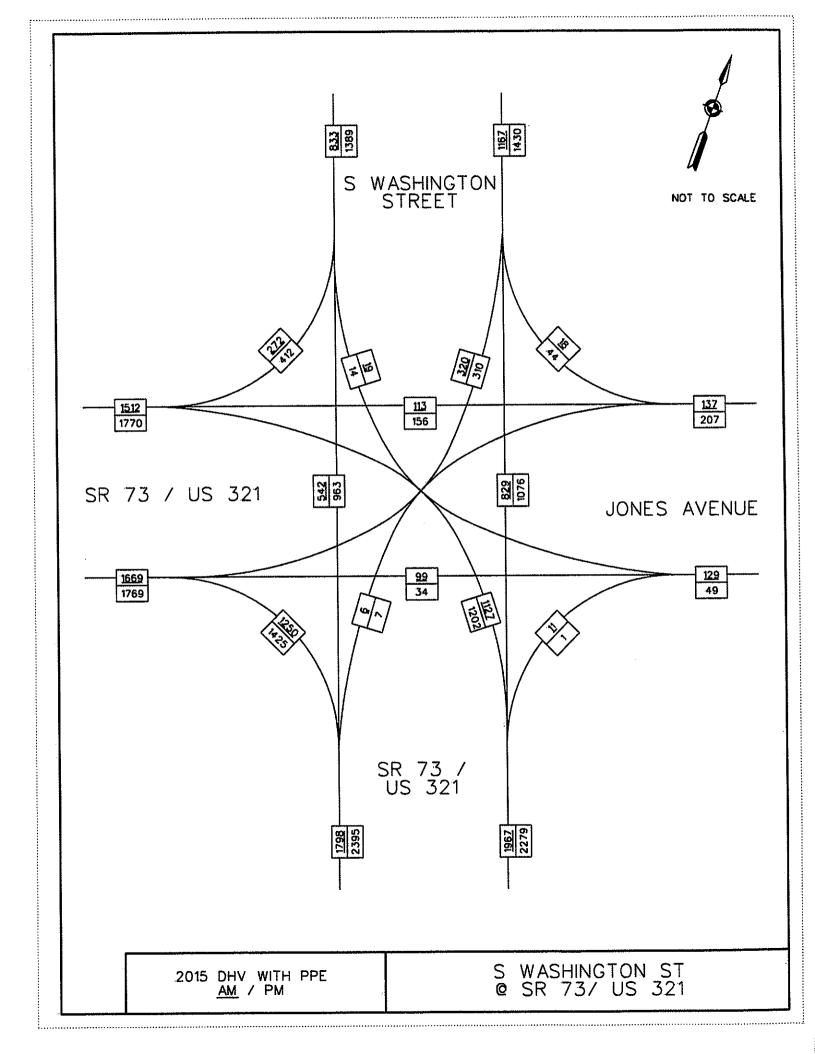


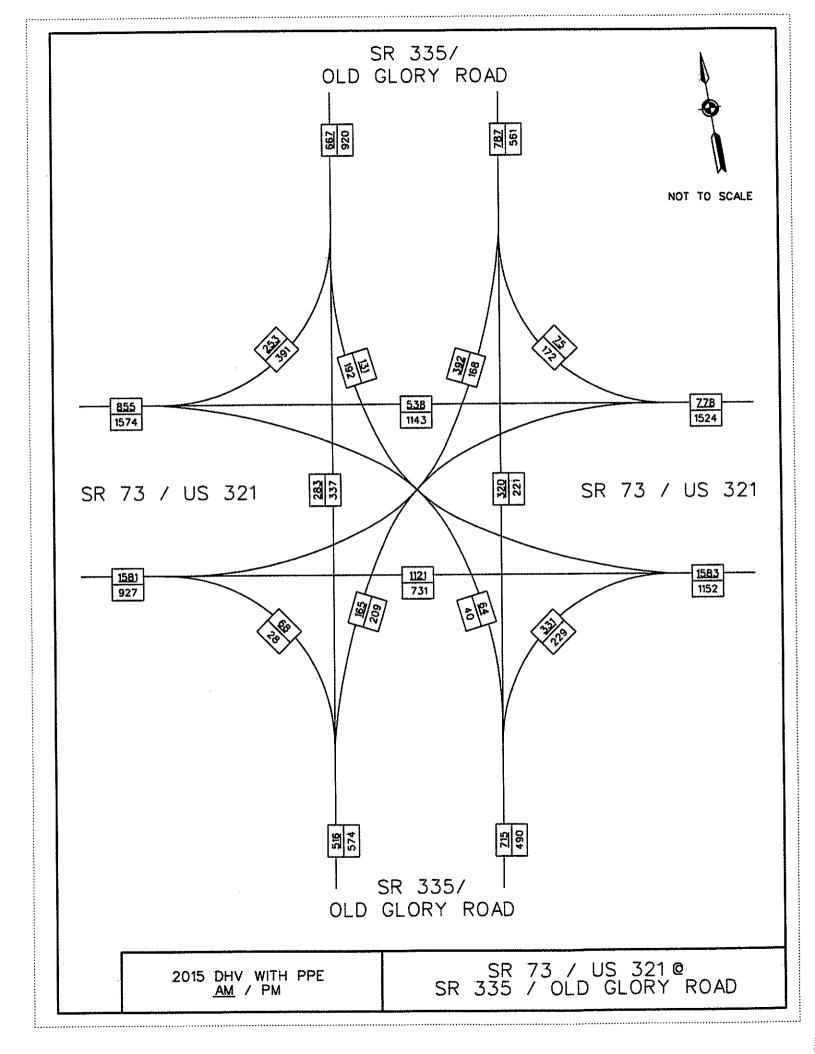


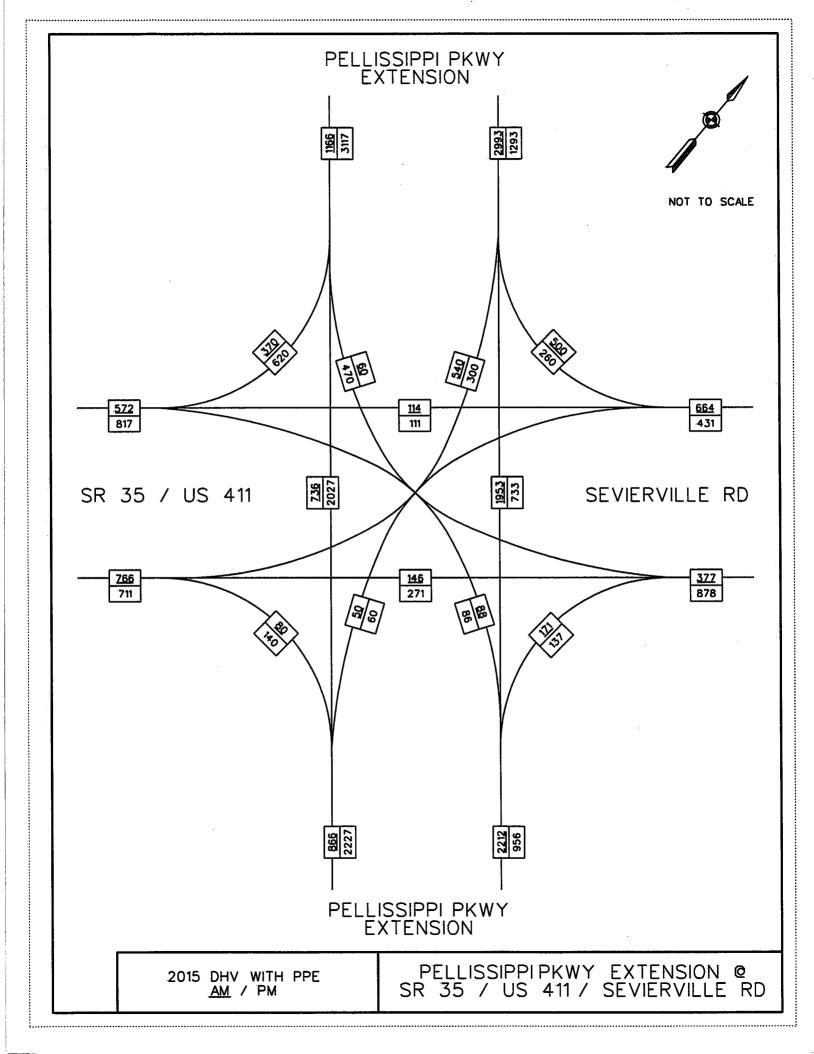


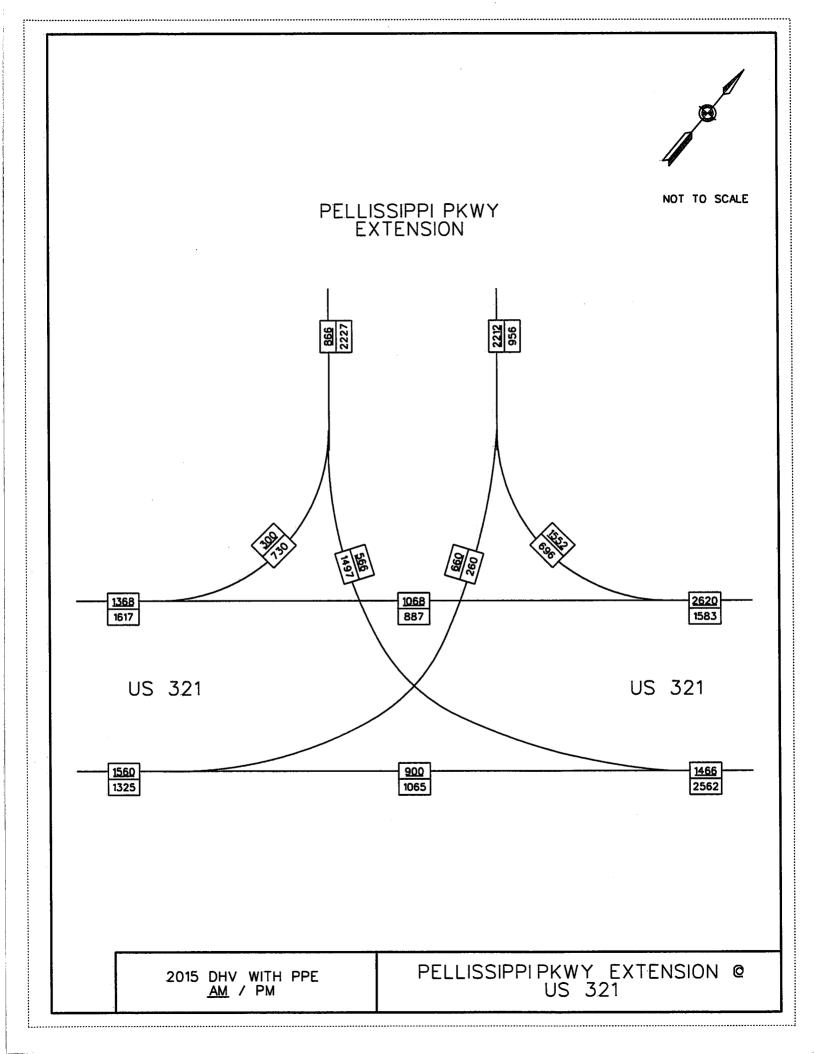












## **BUILD PPE-2035**

