PRELIMINARY ENGINEERING NOISE ANALYSIS REPORT

Pennsylvania Turnpike Interstate 476 – Scranton Beltway Project, Wyoming Valley Interchange

Luzerne County, Pennsylvania

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Luzerne County
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Executive Summary

The Pennsylvania Turnpike Scranton Beltway Project (MP A-114 to MP A-117 and MP A128 to Ramp K) includes the construction of connectors between I-476 and I-81 in the areas of Wyoming Valley and Clarks Summit. The goal is to optimize the utilization of both corridors, and to effectively create a beltway and bypass system around Scranton. This noise analysis report will be limited to the Wyoming Valley interchange only. Due to the distance between Wyoming Valley and Clarks Summit it was decided that the noise analysis for each location would be completed separately and contained in their own report.

For analysis purposes, the Wyoming Valley project study area was divided into three (3) Noise Study Areas (NSAs) as shown in Figure 2.1-2.3. Noise measurements and concurrent traffic counts were conducted in all NSAs, as reported in Figure 2 and Table 2. Based on the evaluation of existing and future noise levels and the noise abatement criteria (NAC) described in Table 1, project-related noise impacts were identified in NSAs 2 and 3.

Based on the evaluation of the noise levels associated with the preliminary engineering plans for the project developed to date, noise abatement features were determined to be not feasible and not reasonable for NSAs 2 and 3. Various noise barrier options were considered and evaluated in terms of abatement feature lengths, heights, and costs.

Introduction

The Pennsylvania Turnpike Scranton Beltway Project (MP A-114 to MP A-117 and MP A128 to Ramp K) is the construction of northbound and southbound highway-speed connections at both the Wyoming Valley and Clarks Summit areas, and the reconstruction of two existing ramps at the Clarks Summit interchange. The project aims to improve the utilization of both the I-476 and I-81 corridors, to effectively create a beltway system around Scranton, and to provide a bypass around the greater Scranton area. I-476 provides an alternative route to I-81 from Wyoming Valley (Interchange 115) to Clarks Summit (Interchange 131) but is often under-utilized while I-81 frequently operates at or near capacity. I-476 is a tolled roadway but is three miles shorter in distance and posted at 10 mph higher compared to I-81. Adequate connections at the Wyoming Valley and Clarks Summit interchanges, particularly north to north and south to south, will be essential to increasing the utilization of I-476 and relieving congestion on I-81. Connections that currently exist between I-81 and I-476 in these locations are not direct. This noise analysis report is limited to the proposed Wyoming Valley interchange only.

The Wyoming Valley area of study is located east of the borough of Dupont, in Luzerne County, Pennsylvania. The proposed construction includes a flyover connection from southbound I-476 to southbound I-81, and an under-passing connection from northbound I-81 to northbound I-476. The project is considered a Type I project as the addition of the new traffic lanes will cause a substantial horizonal alteration, as the project will halve the distance between the traffic noise source and the closest receptor between the existing condition to the future build conditions.

Noise abatement has been evaluated for the noise study areas which meet the Pennsylvania Department of Transportation (PennDOT) and Federal Highway Administration (FHWA) criteria for a Type I project. This report focuses on the noise analysis and mitigation related to the 2045 design year Build Alternative.

PennDOT Noise Abatement Criteria (NAC), described in Table 1, for specific land use activities were used in the evaluation of traffic noise impacts. These criteria are based on criteria established in Title 23 Code of Federal Regulations, Part 772, U.S. Department of Transportation, Federal Highway Administration (FHWA), *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, and guidelines for "increase over existing" noise levels as set forth in PennDOT Publication *Project Level Highway Traffic Noise Handbook Publication No.24*, dated May 2019. Predicted noise levels were determined using Version 2.5 of the FHWA Traffic Noise Model (FHWA TNM).

The noise level descriptor used for this project was the hourly equivalent noise level ($L_{eq}(h)$). $L_{eq}(h)$ is the steady state, A-weighted sound level, which contains the same amount of acoustic energy as the actual time-varying A-weighted noise level over a one-hour period. The FHWA and PennDOT define noise impact based upon seven activity categories, as identified in Table 1. Individual sites located within a given activity category

are designated as noise sensitive receptors.

Noise impacts were also evaluated by comparing the predicted noise levels with existing noise levels. A noise impact was identified if the future (year 2045) noise level was predicted to be equal or exceed 66 dB(A), or if future noise levels within the project were predicted to cause a substantial noise increase ($\geq$10 dB(A)) as compared to existing noise levels (year 2018).

Noise Study Areas

The project study area was divided into the following noise study areas (NSAs) as shown in Figures 2.1 through 2.3:

NSA 1: Activity Category B land uses are located north of Suscon Rd, adjacent to I-476 northbound and consists of three residential properties. See Figure 2.1.

NSA 2: Activity Category B and C land uses are located adjacent to I-81 southbound and north of Suscon Rd. This NSA consists of sixty-four single-family residences and a cemetery. See Figure 2.2.

NSA 3: Activity Category B land uses are located adjacent to I-81 southbound and south of Suscon Rd. This NSA consists of twenty-one single-family residences. See Figure 2.1.

Noise Measurements and Model Validation

Ambient noise measurements were conducted throughout the project study area as shown in Figure 2.1-2.3. Within each of the above NSAs, short-term (20-minute duration) noise measurements were taken along with concurrent traffic counts at 19 locations using American National Standards Institute (ANSI) Type I noise meters. See Appendix A for field data sheets. Calibration certificates related to sound level meters and calibrators are in Appendix B.

Short-term measurements were taken at various times of the day between June 3 and 4 of 2019 and do not necessarily represent the noisiest condition at any measurement site. Long-term noise measurements were taken at L1 and L2 to observe typical loudest-hour conditions. Appendix D shows the results of the long-term noise measurements, L1 is slightly higher than L2 because L2 was shielded from the highway. The loudest sound levels, throughout the day, corresponds to the morning and afternoon peak hours. Short term measurement sites were positioned to enable validation of the noise prediction model and to assist in defining existing noise levels for second-row residences and for receivers located approximately 500 feet from the proposed edge of pavement. As such, in certain locations, noise measurement sites do not exactly correspond with noise analysis sites. Measurements were used primarily for purposes of noise model validation, with year 2018

peak hour traffic volumes assumed in the prediction of worst-case existing noise levels. Measured existing L_{eq} noise levels at short-term measurement sites (receptors) ranged from 54 to 70 dB(A).

Using the traffic data obtained concurrently with the short-term noise measurements, noise levels were modeled and compared to measured noise levels. Existing short-term measured noise levels and hourly traffic data based on concurrent traffic counts are summarized in Table 2, with field measurement data sheets contained in Appendix A. Validation results are shown in Table 3, with FHWA TNM validation data files included with this report. Measured versus modeled noise levels were within the acceptable 3 dB(A) range for all sites evaluated, with the exception of one site (M3-01). Variation in L_{eq} at M3-01 is likely due to non-traffic noise sources as noted on the field data sheet. The results of the validation process were used to "build" the FHWA TNM used for purposes of modeling existing and future year noise levels, determining future year impacts, and evaluating potential noise abatement options.

Noise Modeling

The model used to predict worst case existing and future noise levels and to evaluate noise abatement options was the FHWA's TNM, Version 2.5. The FHWA TNM predicts noise levels at selected locations based on traffic data, roadway design, topographic features, and the relationship of the analysis site (receiver) to nearby roadways. Traffic data used for prediction of existing (year 2018) and future (year 2045) noise levels for both no-barrier and barrier conditions is contained in Appendix C. The percentages of automobiles, medium trucks, and heavy trucks used in the FHWA TNM modeling process were obtained from the Pennsylvania Turnpike Commission and Urban Engineers.

Evaluation of Noise Impacts

Consideration of noise abatement is required in Pennsylvania if noise levels approach the NAC (approach is defined as 1 dB(A) below the noise abatement criteria) or create a substantial noise "increase over existing" (IOE) (10 dB(A)). The future-year noise levels were compared to the NAC approach levels (66 dB(A)) for land use Category B and to the increases over existing-year noise levels using PennDOT's NAC to determine if there would be any noise impacts. These comparisons are contained in the noise summary tables for each NSA, with the noise measurement sites and analysis sites (receivers) indicated within each NSA. Noise impacts were identified in each NSA based on predicted exterior noise levels exceeding the 66 dB(A) approach criteria level for Activity Category land uses B.

In addition to their use in evaluating noise impacts, noise analysis sites were used in the consideration of noise abatement for noise sensitive receptors within each NSA. Abatement measures such as traffic management devices and roadway realignment were determined

not to be feasible. In addition, the topography and development in the area does not lend itself to the use of noise berms as an effective noise abatement technique. Therefore, noise abatement evaluations focused on the design of noise barrier walls.

Consideration of noise abatement was required in NSAs 2 and 3 due to noise levels approaching or exceeding the NAC. Under PennDOT noise criteria, feasible noise barriers are those that provide at least 5 dB(A) of noise reduction for at least 50% of impacted receptors, while posing no safety, engineering, maintenance, constructability, drainage, or utility impacts, or access restrictions. If determined to be feasible, a barrier was then evaluated for reasonableness. For a barrier to be reasonable based on PennDOT noise criteria, it must be cost-effective (square footage per benefited residential receptor (SF/BR) must be less than or equal to 2000), and the desires of the affected property owners and residents must be considered. Receptors are considered to be benefited if they receive 5 dB(A) or more noise reduction (insertion loss) from a barrier. To meet PennDOT's reasonableness criteria, a barrier must also achieve at least a 7 dB(A) noise reduction at one receptor.

A summary of abatement considerations within each NSA follows. See referenced tables for more details related to all barrier options considered.

NSA 1 (See Figure 3.1 and Table 4): Zero of the three receptors evaluated within this NSA were predicted to have levels at or above 66 dB(A) with the Build Alternative. As such, consideration of noise abatement within this NSA was not warranted.

NSA 2 (See Figure 3.2-3.3 and Table 5): Two of the sixty-two receptors evaluated within this NSA were predicted to have levels at or above 66 dB(A) with the Build Alternative. As such, consideration of noise abatement within this NSA was warranted. A direct benefit could not be provided to the impacted receptor R2-57 using a feasible and reasonable noise barrier. This is due to the proposed southbound flyover ramp, which provides line of sight shielding between many receptors in NSA 2 and a significant portion of the existing I-81 mainline. Consequently, the Build Alternative noise levels at certain receptors are lower than No-Build Alternative noise levels. Noise abatement was evaluated for the impacted receptor R2-01.

The following three abatement options were considered for NSA 2:

- Case 1 consisted of 10 feet high wall 986 feet long and was determined to be feasible ($\geq$5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable, goal of 7 dB(A) insertion loss for at least one receptor was not achieved.

- Case 2 consisted of 12 feet high wall, 986 feet long and was determined to be feasible ($\geq$5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 11,835 > 2000, which exceeds

PennDOT requirements).

- Case 3 consisted of a shortened optimized wall, 13 feet high wall, 384 feet long and was determined to be feasible (≥5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 4,912 > 2000, which exceeds PennDOT requirements).

NSA 3 (See Figure 3.1 and Table 6): Two of the twenty-one receptors evaluated within this NSA were predicted to have noise levels at or above 66 dB(A) with the Build Alternative. As such, consideration of noise abatement within this NSA was warranted. It should be noted that barrier placement along NSA 3 was limited due to topography near R3-21, however the barrier analysis demonstrated that benefit for R3-21 was not feasible in any case.

The following eight abatement options were considered for NSA 3:

- Case 1 consisted of a 14 feet high wall, 1,163 feet long and was determined to be feasible (≥5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 8,141 > 2000, which exceeds PennDOT requirements).

- Case 2 consisted of a 16 feet high wall, 1,163 feet long and was determined to be feasible (≥5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 9,304 > 2000, which exceeds PennDOT requirements).

- Case 3 consisted of an 18 feet high wall, 1,163 feet long and was determined to be feasible (≥5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 10,476 > 2000, which exceeds PennDOT requirements).

- Case 4 consisted of a 20 feet high wall, 1,163 feet long and was determined to be feasible (≥5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 11,630 > 2000, which exceeds PennDOT requirements).

- Case 5 consisted of a 22 feet high wall, 1,163 feet long and was determined to be feasible (≥5 dB(A) insertion loss provided for 50% of impacted receptors) but not

reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 12,793 > 2000, which exceeds PennDOT requirements).

- Case 6 consisted of a 24 feet high wall, 1,163 feet long and was determined to be feasible (≥5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 6,978 > 2000, which exceeds PennDOT requirements).

- Case 7 consisted of a 26 feet high wall, 1,163 feet long and was determined to be feasible (≥5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 7,560 > 2000, which exceeds PennDOT requirements).

- Case 8 consisted of an optimized 26 feet high wall, 499 feet long and was determined to be feasible (≥5 dB(A) insertion loss provided for 50% of impacted receptors) but not reasonable (goal of 7 dB(A) insertion loss for at least one receptor was achieved but square footage per benefited receptor SF/BR 6,487 > 2000, which exceeds PennDOT requirements).

Undeveloped Lands

Two (2) areas of "representative" undeveloped land were assessed for this study. There are no undeveloped lands within NSA 3 boundary. Noise modeling at these two areas indicate that future design year Build Alternative noise levels are projected to approach the Activity Category B (residential) NAC of 66 dBA at a distance extending approximately 138 feet within NSA 1 and 148 feet within NSA 2 from the proposed edge-of-shoulder of the roadway alignment. All noise level projections for future design year Build Alternative noise levels fall below the Activity Category E (Commercial/Industrial) NAC of 71 dBA; therefore, no impacts would be anticipated to developing residential, commercial, or industrial land uses within the design period.

Construction Noise Considerations

It is recognized that construction, while temporary in nature, will result in increased noise levels during certain periods and at certain locations. If required during the final design noise analysis, a more detailed consideration of construction noise and associated abatement/mitigation will be undertaken, consistent with the availability and detail of anticipated construction scheduling and operations. Construction of temporary noise barriers and the early construction of permanent noise barriers will be considered as will the possibility of developing construction noise specifications and/or special provisions

related to construction time periods, duration of construction activities, types of construction equipment, and/or equipment noise levels.

Conclusion

Based on the analysis of noise reported herein, noise impacts exist within NSAs 2 and 3. Based on the evaluation of the noise levels associated with the engineering plans developed to date, noise barriers were determined to be not feasible and not reasonable for NSAs 2 and 3. The ownership and maintenance for the I-476 SB Connector and I-476 NB Connector is split between PennDOT and the Commission according to the following delineation. For the I-476 SB Connector, the Commission will own and maintain this connector from I-476 Southbound up to the connector gore (approx. STA 222+00). PennDOT will own and maintain the I-476 SB Connector from the connector gore to I-81 Southbound. For the I-476 NB Connector, PennDOT will own and maintain this connector from I-81 Northbound up to the connector gore (approx. STA 105+00). The Commission will own and maintain the I-476 NB Connector from the connector gore to I-476 Northbound.

TABLES

Table 1 Hourly Weighted Sound Levels dB(A) For Various Land Use Activity Categories*		
Land Use Activity Category	Leq(h)	Description of Land Use Activity Category
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Residential
C	67 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A – D or F.
F	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	Undeveloped lands that are not permitted.

* PennDOT has chosen to use Leq(h) [not L10(h)] on all of its transportation improvement projects.

Table 2: Sound Level Measurement Results
Pennsylvania Turnpike - Scranton Beltway Project
Wyoming Valley, PA

Site ID Number	Address of Measurement Site	Date	Time Period	Hourly Traffic Based on Concurrent Traffic Counts						TNM Model Calibration Noise Levels in dBA
				Autos	Medium Trucks	Heavy Trucks	Buses	Motor-cycles	Total	Measured Leq
M1-01	593 Suscon Rd	6/3/2019	6:45 - 7:05 am	1053	27	204	24	3	1311	64.3
				1140	51	324	0	15	1530	
				129	0	39	0	0	168	
				93	3	39	0	0	135	
				147	3	3	3	3	159	
				108	9	24	0	0	141	
				45	3	21	0	0	69	
M1-02	611 Suscon Rd	6/3/2019	7:10 - 7:30 am	1149	18	225	0	0	1392	59.1
				1092	27	240	0	0	1359	
				126	0	30	0	0	156	
				96	3	51	0	0	150	
				144	0	0	0	0	144	
				120	6	15	0	0	141	
M2-03	530 Wyoming Ave, Dupont, PA	6/4/2019	10:14 - 10:34 am	1227	54	243	0	3	1527	58.2
				1284	66	411	15	6	1782	
				102	3	66	0	0	171	
				201	9	75	0	0	285	
				6	0	0	0	0	6	
									0	
M2-04	606 Penn Ave, Dupont, PA	6/4/2019	10:50 - 11:10 am	1161	81	264	0	15	1521	69.3
				1293	57	384	3	0	1737	
				123	3	66	0	0	192	
				153	3	72	0	0	228	
				30	0	0	0	0	30	
									0	
M2-05	513 Penn Ave, Dupont, PA	6/4/2019	4:13 - 4:33 pm	2244	87	276	0	15	2622	60.5
				1962	87	276	3	3	2331	
				426	3	69	0	3	501	
				198	0	78	0	0	276	
									0	
									0	
M2-06	310 Elm St, Dupont, PA	6/4/2019	3:43 - 4:03 pm	2175	84	288	15	6	2568	69.6
				1884	93	291	3	0	2271	
				300	6	54	3	3	366	
				225	12	30	0	0	267	
				393	27	18	3	3	444	
									0	
M2-07	300 Elm St, Dupont, PA	6/4/2019	2:40 - 3:00 pm	1950	96	327	9	3	2385	61.9
				1788	75	378	6	3	2250	
				231	15	75	0	0	321	
				192	6	27	0	0	225	
				135	0	9	3	0	147	
				189	18	15	3	0	225	

Table 2: Sound Level Measurement Results
Pennsylvania Turnpike - Scranton Beltway Project
Wyoming Valley, PA

Site ID Number	Address of Measurement Site	Date	Time Period	Hourly Traffic Based on Concurrent Traffic Counts						TNM Model Calibration Noise Levels in dBA
				Autos	Medium Trucks	Heavy Trucks	Buses	Motor-cycles	Total	Measured Leq
M2-08	101 Florence St, Dupont, PA	6/4/2019	3:12 - 3:32 pm	2031	114	291	3	3	2442	60.3
				2004	63	333	9	0	2409	
				318	9	54	0	0	381	
				216	15	51	0	0	282	
				291	21	15	0	0	327	
									0	
M2-09	20 Hemlock St, Dupont, PA	6/4/2019	11:34 - 11:54 pm	1347	99	297	6	6	1755	65.1
				1470	87	315	6	6	1884	
				168	6	60	0	0	234	
				171	3	51	0	0	225	
				114	9	6	0	0	129	
									0	
M2-10	1 Ash St, Pittston, PA	6/4/2019	12:04 - 12:24 pm	1440	69	426	0	18	1953	53.9
				1350	48	366	6	3	1773	
				159	18	93	0	0	270	
				162	6	48	0	9	225	
				393	6	15	0	0	414	
				6	0	0	0	0	6	
				3	0	0	0	0	3	
M2-11	585 Suscon Rd, Pittston, PA	6/3/2019	6:09 - 6:29 pm	1497	48	264	3	6	1818	63.8
				1503	42	300	9	9	1863	
				177	6	51	3	0	237	
				210	18	51	3	0	282	
				144	0	0	0	0	144	
				144	9	9	0	0	162	
M3-01	544 Suscon Rd, Pittston, PA	6/3/2019	5:36 - 5:56 pm	1947	66	249	0	6	2268	65.4
				1947	48	330	0	3	2328	
				243	9	51	0	0	303	
				189	6	51	0	0	246	
				300	3	0	0	0	303	
				207	15	6	0	0	228	
M3-02	15 Wood St Dupont, PA	6/3/2019	4:18 - 4:38 pm	2415	66	216	3	9	2709	60.5
				2346	66	273	6	3	2694	
				288	3	69	0	0	360	
				195	15	48	0	0	258	
				270	3	3	0	3	279	
				210	12	9	0	0	231	
M3-03	14 Wood St, Dupont, PA	6/3/2019	3:43 - 4:03 pm	2361	66	282	3	27	2739	57.3
				2178	78	348	9	6	2619	
				306	12	54	0	0	372	
				222	21	45	3	0	291	
				432	6	9	3	6	456	
									0	
M3-04	19 Atwell Dr, Dupont, PA	6/3/2019	4:53 - 5:13 pm	2403	72	282	15	9	2781	53.7
				2496	54	339	9	9	2907	
				471	3	57	0	0	531	
				192	6	57	0	3	258	
				417	18	18	0	3	456	
									0	
M3-05	31 Wood St, Dupont, PA	6/3/2019	3:11 - 3:31 pm	2001	135	306	6	16	2464	60.5
				2121	54	318	3	6	2502	
				222	0	57	0	0	279	
				195	9	48	6	0	258	
				321	9	15	6	0	351	
									0	
M3-06	32 Wood St, Dupont, PA	6/3/2019	2:39 - 2:59 pm	1899	138	222	3	6	2268	65.0
				1767	84	345	0	6	2202	
				177	30	60	0	3	270	
				177	9	21	3	0	210	
				309	24	24	9	6	372	
									0	

Table 3: Validation Table
Pennsylvania Turnpike - Scranton Beltway Project
Wyoming Valley, PA

Site ID Number	Address of Measurement Site	Date	Time Period	TNM Model Calibration Noise Levels in dBA		
				Modeled Leq(h)	Measured Leq	Difference
M1-01	593 Suscon Rd	6/3/2019	6:45 - 7:05 am	64.9	64.3	0.6
M1-02	611 Suscon Rd	6/3/2019	7:10 - 7:30 am	60.2	59.1	1.1
M2-03	530 Wyoming Ave, Dupont, PA	6/4/2019	10:14 - 10:34 am	60.3	58.2	2.1
M2-04	606 Penn Ave, Dupont, PA	6/4/2019	10:50 - 11:10 am	68.4	69.3	-0.9
M2-05	513 Penn Ave, Dupont, PA	6/4/2019	4:13 - 4:33 pm	60.1	60.5	-0.4
M2-06	310 Elm St, Dupont, PA	6/4/2019	3:43 - 4:03 pm	69.7	69.6	0.1
M2-07	300 Elm St, Dupont, PA	6/4/2019	2:40 - 3:00 pm	62.6	61.9	0.7

Table 3: Validation Table
Pennsylvania Turnpike - Scranton Beltway Project
Wyoming Valley, PA

Site ID Number	Address of Measurement Site	Date	Time Period	TNM Model Calibration Noise Levels in dBA		
				Modeled Leq(h)	Measured Leq	Difference
M2-08	101 Florence St, Dupont, PA	6/4/2019	3:12 - 3:32 pm	62.1	60.3	1.8
M2-09	20 Hemlock St, Dupont, PA	6/4/2019	11:34 - 11:54 pm	66.5	65.1	1.4
M2-10	1 Ash St, Pittston, PA	6/4/2019	12:04 - 12:24 pm	55.1	53.9	1.2
M2-11	585 Suscon Rd, Pittston, PA	6/3/2019	6:09 - 6:29 pm	65.3	63.8	1.5
M3-01	544 Suscon Rd, Pittston, PA	6/3/2019	5:36 - 5:56 pm	62.3	65.4	-3.1
M3-02	15 Wood St Dupont, PA	6/3/2019	4:18 - 4:38 pm	59.9	60.5	-0.6
M3-03	14 Wood St, Dupont, PA	6/3/2019	3:43 - 4:03 pm	57.9	57.3	0.6
M3-04	19 Atwell Dr, Dupont, PA	6/3/2019	4:53 - 5:13 pm	55.6	53.7	1.9
M3-05	31 Wood St, Dupont, PA	6/3/2019	3:11 - 3:31 pm	60.6	60.5	0.1
M3-06	32 Wood St, Dupont, PA	6/3/2019	2:39 - 2:59 pm	65.5	65.0	0.5

Table 4. NSA 1
Preferred Alternative
Summary of Modeled Noise Levels

Receiver ID	Land Use Activity Category	Existing Noise Level (2018)	Future No-Build (2045)		Future Build (2045)	
			Noise Levels	Increase Over Existing	Noise Levels	Increase Over Existing
R1-01	B	65	68	3	65	0
R1-02	B	59	62	3	59	0
R1-03	B	57	60	3	58	1

Table 5. NSA 2
Preferred Alternative

NSA	Receiver ID	Land Use Activity Category	No. of Receptors	Existing Noise Level (2018)	Future Build (2045)								
					Future No-Build	Future Build No-Barrier		Case 1: 10' Barrier		Case 2: 12' Barrier		Case 3: Optimized Barrier	
					Noise Level dB(A)	Noise Level dB(A)	I.O.E dB	Noise Level dB(A)	Insertion Loss	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB
NSA 2	R2-01 (M2-11)	B	1	65	66	67	2	61	6	60	7	60	7
	R2-02	B	1	59	60	60	1	59	1	59	1	59	1
	R2-03	B	1	57	58	58	1	57	0	57	0	58	0
	R2-04	B	1	57	59	58	0	56	2	55	2	56	1
	R2-05	B	1	52	52	53	1	53	0	53	0	53	0
	R2-06	B	1	51	51	52	1	52	0	52	0	52	0
	R2-07	B	1	55	56	55	0	53	2	53	2	54	1
	R2-08	B	1	57	58	57	0	56	1	55	1	57	0
	R2-09	B	1	58	59	57	0	56	1	56	2	57	0
	R2-10	B	1	59	61	60	1	58	2	57	2	59	1
	R2-11 (potential acquisition)	B	1										
	R2-12 (M2-10)	B	1	54	58	56	3	55	1	55	1	56	0
	R2-13	B	1	57	58	56	-1	55	1	55	1	56	0
	R2-14	B	1	60	61	60	-1	58	1	58	2	59	0
	R2-15	B	1	61	62	60	-1	58	2	58	2	60	0
	R2-16	B	1	60	61	60	-1	57	2	57	3	59	0
	R2-17	B	1	60	61	58	-2	57	2	56	2	58	0
	R2-18	B	1	59	60	56	-2	54	3	53	3	56	0
	R2-19	B	1	60	61	57	-3	54	3	54	3	57	0
	R2-20 (M2-08)	B	1	62	63	59	-3	56	3	56	3	59	0
	R2-21	B	1	64	65	62	-2	58	4	58	4	62	0
	R2-22 (potential acquisition)	B	1										
	R2-23	B	1	60	61	57	-3	56	2	55	2	57	0
	R2-24	B	1	62	63	58	-4	56	2	56	2	58	0
	R2-25	B	1	62	63	58	-4	57	2	57	2	58	0
	R2-26	B	1	65	65	60	-5	59	1	59	1	60	0
	R2-27 (M2-07)	B	1	60	62	58	-2	57	1	57	1	58	0
	R2-28	B	1	65	65	59	-5	59	1	59	1	59	0
	R2-29 (potential acquisition)	B	1										

Table 5. NSA 2
Preferred Alternative

NSA	Receiver ID	Land Use Activity Category	No. of Receptors	Existing Noise Level (2018)	Future Build (2045)								
					Future No-Build	Future Build No-Barrier		Case 1: 10' Barrier		Case 2: 12' Barrier		Case 3: Optimized Barrier	
					Noise Level dB(A)	Noise Level dB(A)	I.O.E dB	Noise Level dB(A)	Insertion Loss	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB
NSA 2	R2-33	B	1	60	62	58	-2	58	0	58	0	58	0
	R2-34	B	1	64	64	58	-5	58	0	58	0	58	0
	R2-35	B	1	62	63	57	-5	56	0	56	0	57	0
	R2-36	B	1	62	63	56	-5	56	1	56	1	56	0
	R2-37	B	1	61	63	58	-3	57	1	57	2	58	0
	R2-38	B	1	61	62	57	-3	56	1	56	2	57	0
	R2-39	B	1	61	62	58	-3	57	1	57	1	58	0
	R2-40	B	1	60	62	56	-5	55	0	55	0	56	0
	R2-41	B	1	62	63	57	-5	57	0	57	0	57	0
	R2-42	B	1	63	64	59	-4	59	0	59	0	59	0
	R2-43	B	1	60	62	57	-3	57	0	56	1	57	0
	R2-44	B	1	60	62	56	-4	56	0	56	0	56	0
	R2-45	B	1	56	58	56	0	56	0	56	1	56	0
	R2-46	B	1	60	61	56	-4	56	0	55	0	56	0
	R2-47 (M2-05)	B	1	55	57	55	1	55	0	55	1	55	0
	R2-48	B	1	57	58	55	-2	55	0	54	0	55	0
	R2-49	B	1	60	60	57	-2	57	0	57	0	57	0
	R2-50	B	1	61	62	59	-2	59	0	59	0	59	0
	R2-51	B	1	63	64	61	-2	61	0	61	0	61	0
	R2-52	B	1	67	68	65	-3	65	0	65	0	65	0
	R2-53	B	1	58	60	57	-1	56	0	56	0	57	0
	R2-54	B	1	59	60	57	-2	57	0	57	0	57	0
	R2-55	B	1	61	62	59	-2	59	0	59	0	59	0
	R2-56	B	1	63	64	61	-2	61	0	61	0	61	0
	R2-57 (M2-04)	B	1	69	69	66	-3	66	0	66	0	66	0
	R2-58	B	1	65	66	64	-1	64	0	64	0	64	0
	R2-59	B	1	64	65	64	-1	64	0	64	0	64	0
	R2-60	B	1	61	61	59	-1	59	0	59	0	59	0
	R2-61	B	1	59	61	59	-1	58	0	58	0	59	0

Table 5. NSA 2
Preferred Alternative

NSA	Receiver ID	Land Use Activity Category	No. of Receptors	Existing Noise Level (2018)	Future Build (2045)								
					Future No-Build	Future Build No-Barrier		Case 1: 10' Barrier		Case 2: 12' Barrier		Case 3: Optimized Barrier	
					Noise Level dB(A)	Noise Level dB(A)	I.O.E dB	Noise Level dB(A)	Insertion Loss	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB
NSA 2	R2-62	B	1	56	57	56	0	55	1	55	1	56	0
	R2-63 (M2-03)	B	1	61	61	60	-1	60	0	60	0	60	0
	R2-64	B	1	58	60	58	-1	57	0	57	0	57	0
	R2-65	B	1	57	59	56	-1	56	0	56	0	56	0
	R2-66	C	1	61	63	61	0	61	0	61	0	61	0
	R2-96	B	1	64	64	63	-1	59	4	58	4	63	0
	R2-97	B	1	68	69	62	-6	62	0	62	0	62	0
FHWA TNM Results													
Number of Impacted Receptors						2							
Feasibility Evaluation													
Impacted Receptors receiving≥ 5 dB Insertion Loss (I.L.)									1		1		1
Percent of Impacted Receptors Receiving≥ 5 dB I.L.									50%		50%		50%
Is this percentage ≥ 50%?; If yes, barrier is feasible.									**Yes**		**Yes**		**Yes**
Reasonableness Evaluation													
Number of Non-impacted receptors receiving≥ 5 dB I.L. (Benefited Receptors)									0		0		0
Total Number of receptors receiving≥ 5 dB I.L. (Benefited Receptors)									1		1		1
Number of receptors receiving≥ 7 dB I.L. (Meeting NRDG)									0		1		1
Does at least one Benefited Receptor Receive≥ 7 dB I.L.?									**No**		**Yes**		**Yes**
Barrier Height (feet)											12	12.8	12 to 14
Barrier Length (feet)											986		384
Barrier square footage (SQft)											11835		4912
Barrier square footage per benefited receptor (SF/BR)											11835		4912
Is SF/BR ≤ 2,000?; If yes, barrier is reasonable											**No**		**No**
Average I.L. per Benefited Receptor (dB)											6		7

Impacted (66 dB(A) or 10 dB increase over existing)
Impacted Receivers receiving ≥ 5dB(A)
Non-Impacted Receivers receiving ≥ 5dB(A)

All noise levels are Leq(h) values and are A-weighted, expressed as dB(A)

With the exception of average insertion loss values, all noise levels were calculated to the tenth of a dB(A) and then rounded for presentation purposes.

Table 6. NSA 3
Preferred Alternative
Summary of Barrier Noise Analysis

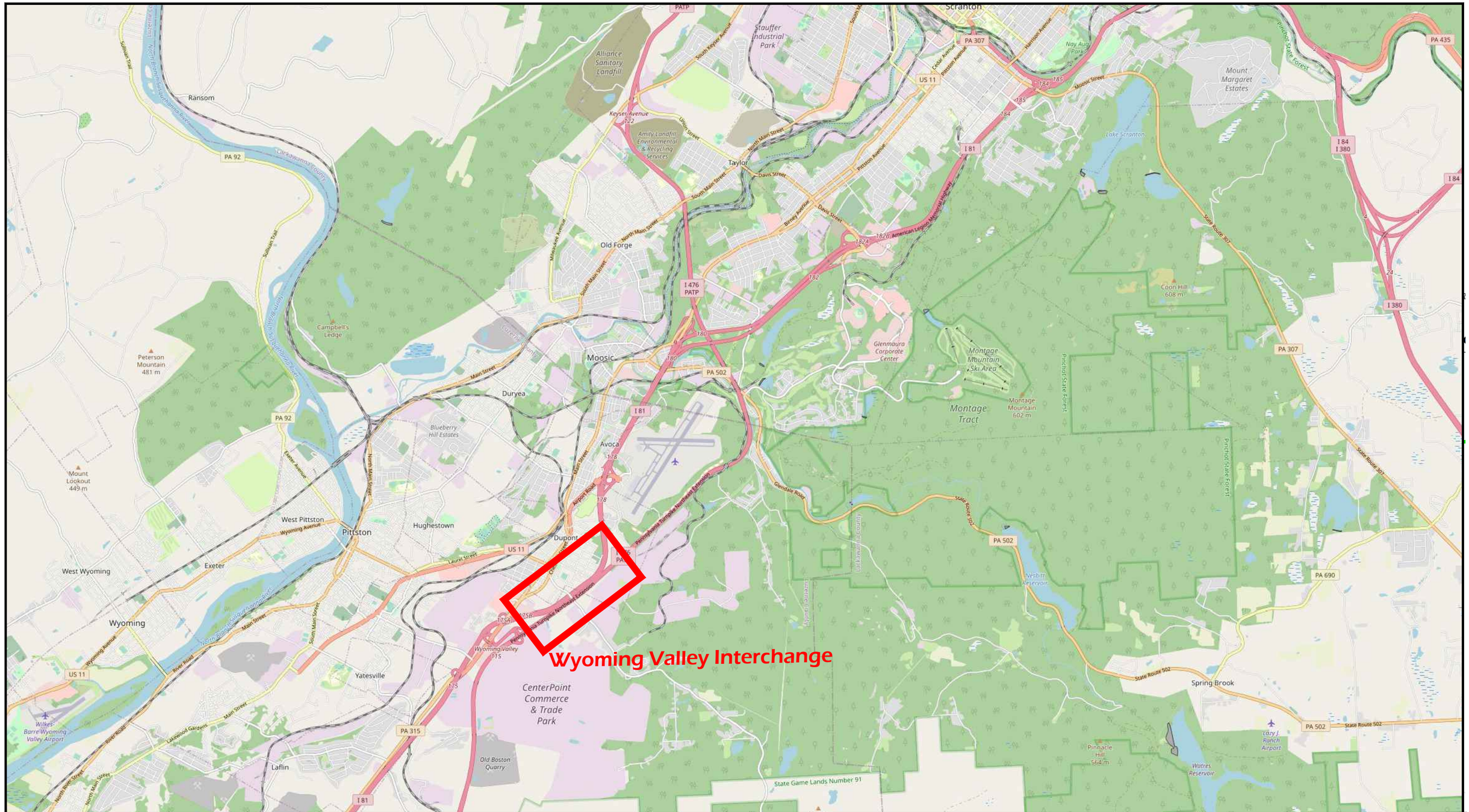
NSA	Receiver ID	Land Use Activity Category	No. of Receptors	Existing Noise Level (2018)	Future Build (2045)																	
					Future No-Build	Future Build No-Barrier		Case 1: 14' Barrier		Case 2: 16' Barrier		Case 3: 18' Barrier		Case 4: 20' Barrier		Case 5: 22' Barrier		Case 6: 24' Barrier		Case 7: 26' Barrier		Case 8: NSA3-Opt Barrier	
					Noise Level dB(A)	Noise Level dB(A)	I.O.E dB	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB	Noise Level dB(A)	Insertion Loss dB
NSA 3	R3-01	B	1	71	71	74	2	63	10	63	11	63	11	62	11	62	11	62	12	62	12	62	12
	R3-02	B	1	62	63	62	1	60	2	60	2	60	2	60	2	60	2	60	3	60	3	60	3
	R3-03	B	1	57	59	57	0	57	1	57	1	57	1	57	1	56	1	56	1	56	1	56	1
	R3-04 (M3-01)	B	1	55	56	55	0	54	1	54	1	54	1	54	1	54	1	54	1	54	1	54	1
	R3-05	B	1	50	51	51	1	50	0	50	0	50	1	50	1	50	1	50	1	50	1	50	1
	R3-06	B	1	52	53	53	1	52	1	52	1	52	1	52	1	52	2	51	2	51	2	51	2
	R3-07	B	1	57	58	58	1	55	2	55	3	55	3	55	3	55	3	55	3	55	3	56	2
	R3-08	B	1	55	56	56	1	54	2	54	2	54	2	54	2	54	2	54	3	54	3	55	1
	R3-09 (M3-03)	B	1	56	56	56	1	54	2	54	2	54	2	54	2	54	3	54	3	54	3	56	1
	R3-10	B	1	63	64	64	1	59	5	59	6	58	6	58	7	58	7	57	7	57	7	57	7
	R3-11 (M3-02)	B	1	57	58	58	1	55	3	55	3	55	3	54	4	54	4	53	5	53	5	58	0
	R3-12	B	1	58	58	59	1	55	4	55	4	55	4	55	4	55	4	54	5	54	5	58	1
	R3-13	B	1	60	60	61	1	59	2	59	3	58	3	58	3	58	3	58	3	58	3	61	0
	R3-14 (M3-05)	B	1	57	57	58	1	57	1	57	1	57	1	57	1	56	2	56	2	56	2	58	0
	R3-15	B	1	53	54	54	1	54	1	54	1	54	1	54	1	54	1	53	1	53	1	54	0
	R3-16 (M3-04)	B	1	53	53	54	1	54	1	53	1	53	1	53	1	53	1	53	1	53	1	54	0
	R3-17	B	1	54	54	55	1	54	1	54	1	54	1	54	1	54	1	54	1	54	1	55	0
	R3-18	B	1	53	54	54	1	53	1	53	1	53	1	53	1	53	1	53	2	53	2	54	0
	R3-19	B	1	58	58	59	1	59	0	59	0	59	1	59	1	59	1	59	1	59	1	59	0
	R3-20	B	1	60	60	61	1	61	0	61	0	61	0	61	0	61	0	61	0	61	0	61	0
	R3-21 (M3-06)	B	1	65	65	66	1	66	0	66	0	66	0	66	0	66	0	66	0	66	0	66	0
FHWA TNM Results																							
Number of Impacted Receptors						2																	
Feasibility Evaluation																							
Impacted Receptors receiving ≥ 5 dB Insertion Loss (I.L.)									1		1		1		1		1		1		1		1
Percent of Impacted Receptors Receiving ≥ 5 dB I.L.									50%		50%		50%		50%		50%		50%		50%		50%
Is this percentage ≥ 50%?; If yes, barrier is feasible.									**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**
Reasonableness Evaluation																							
Number of Non-impacted receptors receiving ≥ 5 dB I.L. (Benefited									1		1		1		1		1		3		3		1
Total Number of receptors receiving ≥ 5 dB I.L. (Benefited									2		2		2		2		2		4		4		2
Number of receptors receiving ≥ 7 dB I.L. (Meeting NRDG)									1		1		1		1		2		2		2		2
Does at least one Benefited Receptor Receive ≥ 7 dB I.L.?									**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**		**Yes**
Barrier Height (feet)									14		16		18		20		22		24		26		26
Barrier Length (feet)									1163		1163		1163		1163		1163		1163		1163		499
Barrier square footage (SQft)									16282		18608		20934		23260		25586		27912		30238		12974
Barrier square footage per benefited receptor (SF/BR)									8141		9304		10467		11630		12793		6978		7560		6487
Is SF/BR ≤ 2,000?; If yes, barrier is reasonable									**No**		**No**		**No**		**No**		**No**		**No**		**No**		**No**
Average I.L. per Benefited Receptor (dB)									8		8		9		9		9		7		7		9

Impacted (66 dB(A) or 10 dB increase over existing)
Impacted Receivers receiving ≥ 5dB(A)
Non-Impacted Receivers receiving ≥ 5dB(A)

All noise levels are Leq(h) values and are A-weighted, expressed as dB(A)

With the exception of average insertion loss values, all noise levels were calculated to the tenth of a dB(A) and then rounded for presentation purposes.

FIGURES



Project Area

Gannett Fleming

N

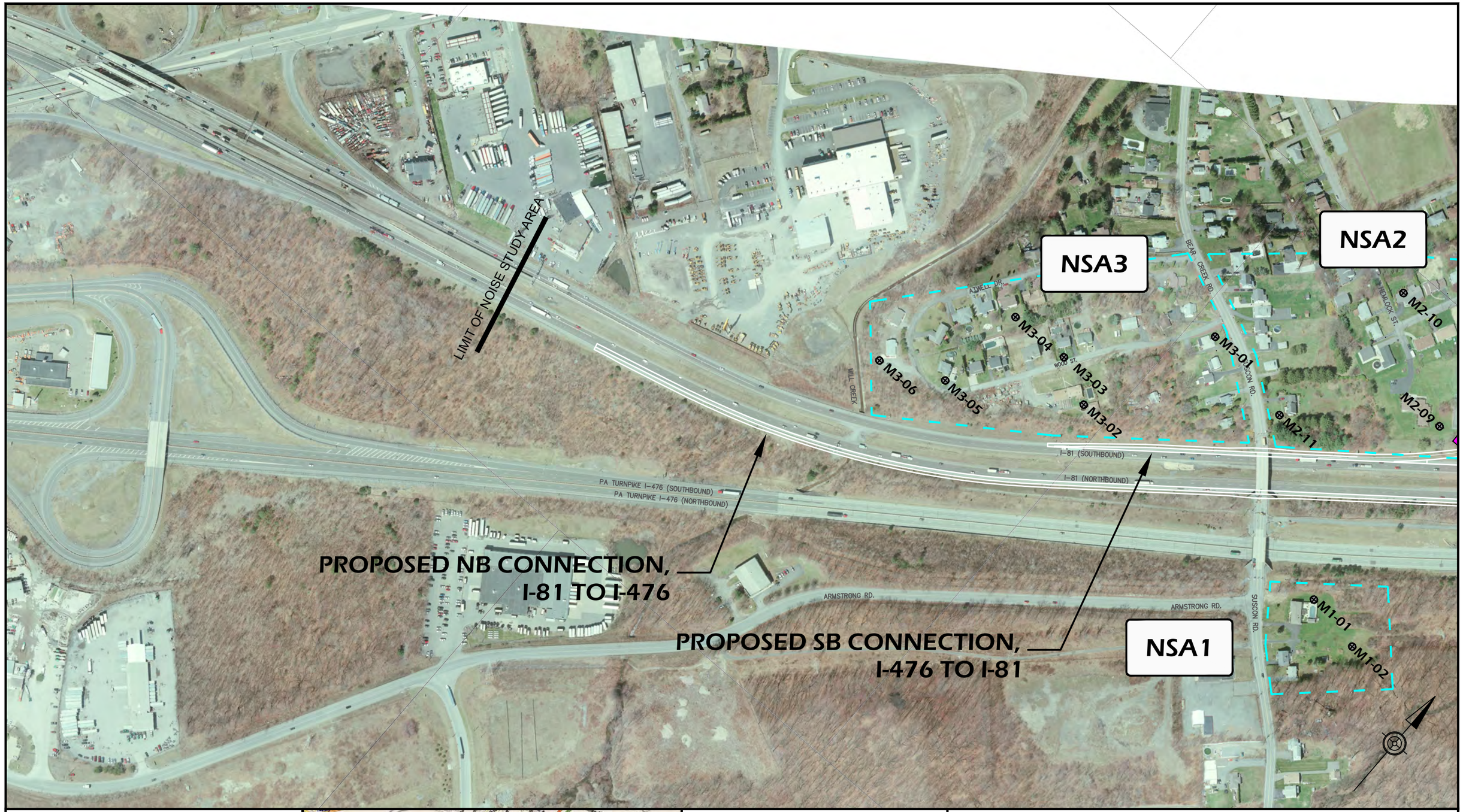
Scale (Feet)

2.5mi 1.25mi 0mi 2.5mi

PENNDOT & Pennsylvania Turnpike Commission
Scranton Beltway Project
Wyoming Valley Interchange Area (MP A-115 to MP A-116.5)
Interstate 81 and Interstate 476 - Luzerne County, PA

Figure 1 - Location Map

Revised 10/18/2021



Legend

- Measurement Site
- Long-term Measurement Site
- NSA Boundary

Scale (Feet)

300 150 0 300

PENNDOT & Pennsylvania Turnpike Commission
Scranton Beltway Project
Wyoming Valley Interchange Area (MP A-115 to MP A-116.5)
Interstate 81 and Interstate 476 - Luzerne County, PA

Figure 2.1 - Measurement Sites

Noise Analysis Sites

Revised 03/08/2022

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NSA3

NSA2

NSA2

NSA1

M3-01
M3-02
M3-03
M3-04
M3-05
M3-06
M2-04
M2-05
M02-03
M2-06
M2-07
M2-08
M2-09
M2-10
M2-11
M1-01
M1-02
L1
L2

PROPOSED NB CONNECTION,
I-81 TO I-476

PROPOSED SB CONNECTION,
I-476 TO I-81

BEAR CREEK RD.
SUSCON RD.
ARMSTRONG RD.
ATWELL DR.
MILL CREEK
WOOD ST.
ASH ST.
HEMLOCK ST.
FLORENCE ST.
HILLSIDE AVE.
ELM ST.
PENN AVE.
PINE ST.
OAK ST.
WYOMING AVE.
LACKAWANNA AVE.
EVERHART ST.
I-81 (SOUTHBOUND)
I-81 (NORTHBOUND)
PA TURNPIKE I-476 (SOUTHBOUND)
PA TURNPIKE I-476 (NORTHBOUND)

Legend
- Measurement Site
- Long-term Measurement Site
- NSA Boundary

Fig. 2.2

Scale (Feet)
300 150 0 300

PENNDOT & Pennsylvania Turnpike Commission
Scranton Beltway Project
Wyoming Valley Interchange Area (MP A-115 to MP A-116.5)
Interstate 81 and Interstate 476 - Luzerne County, PA

Figure 2.2 - Measurement Sites

Noise Analysis Sites
Revised 03/08/2022

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NSA2

M2-05

M2-07

M2-06

M2-04

L1

M02-03

PROPOSED SB CONNECTION,
I-476 TO I-81

PROPOSED NB CONNECTION,
I-81 TO I-476

LIMIT OF NOISE STUDY AREA

SPRUCE ST.

GILL ST.

EVERHART ST.

PINE ST.

PENN AVE.

HILLSIDE AVE.

WYOMING AVE.

LACKAWANNA AVE.

OAK ST.

ELM ST.

I-81 (SOUTHBOUND)

I-81 (NORTHBOUND)

NAVY WAY ROAD

PA TURNPIKE I-476 (SOUTHBOUND)

PA TURNPIKE I-476 (NORTHBOUND)

Legend

- Measurement Site
- Long-term Measurement Site
- NSA Boundary

Scale (Feet)

300 150 0 300

PENNDOT & Pennsylvania Turnpike Commission
Scranton Beltway Project
Wyoming Valley Interchange Area (MP A-115 to MP A-116.5)
Interstate 81 and Interstate 476 - Luzerne County, PA

Figure 2.3 - Measurement Sites

Noise Analysis Sites

Revised 03/08/2022

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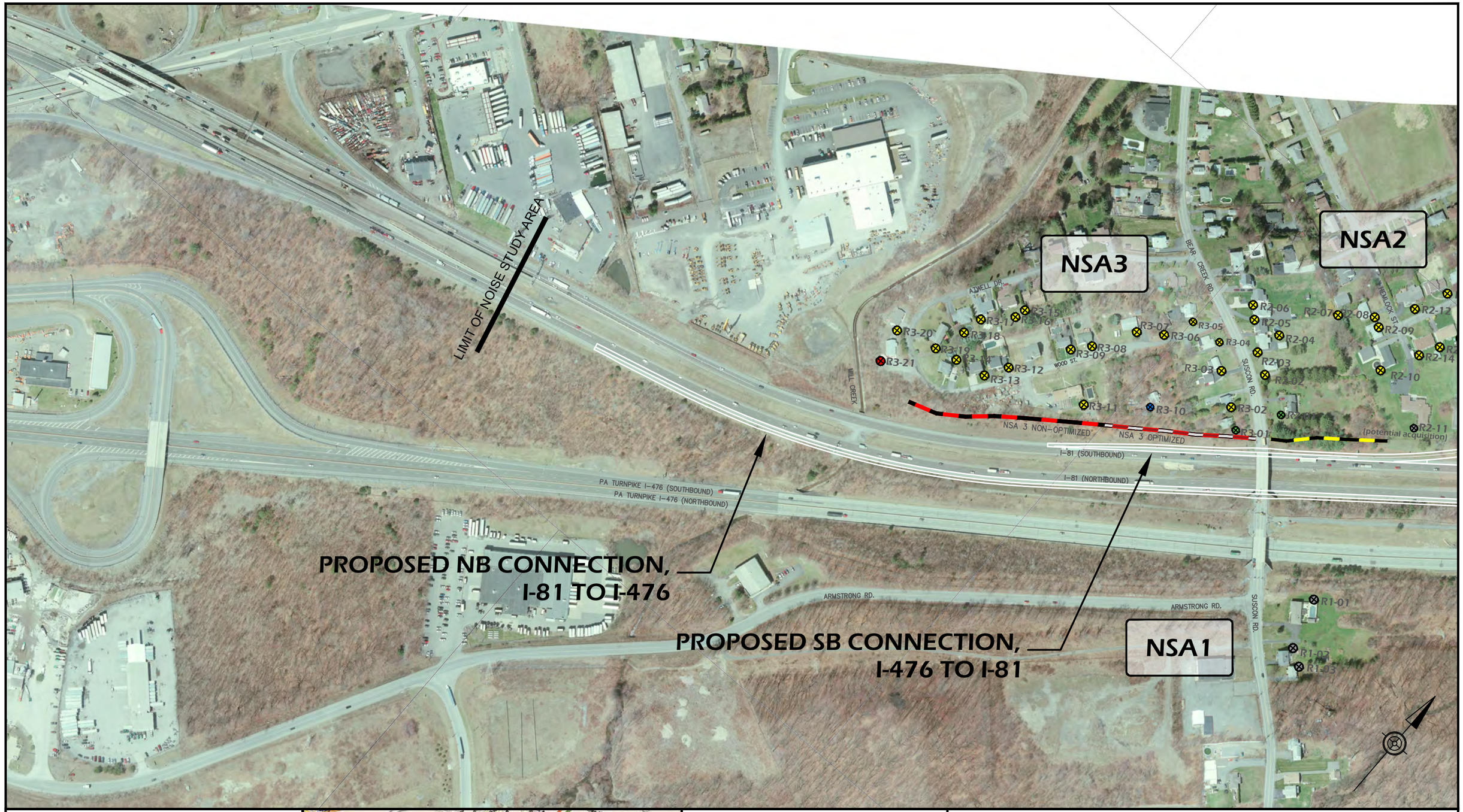

Modeled Receivers

- Impacted, Benefitted
- Impacted, Not Benefitted
- Not Impacted, Benefitted
- Not Impacted, Not Benefitted
- Not Analyzed
- Feasible and Reasonable Barrier
- Feasible and Not Reasonable Barrier
- Not Feasible Barrier

Scale (Feet)

300 150 0 300

PENNDOT & Pennsylvania Turnpike Commission
Scranton Beltway Project
Wyoming Valley Interchange Area (MP A-115 to MP A-116.5)
Interstate 81 and Interstate 476 - Luzerne County, PA

Figure 3.1 - Recommended Barrier

Noise Analysis Sites

Revised 08/31/2022

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NSA3

NSA2

NSA2

NSA1

PROPOSED NB CONNECTION,
I-81 TO I-476

PROPOSED SB CONNECTION,
I-476 TO I-81

NSA 3 NON-OPTIMIZED

NSA 3 OPTIMIZED

(potential acquisition)

(potential acquisition)

(potential acquisition)

I-81 (SOUTHBOUND)

I-81 (NORTHBOUND)

PA TURNPIKE I-476 (SOUTHBOUND)

PA TURNPIKE I-476 (NORTHBOUND)

BEAR CREEK RD.

SUSCON RD.

ARMSTRONG RD.

ASHLEY

PLYMOUTH

PINE ST.

OAK ST.

WYOMING AVE.

LACKAWANNA AVE.

EVERHART ST.

HILLSIDE AVE.

PENN AVE.

FLORENCE ST.

ELM ST.

HEMLOCK ST.

ASH ST.

WOOD ST.

ATWELL DR.

MILL CREEK

R3-01 R3-02 R3-03 R3-04 R3-05 R3-06 R3-07 R3-08 R3-09 R3-10 R3-11 R3-12 R3-13 R3-14 R3-15 R3-16 R3-17 R3-18 R3-19 R3-20 R3-21

R2-01 R2-02 R2-03 R2-04 R2-05 R2-06 R2-07 R2-08 R2-09 R2-10 R2-11 R2-12 R2-13 R2-14 R2-15 R2-16 R2-17 R2-18 R2-19 R2-20 R2-21 R2-22 R2-23 R2-24 R2-25 R2-26 R2-27 R2-28 R2-29 R2-30 R2-31 R2-32 R2-33 R2-34 R2-35 R2-36 R2-37 R2-38 R2-39 R2-40 R2-41 R2-42 R2-43 R2-44 R2-45 R2-46 R2-47 R2-48 R2-49 R2-50 R2-51 R2-52 R2-53 R2-54 R2-55 R2-56 R2-57 R2-58 R2-59 R2-60 R2-61 R2-62 R2-63 R2-64 R2-65 R2-66 R2-96 R2-97

R1-01 R1-02 R1-03

Modeled Receivers

- Impacted, Benefitted
- Impacted, Not Benefitted
- Not Impacted, Benefitted
- Not Impacted, Not Benefitted
- Not Analyzed
- Feasible and Reasonable Barrier
- Feasible and Not Reasonable Barrier
- Not Feasible Barrier

Fig. 3.2

Scale (Feet)

300 150 0 300

PENNDOT & Pennsylvania Turnpike Commission
Scranton Beltway Project
Wyoming Valley Interchange Area (MP A-115 to MP A-116.5)
Interstate 81 and Interstate 476 - Luzerne County, PA

Figure 3.2 - Recommended Barrier

Noise Analysis Sites

Revised 08/31/2022

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NSA2

PROPOSED SB CONNECTION,
I-476 TO I-81

PROPOSED NB CONNECTION,
I-81 TO I-476

LIMIT OF NOISE STUDY AREA

SPRUCE ST.
GILL ST.
EVERHART ST.
PINE ST.
HILLSIDE AVE
PENN AVE
LACKAWANNA AVE
WYOMING AVE
OAK ST.
ELM ST
I-81 (SOUTHBOUND)
I-81 (NORTHBOUND)
NAVY WAY ROAD
PA TURNPIKE I-476 (SOUTHBOUND)
PA TURNPIKE I-476 (NORTHBOUND)

R2-29 (potential acquisition)

Modeled Receivers

- Impacted, Benefitted
- Impacted, Not Benefitted
- Not Impacted, Benefitted
- Not Impacted, Not Benefitted
- Not Analyzed
- Feasible and Reasonable Barrier
- Feasible and Not Reasonable Barrier
- Not Feasible Barrier

Scale (Feet)
300 150 0 300

PENNDOT & Pennsylvania Turnpike Commission
Scranton Beltway Project
Wyoming Valley Interchange Area (MP A-115 to MP A-116.5)
Interstate 81 and Interstate 476 - Luzerne County, PA

Figure 3.3 - Recommended Barrier

Noise Analysis Sites
Revised 08/31/2022

Gannett Fleming

Appendix A

Highway Noise Monitoring Sheet

DATE: 6/3/2019

PROJECT:

JOB #

SITE ID M1-1

Gannett Fleming, Inc.

ADDRESS: 593 Suscon Rd

Meter Storage # Lxt. Data. 030

TYPE ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other

Measurement Data

Photograph #'s

SLM NO. 5790 SLM Calibration before 94.02 after 93.71 GPS PT

Weather: temperature 67 wind speed 4mph / 8mph Gust cloud cover Sunny / No Cover

Time:	1st	start 6:45	stop 7:05	total 20 min					
	2nd	start	stop	total					
Data:	1st	Leq 64.3	Lmax 78.2	Lmin 56.6	SEL				
	2nd	Leq	Lmax	Lmin	SEL				

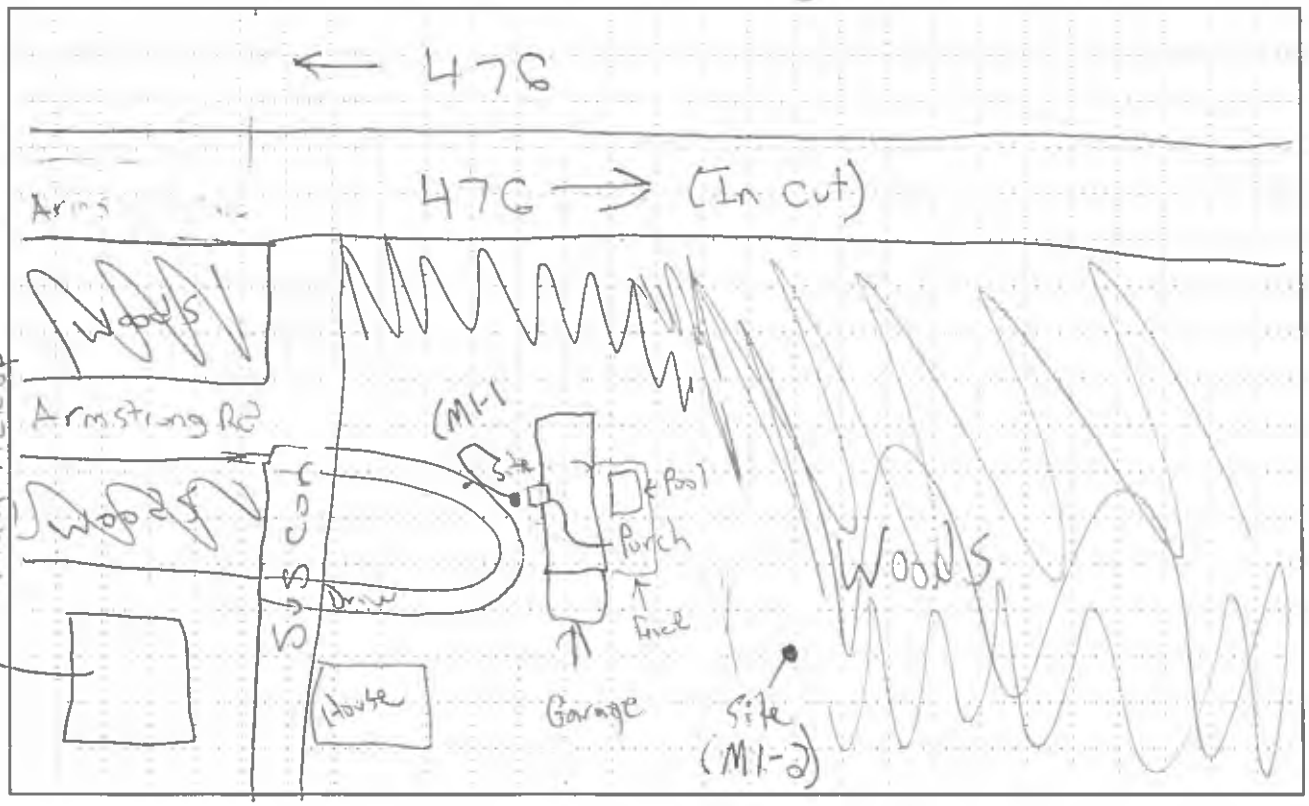
Traffic Data

Roadway#1	See Suscon Traffic		Roadway#2	Armstrong		Roadway#3	I-81		Roadway#4	476	
Direction	SB	NB	Direction			Direction	SB	NB	Direction	SB	NB
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	36	49	auto	15		auto	380	351	auto	31	43
med. trk.	3	1	med. trk.	1		med. trk.	17	9	med. trk.	2	0
hvy trk.	6	1	hvy trk.	7		hvy trk.	108	63	hvy trk.	13	13
bus	0	1	bus			bus	0	6	bus	0	0
motorcycle	0	1	motorcycle			motorcycle	5	1	motorcycle	0	0

Semi #1 Auto #1 1

NOTES: 7:01 Airtraffic, Some additional Armstrong traffic from Suscon Rd, Resident talking in distance for duration but Suscon & Semi traffic to Armstrong was dominant

SITE SKETCH



Resident said building was recently bought by UPS. Semi traffic may pickup

Highway Noise Monitoring Sheet

DATE: 6/3/2019

PROJECT: _____

JOB #: _____

SITE ID: M1-2

Gannett Fleming, Inc.

ADDRESS: 611 Suscon

Meter Storage #: Lxt .Data .031

TYPE: [X] Residential [ ] Commercial [ ] Religion [ ] Educational [ ] Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.02 after 93.71 GPS PT _____

Weather: temperature 67 wind speed 2mph/4mph gust cloud cover Sunny / No Cover

Time:	1st	start	7:10	stop	7:30	total	20 min			
	2nd	start		stop		total				
Data:	1st	Leq	59.1	Lmax	66.8	Lmin	55.5	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

Traffic Data

Roadway#1	I-83		Roadway#2	Suscon		Roadway#3	476		Roadway#4	Suscon	
Direction	SB	NB	Direction	SB	NB	Direction	SB	NB	Direction	— Both —	
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	364	383	auto	40	48	auto	32	42	auto	87	
med. trk.	9	6	med. trk.	2	1	med. trk.	1	0	med. trk.	1	
hvy trk.	80	75	hvy trk.	5		hvy trk.	17	10	hvy trk.	5	
bus	0	0	bus	0		bus	0	0	bus	2	
motorcycle	0	0	motorcycle	0		motorcycle	0	0	motorcycle	0	

NOTES: Traffic from Suscon (Semis) & 476/81 Dominant noise source. Resident mentioned although M1-1 & M2-1 are residential land uses they were re-zoned to commercial Property. Also mentioned Mostly Day time air traffic not much at night

SITE SKETCH

See Site Sketch M1-1

Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT: _____

JOB #: _____

SITE ID: M2-1

Gannett Fleming, Inc.

ADDRESS: Sacred heart Cemetery Dupont PA 18641

Meter Storage #: Lxt. Data, 033

TYPE ☐ Residential ☐ Commercial ☒ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 93.98 after 94.12 GPS PT _____

Weather: temperature 60 wind speed 0 mph cloud cover Sunny / No cover

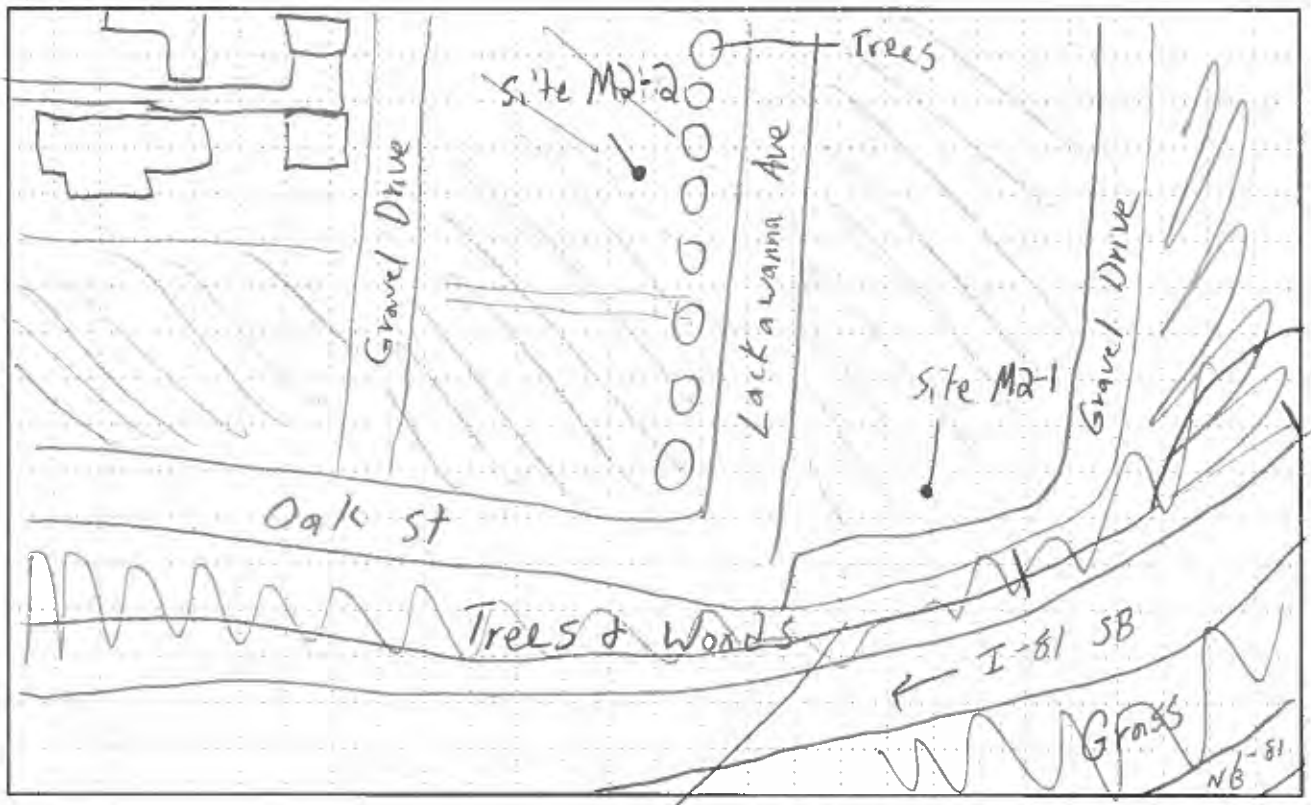
Time:	1st	start 8:57	stop 9:17	total 20 mins					
	2nd	start	stop	total					
Data:	1st	Leq 67.1	Lmax 81.1	Lmin 57.9	SEL				
	2nd	Leq	Lmax	Lmin	SEL				

Traffic Data

Roadway#1	I-81		Roadway#2	476		Roadway#3			Roadway#4		
Direction	SB	NB	Direction	SB	NB	Direction			Direction		
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	475	458	auto	52	35	auto			auto		
med. trk.	33	36	med. trk.	3	3	med. trk.			med. trk.		
hvy trk.	121	81	hvy trk.	20	22	hvy trk.			hvy trk.		
bus	4	1	bus	0	0	bus			bus		
motorcycle	1	7	motorcycle	0	5	motorcycle			motorcycle		

NOTES: 8:57 Aircraft flyover, 9:00 Aircraft flyover, 9:05 Aircraft flyover
I-81 Dominant noise source unless flyover occurs. No Traffic on Lackawanna Ave

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT:

JOB #

SITE ID M2-2

Gannett Fleming, Inc.

ADDRESS: Sacred Heart Cemetery
Dupont PA 18641

Meter Storage # Ext Data 034

TYPE ☐ Residential ☐ Commercial ☒ Religion ☐ Educational ☐ Other

Measurement Data

Photograph #'s

SLM NO. 5790 SLM Calibration before 93.98 after 94.12 GPS PT

Weather: temperature 60 wind speed 0 mph cloud cover Sunny/No cover

Time:	1st	start	9:29	stop	9:49	total	20 mins			
	2nd	start		stop		total				
Data:	1st	Leq	59.3	Lmax	64.5	Lmin	54.6	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

Traffic Data

15 mph

	Roadway#1 Lackawanna Ave		Roadway#2 I-81		Roadway#3 476		Roadway#4	
	Direction		Direction SB NB		Direction SB NB		Direction	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd
auto	2		481	445	57	36		
med. trk.			27	22	4	1		
hvy trk.			112	89	21	17		
bus			2	3	0	0		
motorcycle			0	2	0	0		

11

NOTES: I-81 Dominant Noise Source, Prop Plane 9:44, Birds chirping
Aircraft flyover 9:48/9:49.

SITE SKETCH

See site sketch for M2-1

Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT:

JOB #

SITE ID M2-3

Gannett Fleming, Inc.

ADDRESS: Sacred Heart Cemetery Dupont PA 18641

Meter Storage # Lxt Data.035

TYPE ☐ Residential ☐ Commercial ☒ Religion ☐ Educational ☐ Other

Measurement Data

Photograph #'s

SLM NO. 5790 SLM Calibration before 93.98 after 94.12 GPS PT

Weather: temperature 64 wind speed 1mph cloud cover Sunny / Spotty Cover / Some Clouds

Time:	1st	start	10:14	stop	10:34	total	20 mins			
	2nd	start		stop		total				
Data:	1st	Leq	58.2	Lmax	73.2	Lmin	51.9	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

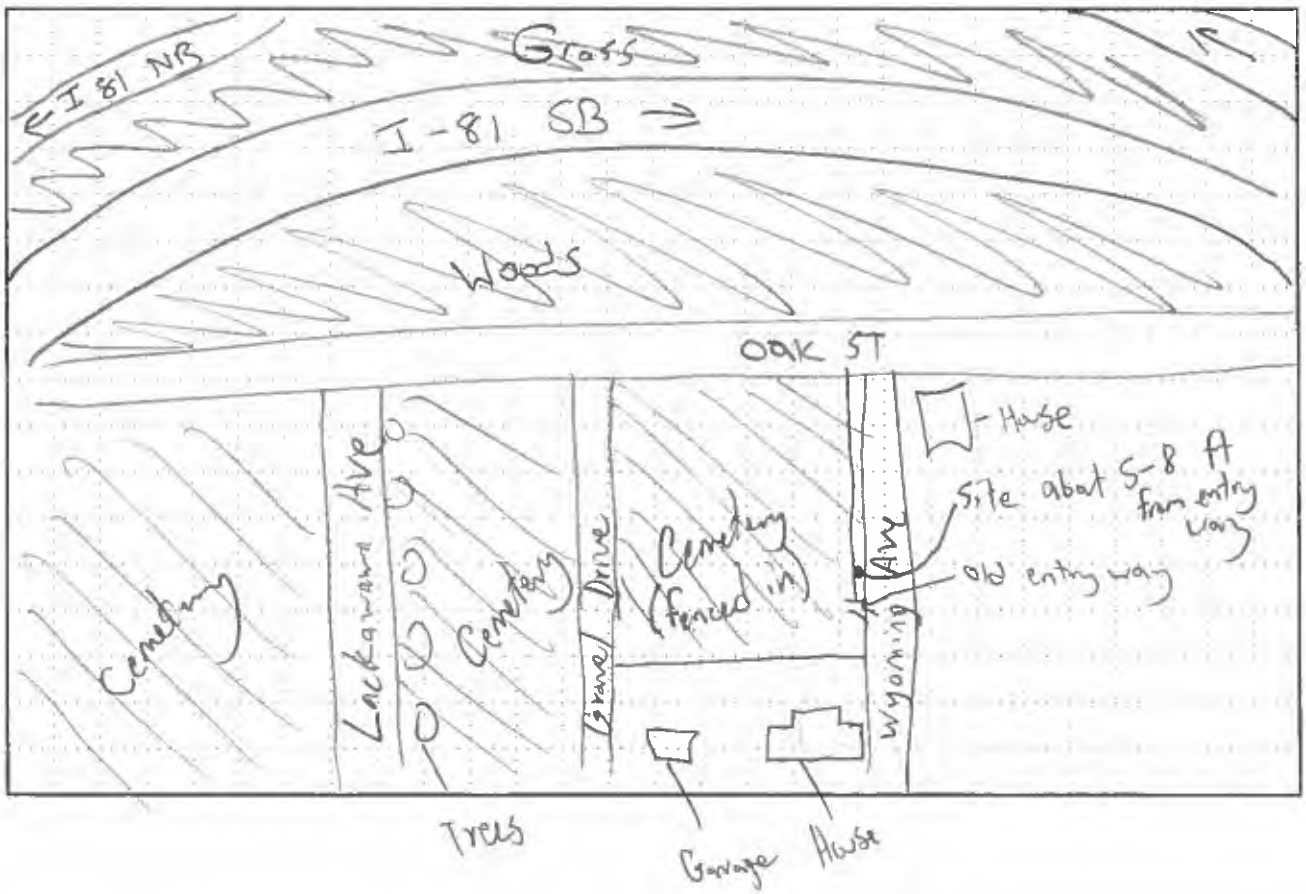
Traffic Data

	Roadway#1 Oak		Roadway#2 Wyoming		Roadway#3 I-81		Roadway#4 476	
	Direction		Direction		Direction SB NB		Direction SB NB	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd
auto	2		0		428	409	67	34
med. trk.					22	18	3	1
hvy trk.					137	81	25	22
bus					5	0	0	0
motorcycle					2	1	0	0

~~15~~ 11 mph

NOTES: 10:14 Air craft Flyover, 10:22 Cemetery Car, I-81 Dominant noise source. 10:25 neighbor slams door.

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT: _____

JOB #: _____

SITE ID: M2-4

Gannett Fleming, Inc.

ADDRESS: 606 Penn Ave/Oak St

_____

_____

Meter Storage # Lxt. Data. 036

TYPE ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 93.98 after 94.12 GPS PT _____

Weather: temperature 65 wind speed 2 mph / 5 mph Gust cloud cover Sunny / Clouds in sky But mostly sunny

Time:	1st	start	10:50	stop	11:10	total	20 mins			
	2nd	start		stop	11:21	total				
Data:	1st	Leq	69.7	Lmax	81.4	Lmin	57.6	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

To get extra Data

Went till 11:21 to get extra Data since neighbor Idle & talked the whole time

Traffic Data

15 mph

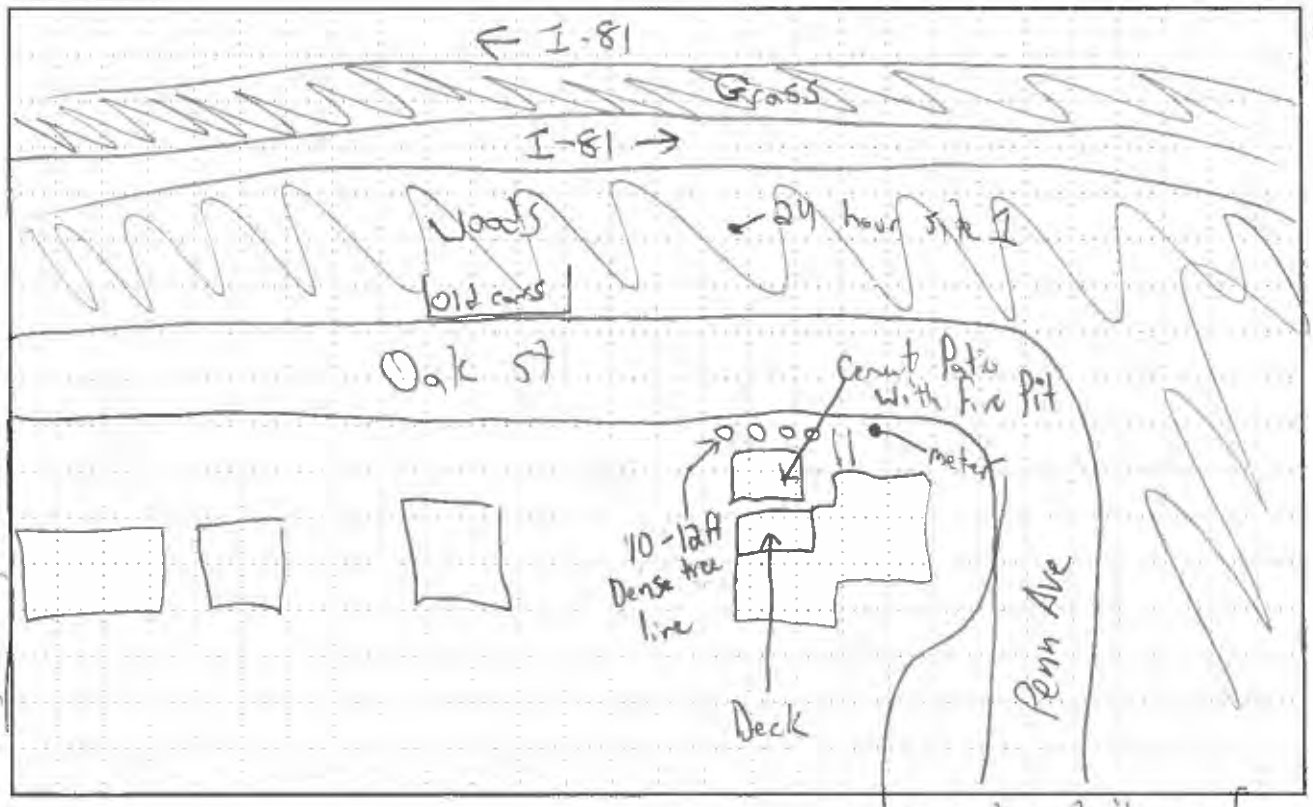
Roadway#1	Penn / Oak St		Roadway#2	I-81		Roadway#3	476		Roadway#4		
Direction			Direction	SB	NB	Direction	SB	NB	Direction		
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	10		auto	431	387	auto	51	41	auto		
med. trk.			med. trk.	19	27	med. trk.	1	1	med. trk.		
hvy trk.			hvy trk.	128	88	hvy trk.	24	22	hvy trk.		
bus			bus	1	0	bus	0	0	bus		
motorcycle			motorcycle	0	5	motorcycle	0	0	motorcycle		

5 cars had this Scenario

NOTES: 10:53 Car pulling trailer, 10:54 Air Craft flyover 11:18 aircraft flyover
10:56 neighbor slams car door, 10:59 neighbor messing with car
10:59-11:11 Strip out neighbor Idled for 10 mins complaining & telling

Where measurement should go

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT: _____

JOB #: _____

SITE ID: M2-5

Gannett Fleming, Inc.

ADDRESS: 513 Penn Ave

Meter Storage # Lxt. data. 044

TYPE ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.0 after 94.02 GPS PT _____

Weather: temperature 71 wind speed 2-4 mph (8mph) gust cloud cover Sunny / No cover.

Time:	1st	start	4:13	stop	4:33	total	20 min		
	2nd	start		stop		total			
Data:	1st	Leq	60.5	Lmax	68.4	Lmin	53.3	SEL	
	2nd	Leq		Lmax		Lmin		SEL	

Traffic Data

count from 4:06 - 4:26 due to file corruption

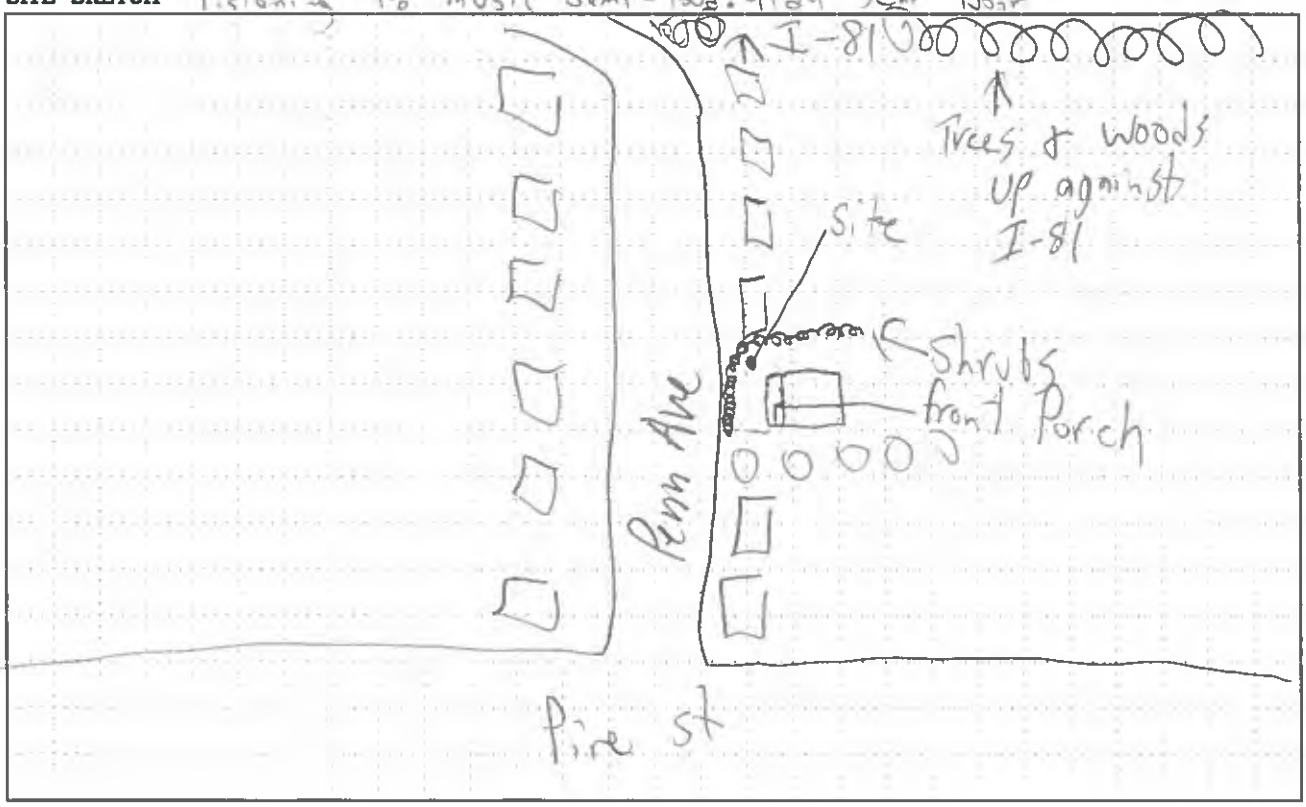
25 mph

	Roadway#1 Penn Av		Roadway#2 I-81		Roadway#3 476		Roadway#4	
	Direction		Direction SB NB		Direction SB NB		Direction	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd
auto			654	748	66	142		
med. trk.			29	29	0	1		
hvy trk.			92	92	26	23		
bus			1	0	0	0		
motorcycle			1	5	0	1		

11

NOTES: Birds chirping. 81 pretty loud. Start of measurement may have picked up phone ring. 4:19 car Doors / Start. Wind chimes in background. Dog Barking in distance & Doors closing. Person Walking on street listening to music Semi-loud. 4:24 Car Door

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT: _____

JOB #: _____

SITE ID: M2-6

Gannett Fleming, Inc.

ADDRESS: 310 Elm St

Meter Storage # Lxt data 043

TYPE ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.0 after 94.02 GPS PT _____

Weather: temperature 70 wind speed 2-5 mph / 8 mph Gust cloud cover Sunny / Clear

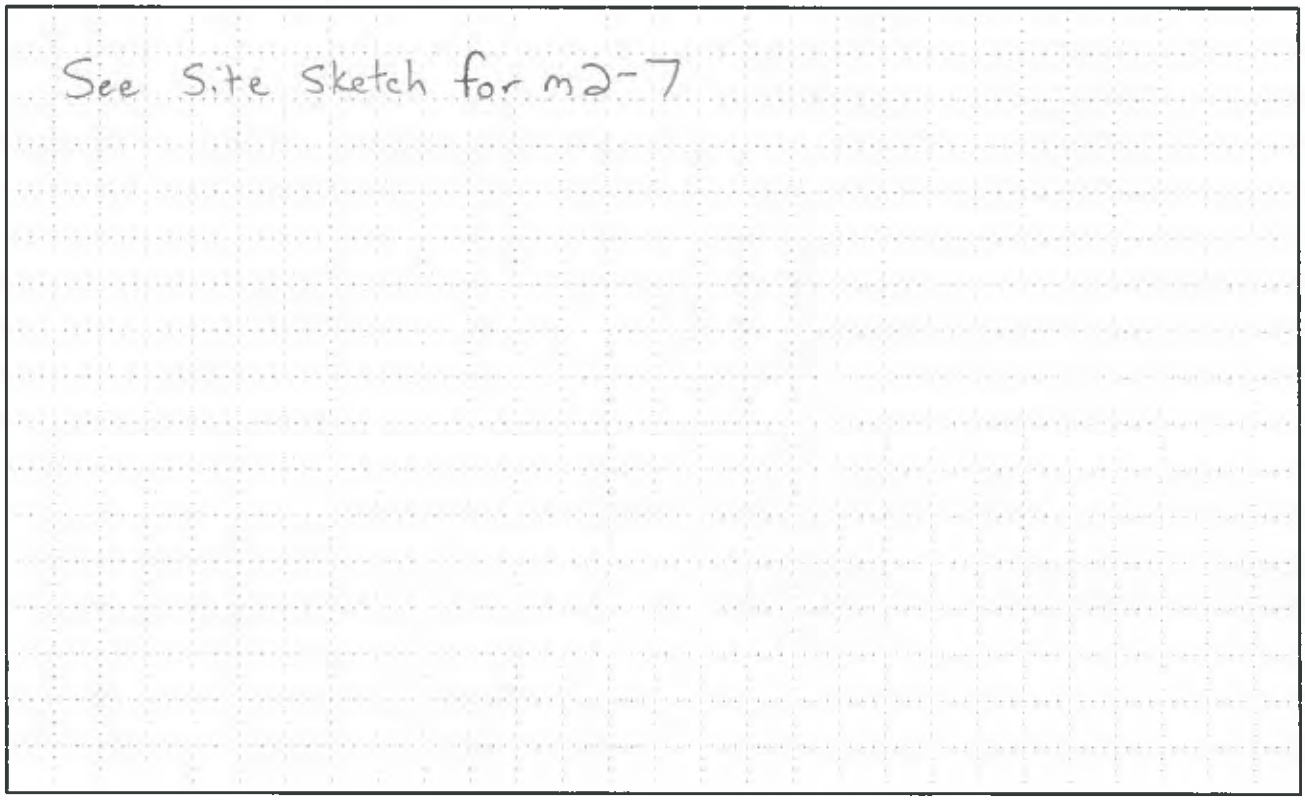
Time:	1st	start 3:43	stop 4:03	total 20 mins					
	2nd	start	stop	total					
Data:	1st	Leq 69.6	Lmax 81.2	Lmin 59.4	SEL				
	2nd	Leq	Lmax	Lmin	SEL				

Traffic Data

Roadway#1	I-81		Roadway#2	Suscon		Roadway#3	476		Roadway#4		
Direction	SB	NB	Direction	Both -		Direction	SB	NB	Direction		
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	628	725	auto	131		auto	75	100	auto		
med. trk.	31	28	med. trk.	9		med. trk.	4	2	med. trk.		
hvy trk.	97	96	hvy trk.	6		hvy trk.	10	17	hvy trk.		
bus	1	5	bus	1		bus	0	1	bus		
motorcycle	0	2	motorcycle	1		motorcycle	0	1	motorcycle		

NOTES: Car Door Slam & Screechy breaks in Dupont tool Parking lot @ 3:52 - 3:53. I-81 really loud. Grade of I-81 sits about at height of road

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT: _____

JOB #: _____

SITE ID: M2-7

Gannett Fleming, Inc.

ADDRESS: 300 Elm st

Meter Storage #: Lxt. data, 041

TYPE: ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.0 after 94.02 GPS PT _____

Weather: temperature 70 wind speed 2-5 mph / 8mph Gust cloud cover Sunny / Clear

Time:	1st	start 2:40	stop 3:00	total 20 mins					
	2nd	start _____	stop _____	total _____	3:06				
Data:	1st	Leq 61.9	Lmax 72.4	Lmin 55.0	SEL _____				
	2nd	Leq _____	Lmax _____	Lmin _____	SEL _____				

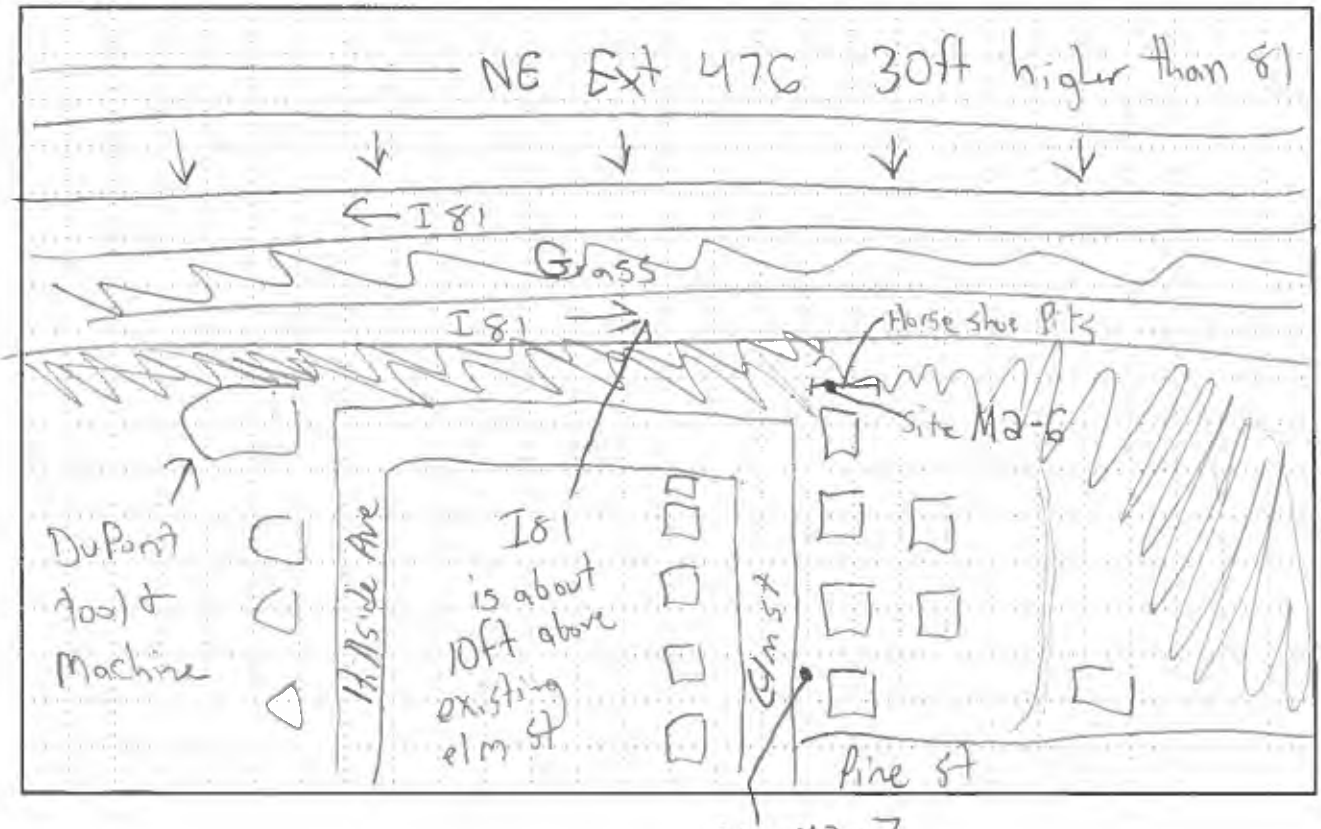
Traffic Data

15 mph

Roadway#1 Elm St			Roadway#2 I-81			Roadway#3 Sussex			Roadway#4 476		
Direction			Direction	SB	NB	Direction	SB	NB	Direction	SB	NB
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto			auto	596	650	auto	62	45	auto	64	77
med. trk.	1		med. trk.	25	32	med. trk.	6	0	med. trk.	2	5
hvy trk.			hvy trk.	126	109	hvy trk.	5	3	hvy trk.	9	25
bus			bus	2	3	bus	1	1	bus	0	0
motorcycle			motorcycle	1	1	motorcycle	0	0	motorcycle	0	0

NOTES: UPS truck at start of measurement 2:41 - 2:46 strip out. Resident asking questions & Train horn. Measure additional 6 mins for supplemental Data may not need if UPS truck was not on meter. 3:04 Plane fly over

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT: _____

JOB # _____

SITE ID M2-8

Gannett Fleming, Inc.

ADDRESS: 101 Florence St

_____

_____

Meter Storage # Lxt.data.042

TYPE ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.0 after 94.02 GPS PT _____

No Traffic

Weather: temperature 70 wind speed 0mph / 3mph Gust cloud cover Sunny / Few clouds

Time: 1st start 2:09 stop 2:29 total 20 mins

2nd start 3:12 stop 3:32 total 20 mins

use second readings

Data: 1st Leq _____ Lmax _____ Lmin _____ SEL _____

2nd Leq 60.3 Lmax 69.6 Lmin 53.7 SEL _____

Disregard from scrapped Measurement

Traffic Data

15 mph

Roadway#1	Florence	
Direction		
	1st	2nd
auto		
med. trk.		
hvy trk.		
bus		
motorcycle		

Roadway#2	I-81	
Direction	SB	NB
	1st	2nd
auto	668	677
med. trk.	21	38
hvy trk.	111	97
bus	3	1
motorcycle	0	1

Roadway#3	Suscon	
Direction	BOTH	
	1st	2nd
auto	97	
med. trk.	7	
hvy trk.	5	
bus	0	
motorcycle	0	

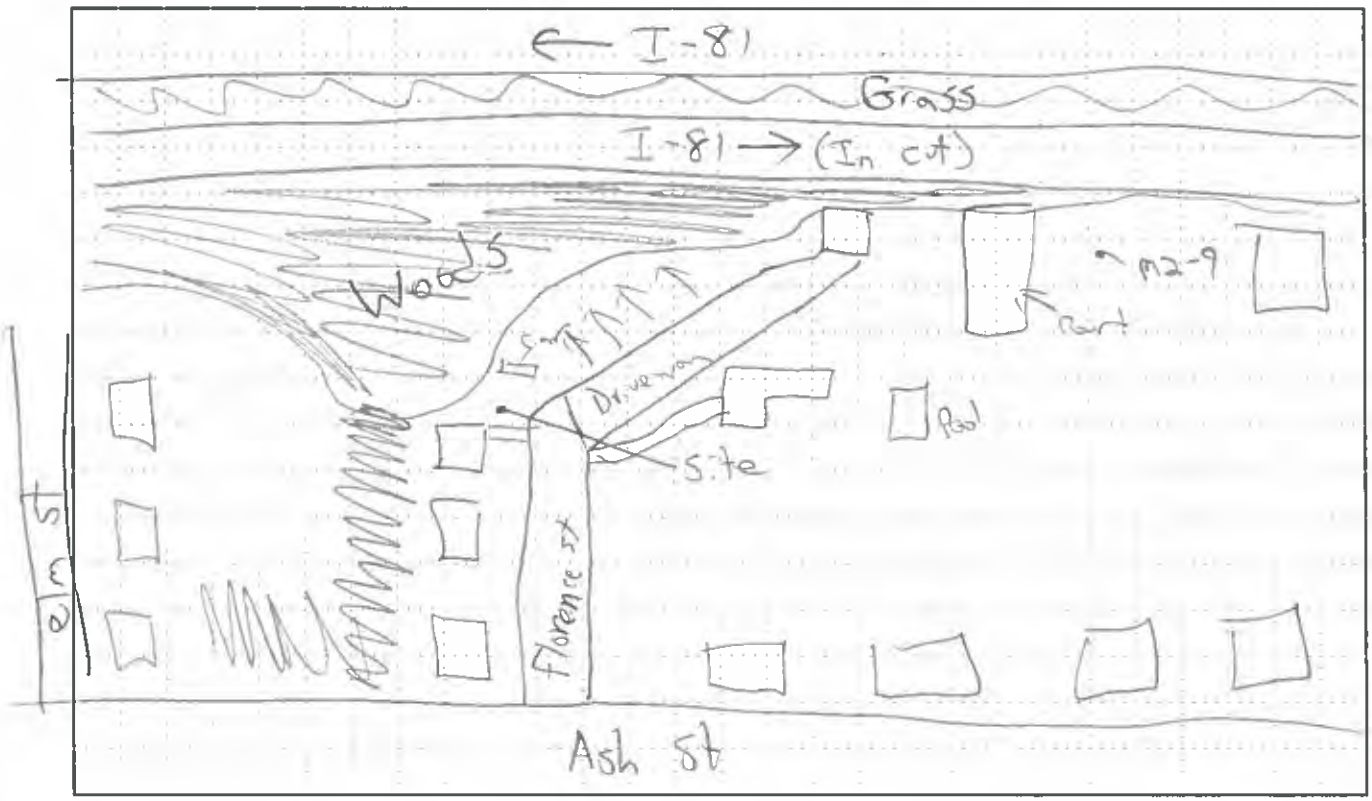
Roadway#4	476	
Direction	SB	NB
	1st	2nd
auto	72	106
med. trk.	5	3
hvy trk.	17	18
bus	0	0
motorcycle	0	0

NOTES: ~~2:13 Car door & Car start~~ / 81 dominant noise source

I-81 in cut in this section. ~~2:25 air craft flyover. 2:26 Car door~~ (2 time

3:12 Resident Slam Door. 3:31 Aircraft noise off in distance

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT: _____

JOB #: _____

SITE ID: M2-9

Gannett Fleming, Inc.

ADDRESS: No Address

Meter Storage #: Lxt. Data, 037

TYPE: ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 93.98 after 94.12 GPS PT _____

Weather: temperature 73 wind speed 0/3 mph gust cloud cover Sunny / No Cover

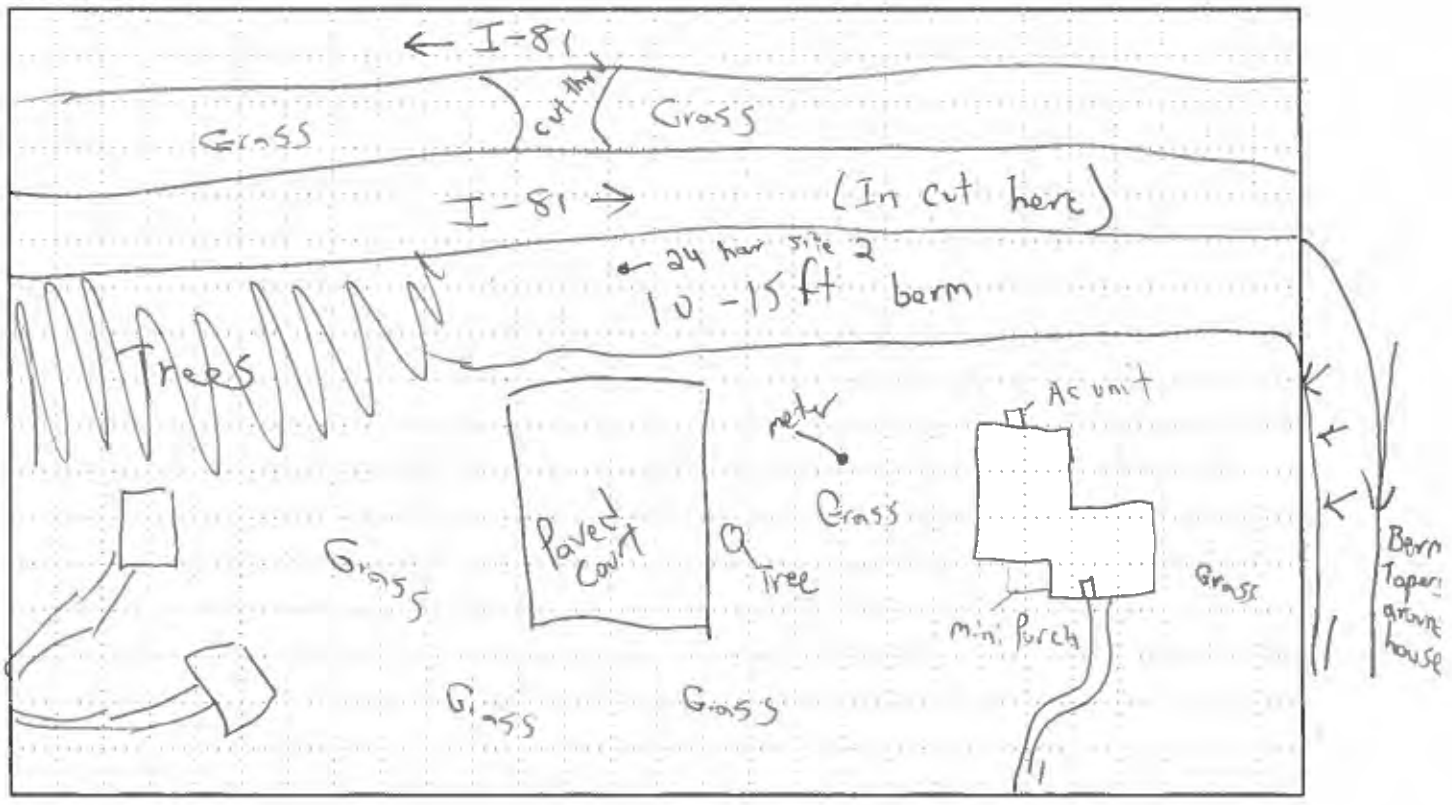
Time:	1st	start	11:34	stop	11:54	total	20 min			
	2nd	start		stop		total				
Data:	1st	Leq	65.1	Lmax	80.3	Lmin	55.4	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

Traffic Data

Roadway#1	I-81		Roadway#2	Sussex		Roadway#3	476		Roadway#4		
Direction	SB	NB	Direction	BOTH		Direction	SB	NB	Direction		
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	490	449	auto	38		auto	57	56	auto		
med. trk.	29	33	med. trk.	3		med. trk.	1	2	med. trk.		
hvy trk.	105	99	hvy trk.	2		hvy trk.	17	20	hvy trk.		
bus	2	2	bus	0		bus	0	0	bus		
motorcycle	2	2	motorcycle	0		motorcycle	0	0	motorcycle		

NOTES: 11:34 Prop flare, I-81 main noise source. Can see traffic over by tree area & can see tops 1/4 of semi-over berm
11:52 Aircraft flyover. Some birds chirping here and there.

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/4/2019

PROJECT: _____

JOB #: _____

SITE ID: MD-10

Gannett Fleming, Inc.

ADDRESS: No Address

Meter Storage # Ext. Data. 038

TYPE: [X] Residential [ ] Commercial [ ] Religion [ ] Educational [ ] Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 93.98 after 94.12 GPS PT _____

Weather: temperature 73 wind speed 1 mph / 3 mph gust cloud cover _____

Time:	1st	start	12:04	stop	12:24	total	20 min			
	2nd	start		stop		total				
Data:	1st	Leq	53.9	Lmax	71.3	Lmin	45.8	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

Traffic Data

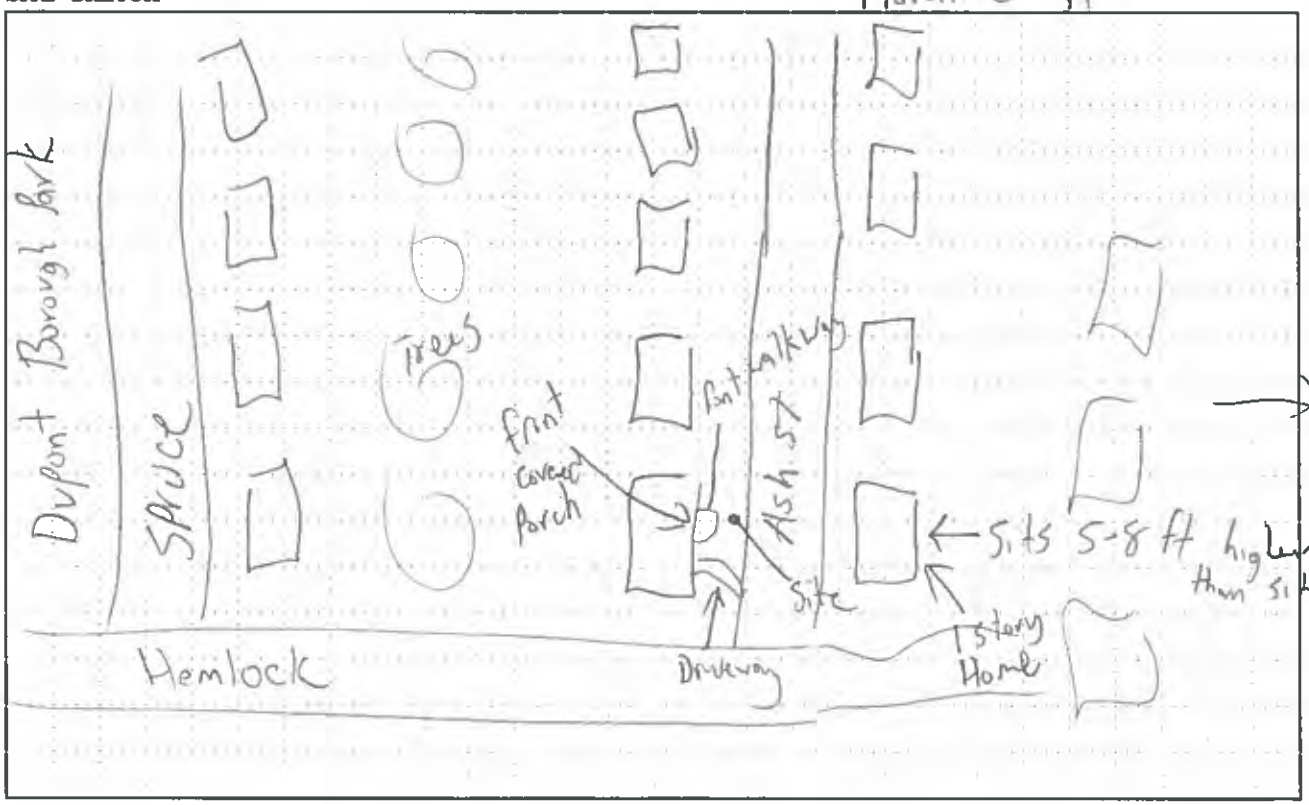
15 mph

	Roadway#1 Ash St		Roadway#2 Hemlock St		Roadway#3 I-81		Roadway#4 476	
	Direction		Direction Sus→		Direction SB	NB	Direction S-B	N B
	1st	2nd	1st	2nd	1st	2nd	1st	2nd
auto	2		1	131	450	480	54	53
med. trk.				2	16	23	2	6
hvy trk.				5	122	142	16	31
bus				0	2	0	0	0
motorcycle				0	1	6	3	0

11

NOTES: Can hear I-81 off in distance. Overall pretty quiet. Some birds. 12:17 car door close, 12:20 Plane off in Distance / also owner slammed trunk of car

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/3/2019

PROJECT: _____

JOB #: _____

SITE ID: M2-11

Gannett Fleming, Inc.

ADDRESS: 585 Suscon Rd

_____

_____

Meter Storage # Lxt. Data. 029

TYPE ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.02 after 93.71 GPS PT _____

Weather: temperature 68 wind speed 3mph/7 mph gust cloud cover Sunny/Clear/No cover

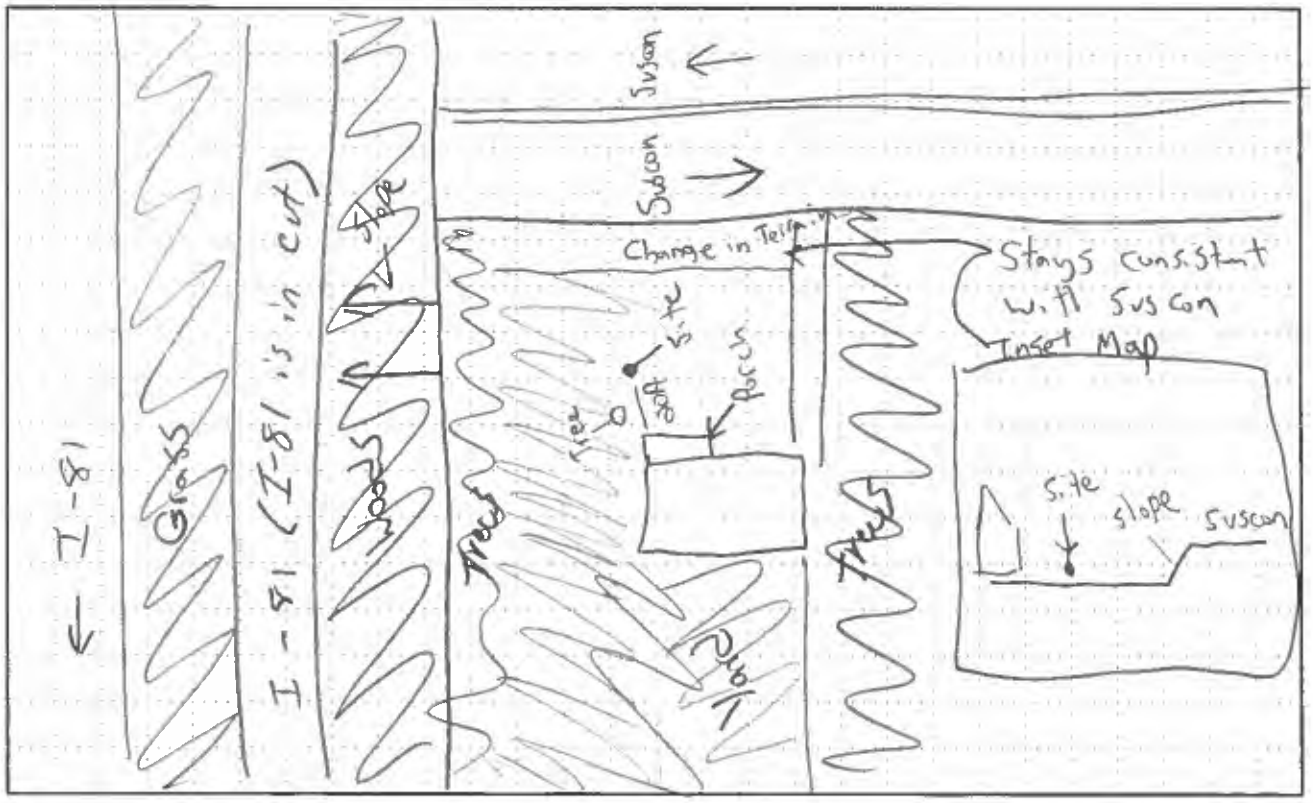
Time:	1st	start	6:09	stop	6:29	total	20 mins			
	2nd	start		stop		total				
Data:	1st	Leq	63.8	Lmax	74.0	Lmin	55.0	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

Traffic Data

Roadway#1	See Suscon Traffic		Roadway#2	I-81		Roadway#3	Suscon		Roadway#4	476	
Direction	BOTH		Direction	SB	NB	Direction	SB	NB	Direction	SB	NB
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	816		auto	501	499	auto	45	48	auto	70	59
med. trk.	3	1	med. trk.	14	16	med. trk.	3	1	med. trk.	6	2
hvy trk.	4		hvy trk.	100	88	hvy trk.	3		hvy trk.	17	17
bus	0		bus	3	1	bus	0		bus	1	1
motorcycle	0		motorcycle	3	2	motorcycle	0		motorcycle	0	0

NOTES: Resident says its very loud. Jake brakes are extremely loud

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/3/2019

PROJECT: _____

JOB #: _____

SITE ID: M3-1

Gannett Fleming, Inc.

ADDRESS: 544 Suscon Rd

_____

_____

Meter Storage #: Lxt.data.028

TYPE: ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.02 after 93.71 GPS PT _____

Weather: temperature 68 wind speed 5mph / 8mph Gust cloud cover No Cover / Sunny

Time:	1st	start	5:36	stop	5:56	total	20 min		
	2nd	start		stop		total			
Data:	1st	Leq	65.4	Lmax	80.1	Lmin	52.1	SEL	
	2nd	Leq		Lmax		Lmin		SEL	

as high as 11 mph but not consistent with that gust speed

Traffic Data

Roadway#1 Suscon	1st	2nd
Direction	SB	NB
auto	69	100
med. trk.	5	1
hvy trk.	2	0
bus	0	0
motorcycle	0	0

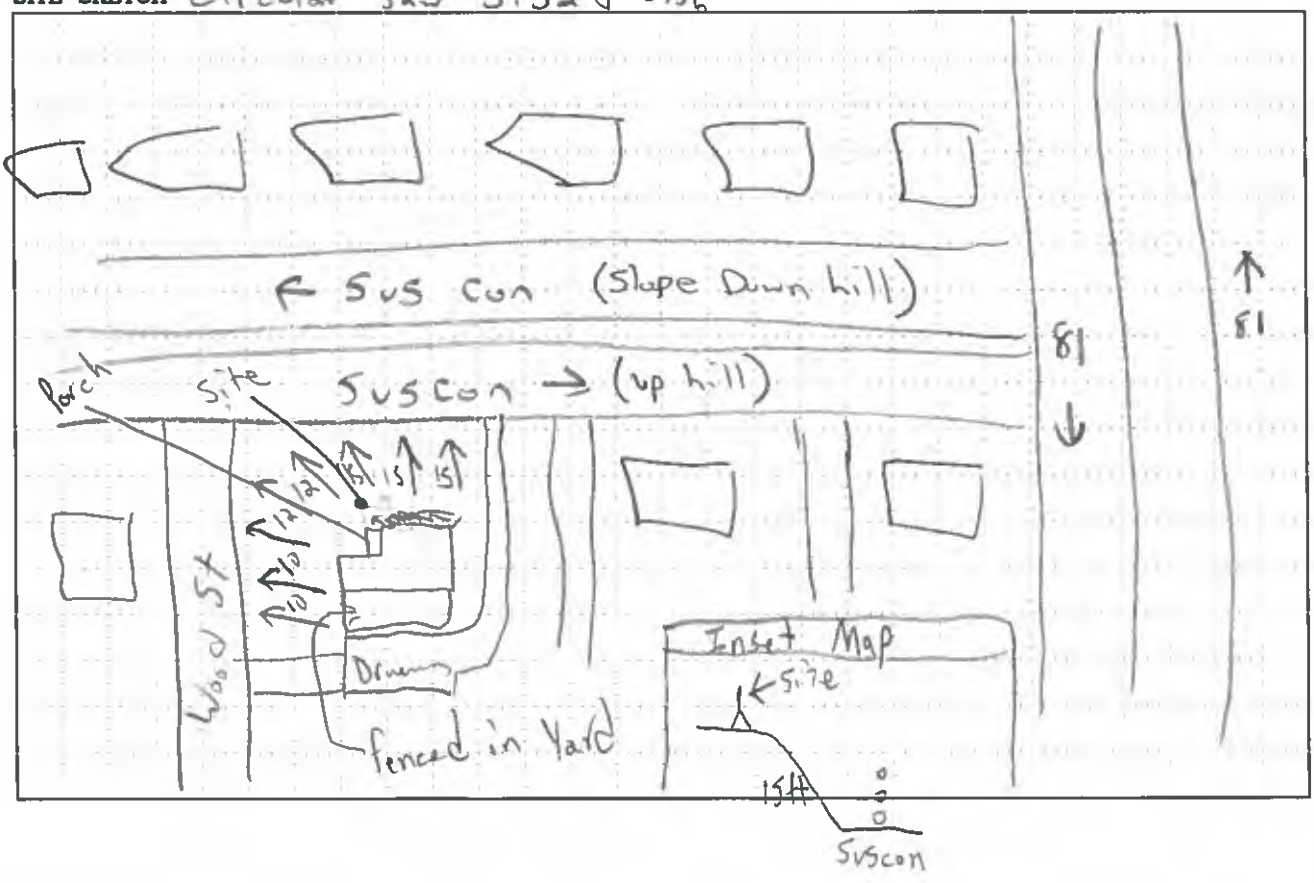
Roadway#2 I-81	1st	2nd
Direction	SB	NB
auto	649	649
med. trk.	16	22
hvy trk.	110	83
bus	0	0
motorcycle	1	2

Roadway#3 Suscon	1st	2nd
Direction	Both —	
auto	170	
med. trk.	4	
hvy trk.	3	
bus	0	
motorcycle	0	

Roadway#4 476	1st	2nd
Direction	SB	NB
auto	63	81
med. trk.	2	3
hvy trk.	17	17
bus	0	0
motorcycle	0	0

NOTES: Mostly noise from Suscon Rd, Residents on opposite side of road getting new roof but nothing substantial enough to rule over Suscon Site sits approx 15-20 ft higher than Suscon. Really random gusts as high as 11 mph

SITE SKETCH Circular saw 5:52 & 5:56



Highway Noise Monitoring Sheet

DATE: 6/3/2019

PROJECT: _____

JOB #: _____

SITE ID: M3-2

Gannett Fleming, Inc.

ADDRESS: No Address on house or mailbox

Meter Storage #: Lxt.data.026

TYPE: ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.02 after 93.71 GPS PT _____

Weather: temperature 58 wind speed 2/5 mph Gust cloud cover Sunny / ☒ No cover

Time:	1st	start	4:18	stop	4:38	total	20 mins			
	2nd	start		stop		total				
Data:	1st	Leq	60.5	Lmax	67.9	Lmin	54.6	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

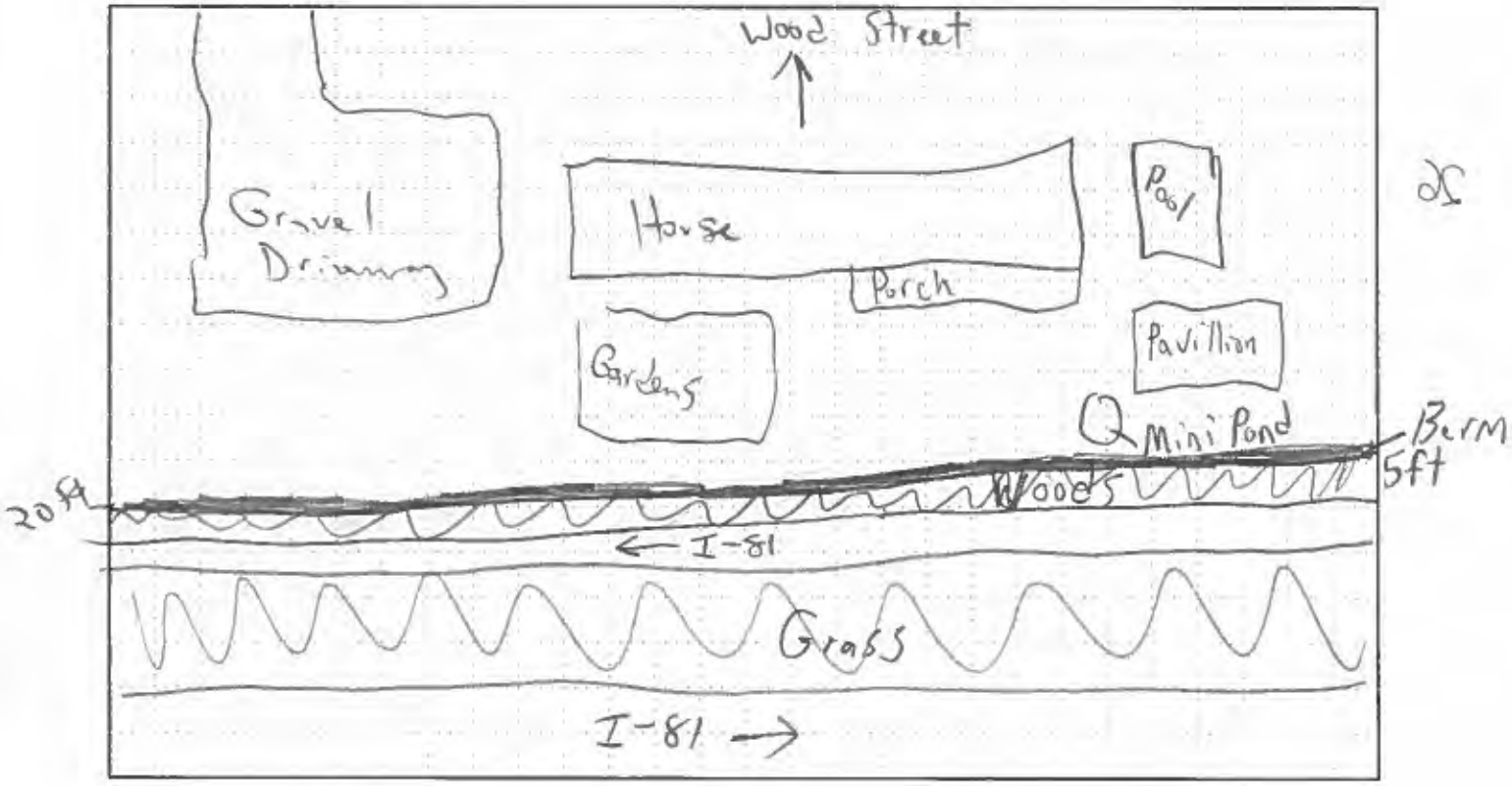
Traffic Data

	Roadway#1 Wood St		Roadway#2 I-81		Roadway#3 476		Roadway#4 Susc on
	Direction		Direction SB	NB	Direction SB	NB	Direction SB	NB
	1st	2nd	1st	2nd	1st	2nd	1st	2nd
auto			782	805	65	96	70	90
med. trk.			22	22	5	2	4	1
hvy trk.			91	72	16	23	3	1
bus			2	1	0	0	0	0
motorcycle			1	3	0	0	0	1

Can't see from back yard No counts

NOTES: Increase in berm height is gradual from 5-20ft. Can hear I-81. Can't hear any traffic on Wood. Sits approx 10ft-12ft higher than wood st

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/3/2019

PROJECT: _____

JOB #: _____

SITE ID: M3-3

Gannett Fleming, Inc.

ADDRESS: 14 Wood Street
Dupont PA 18641

Meter Storage #: Lxt. Data.024

TYPE: ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.02 after 93.71 GPS PT _____

Weather: temperature 68 wind speed 2/5mph Gust cloud cover Sunny No cover

Time:	1st	start	3:43	stop	4:03	total	20 mins	→ Ran longer to get supplemental Data in case Data needs to be stripped Ran till 4:08		
	2nd	start		stop		total				
Data:	1st	Leq	57.3	Lmax	71.4	Lmin	51.8	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

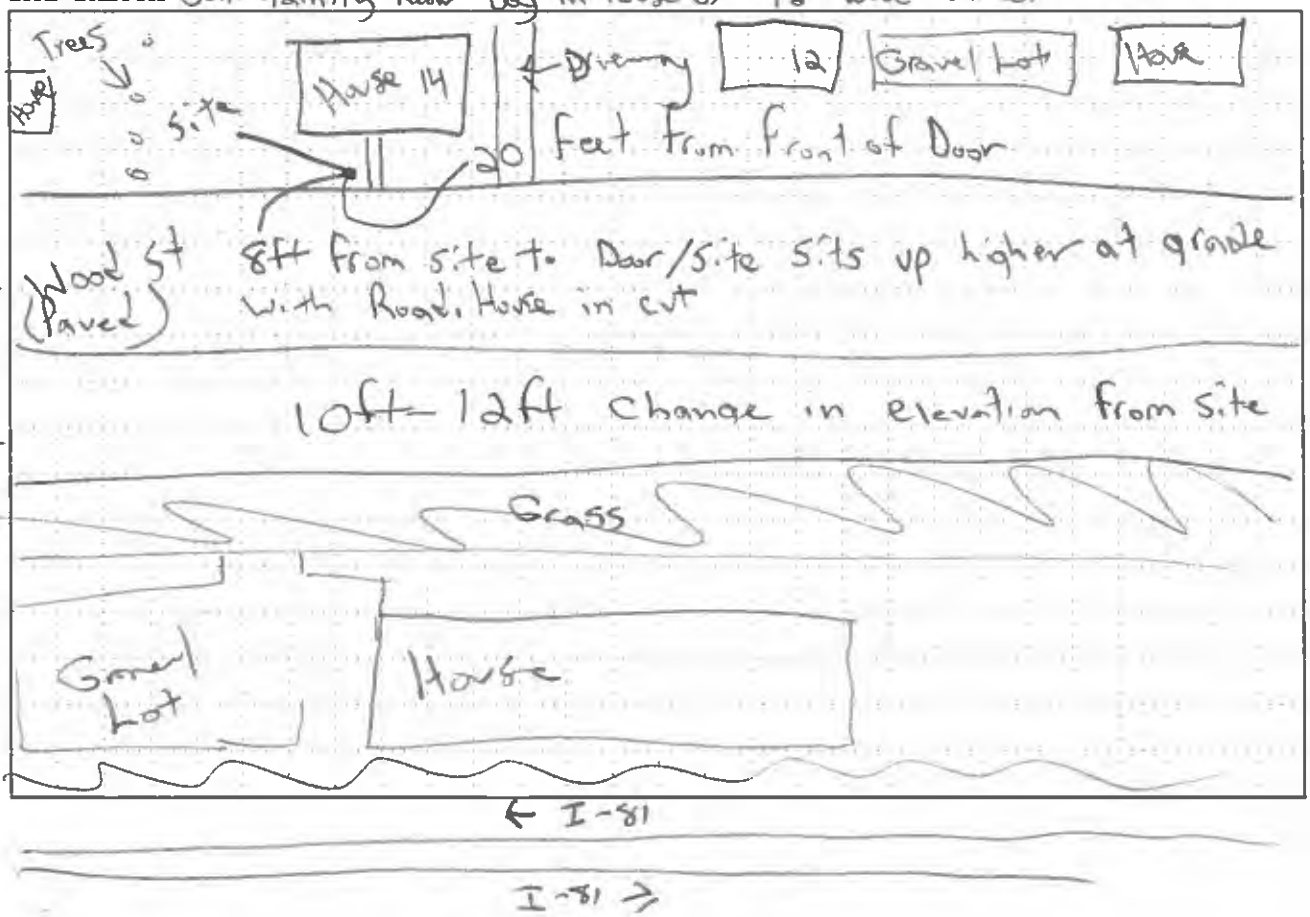
Traffic Data

Roadway#1	Wood St		Roadway#2	I-81		Roadway#3	Suscon		Roadway#4	476	
Direction			Direction	SB	NB	Direction	BOTH		Direction	SB	NB
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	2		auto	726	787	auto	144		auto	74	102
med. trk.			med. trk.	26	22	med. trk.	2		med. trk.	7	4
hvy trk.			hvy trk.	116	94	hvy trk.	3		hvy trk.	15	18
bus			bus	3	1	bus	1		bus	1	0
motorcycle			motorcycle	2	9	motorcycle	2		motorcycle	0	0

Car was right at end of supplemental Data, subtract if Data is not needed

NOTES: 2 Concerned residents approached @ 3:43/3:46. Random kids in Distance. Siren in distance at 3:48. Siren 3:50-3:52. Neighbor kid blew car horn at 3:52. Kids talking in street 3:53. Aircraft Flyover 3:54

SITE SKETCH Can faintly hear Dog in house of 12 Wood Street



Highway Noise Monitoring Sheet

DATE: 8/3/2019

PROJECT: _____

JOB #: _____

SITE ID: M3-4

Gannett Fleming, Inc.

ADDRESS: 19 Atwell Dr

Meter Storage #: Ext. data. 027

TYPE: ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.02 after 93.71 GPS PT _____

Weather: temperature _____ wind speed 1.5 cloud cover Sunny / No Cover

Time:	1st	start	4:53	stop	5:13	total	20 mins	Ran till 5:18 to get supplemental Data to replace Data from Dog barking
	2nd	start		stop		total		
Data:	1st	Leq	60.2	Lmax	80.7	Lmin	48.7	SEL
	2nd	Leq		Lmax		Lmin		SEL

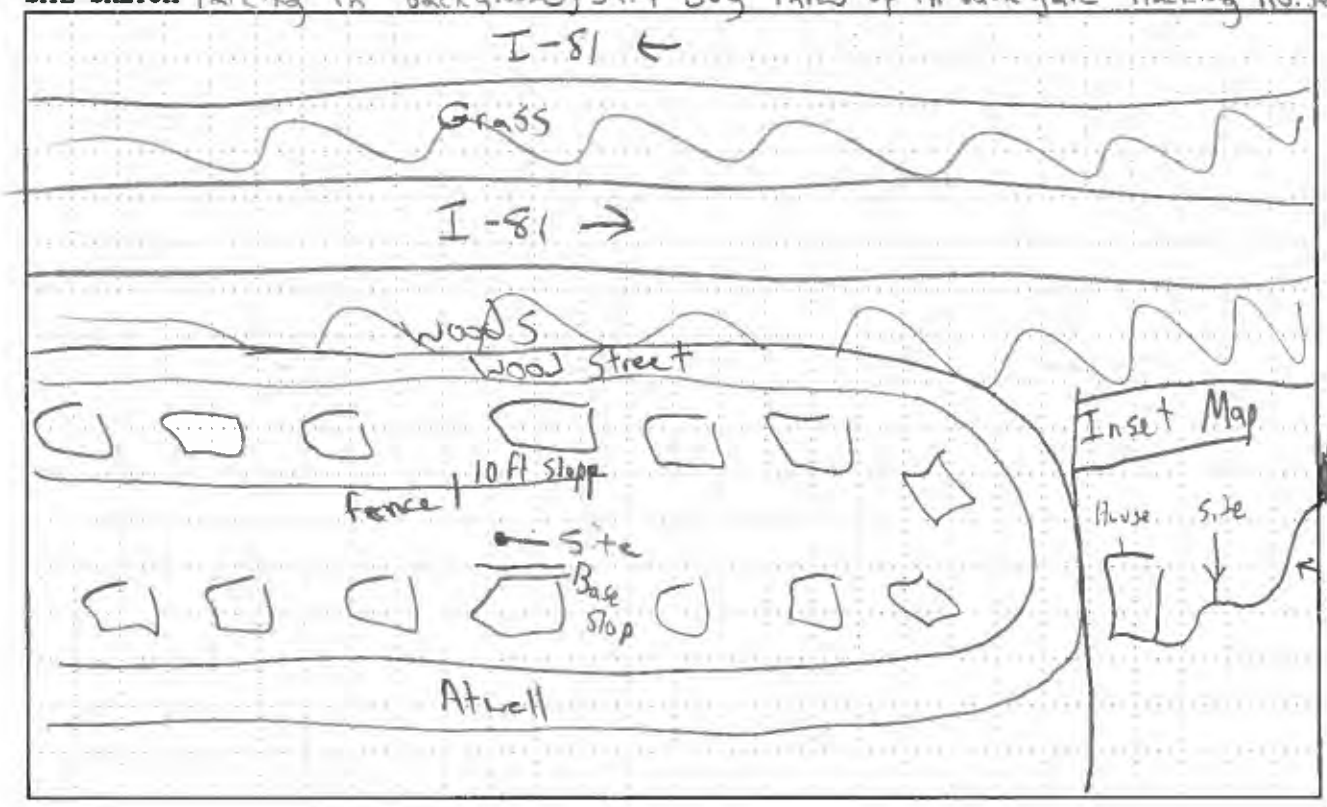
Traffic Data

Roadway#1	Atwell		Roadway#2	I-81		Roadway#3	Sussex		Roadway#4	476	
Direction			Direction	SB	NB	Direction	Both		Direction	SB	NB
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto			auto	823	801	auto	139		auto	64	157
med. trk.			med. trk.	18	24	med. trk.	6		med. trk.	2	1
hvy trk.	1		hvy trk.	113	94	hvy trk.	6		hvy trk.	19	19
bus			bus	3	5	bus	0		bus	0	0
motorcycle			motorcycle	3	3	motorcycle	1		motorcycle	1	0

Can't See from back yard

NOTES: Can hear I-81 off in Distance especially heavy trucks. Neighbor playing drums inside. Dog 4:54 / 4:55. Resident Sneeze 4:57 5:02 Sen. on Atwell. Air craft flyover 5:05, 5:07 Dog, 5:12 Residents talking in background, 5:14 Dog throw up in back yard Hacking noises

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/3/2019

PROJECT: _____

JOB #: _____

SITE ID: M3-5

Gannett Fleming, Inc.

ADDRESS: 31 Wood Street
Dupont PA 18641

Meter Storage #: Lxt. Data. 022

TYPE: ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other _____

Measurement Data

Photograph #'s _____

SLM NO. 5790 SLM Calibration before 94.02 after 93.71 GPS PT _____

Weather: temperature 66 wind speed 15 mph Gust cloud cover Sunny / No Cover

Time:	1st	start	3:11	stop	3:31	total	20 min			
	2nd	start		stop		total				
Data:	1st	Leq	60.5	Lmax	67.1	Lmin	54.6	SEL		
	2nd	Leq		Lmax		Lmin		SEL		

Traffic Data

Roadway#1 Wood St.	1st	2nd
Direction		
auto	1	
med. trk.		
hvy trk.		
bus		
motorcycle		

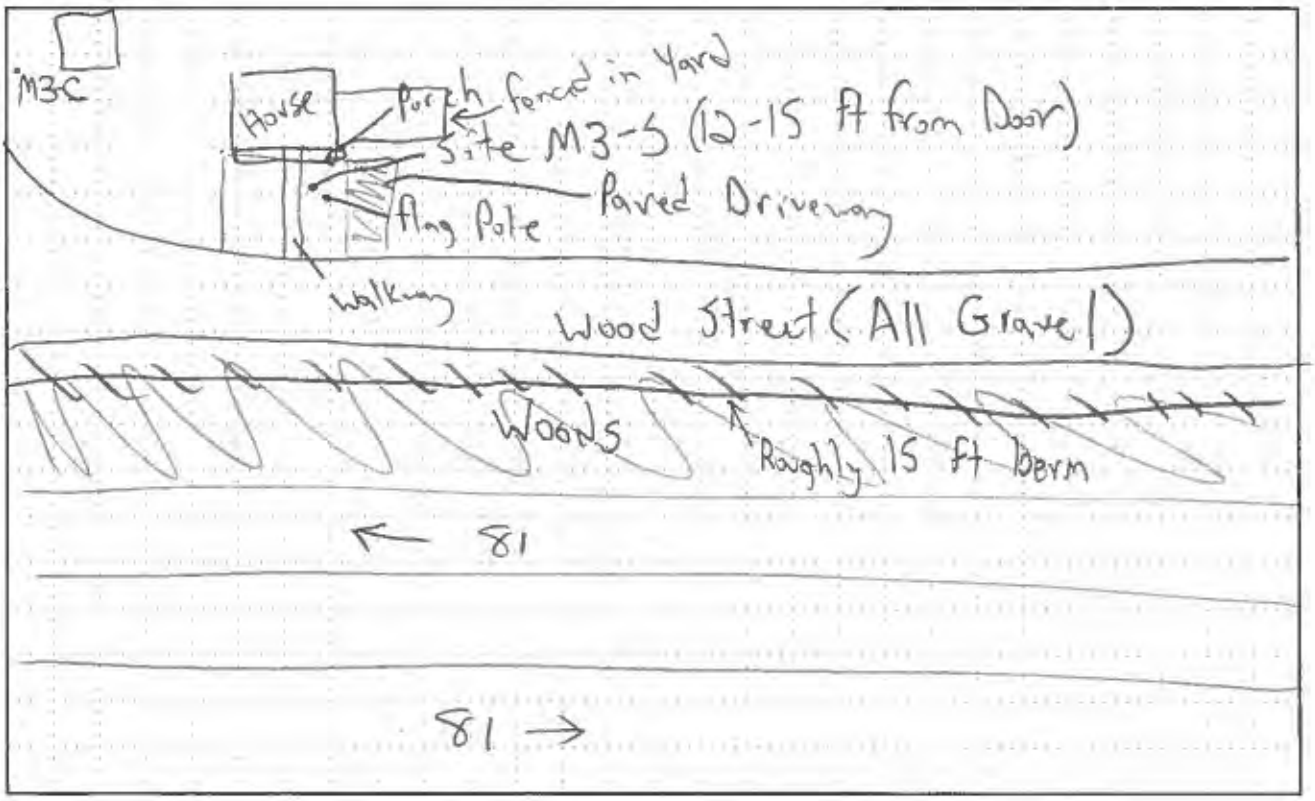
Roadway#2 I-81	1st	2nd
Direction	SB	NB
auto	707	667
med. trk.	18	45
hvy trk.	106	102
bus	1	2
motorcycle	2	8

Roadway#3 Susq.	1st	2nd
Direction	BOTH	
auto	107	
med. trk.	3	
hvy trk.	5	
bus	2	
motorcycle	0	

Roadway#4 476	1st	2nd
Direction	SB	NB
auto	65	74
med. trk.	3	0
hvy trk.	16	19
bus	2	0
motorcycle	0	0

NOTES: Construction reverse light (Sound in Background). 81 main noise Source. Birds Chirping, Wind Sometimes makes flag clank against Pole. House sits at higher elevation than M3-6.

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 6/3/2019

PROJECT:

JOB #

SITE ID M3-6

Gannett Fleming, Inc.

ADDRESS: 32 Wood Street
Dupont, PA 18641

Meter Storage # Lxt Data.0.21

TYPE ☒ Residential ☐ Commercial ☐ Religion ☐ Educational ☐ Other

Measurement Data

Photograph #'s

SLM NO. 5790 SLM Calibration before 94.02 after 93.71 GPS PT

Weather: temperature 67 wind speed 0/5 mph Gusts cloud cover Sunny / No Cover

Time:	1st	start	2:39	stop	2:59	total	20 mins		
	2nd	start		stop		total			
Data:	1st	Leq	65.0	Lmax	74.9	Lmin	54.6	SEL	
	2nd	Leq		Lmax		Lmin		SEL	

Traffic Data

No Vehicles Passed by

Roadway#1 Wood St (No Traffic)	1st	2nd
auto		
med. trk.		
hvy trk.		
bus		
motorcycle		

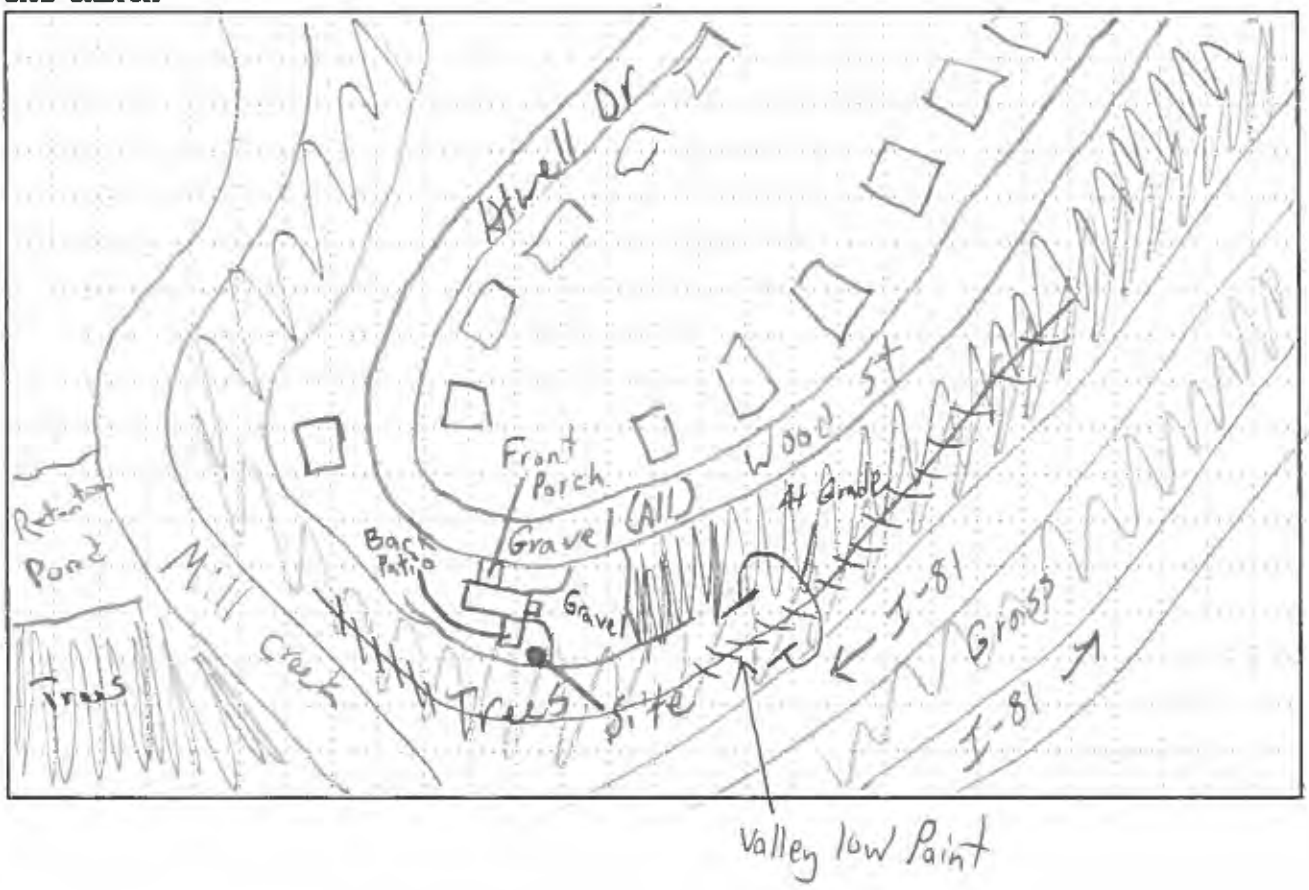
Roadway#2 I-81 Direction SB NB	1st	2nd
auto	589	633
med. trk.	28	46
hvy trk.	115	74
bus	0	1
motorcycle	2	2

Roadway#3 Suscon	1st	2nd
auto	103	
med. trk.	8	
hvy trk.	8	
bus	3	
motorcycle	2	

Roadway#4 476 Direction SB NB	1st	2nd
auto	59	59
med. trk.	3	10
hvy trk.	7	20
bus	1	0
motorcycle	0	1

NOTES: Expansion Joint noise off in Distance. Site is pretty much at Grade with 81 SB. Very loud. Lots of noise from trees/leaves when wind Blows

SITE SKETCH



Appendix B

Calibration Certificate

Certificate Number 2019000280

Customer:

Environmental Acoustics
207 Senate Avenue
Camp Hill, PA 17011, United States

Model Number	LxT1		***Procedure Number***	D0001.8378	
Serial Number	0005790		***Technician***	Ron Harris	
Test Results	**Pass**		***Calibration Date***	8 Jan 2019	
Initial Condition	As Manufactured		***Calibration Due***		
Description	SoundTrack LxT Class 1 Class 1 Sound Level Meter Firmware Revision: 2.302		***Temperature***	23.35 °C	± 0.25 °C
			Humidity	50.7 %RH	± 2.0 %RH
			Static Pressure	87.32 kPa	± 0.13 kPa

Evaluation Method Tested electrically using Larson Davis PRMLxT1 S/N 055912 and a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 50.0 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8384:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. **Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.**

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev J Supporting Firmware Version 2.301, 2015-04-30

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

Standards Used			
Description	**Cal Date**	**Cal Due**	**Cal Standard**
Hart Scientific 2626-H Temperature Probe	2018-02-02	2019-02-02	006767
SRS DS360 Ultra Low Distortion Generator	2018-06-28	2019-06-28	007118

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001

ACCREDITED Cert. #3622.01

LARSON DAVIS
A PCB PIEZOTRONICS DIV.

Calibration Certificate

Certificate Number 2018011410
Customer:
Environmental Acoustics
207 Senate Avenue
Camp Hill, PA 17011, United States

Model Number	PRMLxT1	***Procedure Number***	D0001.8383		
Serial Number	055912	***Technician***	Ron Harris		
Test Results	**Pass**	***Calibration Date***	10 Nov 2018		
Initial Condition	As Manufactured	***Calibration Due***			
		Temperature	22.97	°C	± 0.01 °C
Description	Larson Davis 1/2" Preamplifier for LxT Class 1 -23 dB	***Humidity***	51.8	%RH	± 0.5 %RH
		Static Pressure	86.31	kPa	± 0.03 kPa

Evaluation Method Tested electrically using a 12.0 pF capacitor to simulate microphone capacitance. Data reported in dB re 20 µPa assuming a microphone sensitivity of 50.0 mV/Pa.

Compliance Standards Compliant to Manufacturer Specifications

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. **Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.**

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

Standards Used

Description	Cal Date	Cal Due	Cal Standard
Larson Davis Model 2900 Real Time Analyzer	01/09/2018	01/09/2019	003062
Hart Scientific 2626-H Temperature Probe	02/02/2018	02/02/2019	006767
SRS DS360 Ultra Low Distortion Generator	06/28/2018	06/28/2019	007118
Agilent 34401A DMM	07/11/2018	07/11/2019	007172

Calibration Certificate

Certificate Number 2019000286

Customer:

Environmental Acoustics
207 Senate Avenue
Camp Hill, PA 17011, United States

Model Number	LxT1	***Procedure Number***	D0001.8384		
Serial Number	0005790	***Technician***	Ron Harris		
Test Results	**Pass**	***Calibration Date***	8 Jan 2019		
Initial Condition	As Manufactured	***Calibration Due***			
		Temperature	23.33	°C	± 0.25 °C
Description	SoundTrack LxT Class 1 Class 1 Sound Level Meter Firmware Revision: 2.302	***Humidity***	50.6	%RH	± 2.0 %RH
		Static Pressure	87.17	kPa	± 0.13 kPa

Evaluation Method ***Tested with:*** ***Data reported in dB re 20 µPa.***

Larson Davis PRMLxT1. S/N 055912
PCB 377B02. S/N 309404
Larson Davis CAL200. S/N 9079
Larson Davis CAL291. S/N 0108

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8378:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005.
Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

Correction data from Larson Davis LxT Manual for SoundTrack LxT & SoundExpert Lxt, I770.01 Rev J Supporting Firmware Version 2.301, 2015-04-30

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001

ACCREDITED Cert. #3622.01

LARSON DAVIS
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For 1/4" microphones, the Larson Davis ADP024 1/4" to 1/2" adaptor is used with the calibrators and the Larson Davis ADP043 1/4" to 1/2" adaptor is used with the preamplifier.

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa

Periodic tests were performed in accordance with precedures from IEC 61672-3:2013 / ANSI/ASA S1.4-2014/Part3.

Pattern approval for IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1 successfully completed by Physikalisch-Technische Bundesanstalt (PTB) on 2007-10-09 reference number PTB-1.72-4034218.

The sound level meter submitted for testing successfully completed the periodic tests of IEC 61672-3:2013 / ANSI/ASA S1.4-2014/Part 3, for the environmental conditions under which the tests were performed. As evidence was publicly available, from an independent testing organization responsible for approving the results of pattern-evaluation tests performed in accordance with IEC 61672-2:2013 / ANSI/ASA S1.4-2014/Part 2, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1; the sound level meter submitted for testing conforms to the class 1specifications in IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1.

Standards Used

Description	Cal Date	Cal Due	Cal Standard
Larson Davis CAL291 Residual Intensity Calibrator	2018-09-19	2019-09-19	001250
SRS DS360 Ultra Low Distortion Generator	2018-06-21	2019-06-21	006311
Hart Scientific 2626-H Temperature Probe	2018-02-02	2019-02-02	006767
Larson Davis CAL200 Acoustic Calibrator	2018-07-24	2019-07-24	007027
Larson Davis Model 831	2018-02-28	2019-02-28	007182
PCB 377A13 1/2 inch Prepolarized Pressure Microphone	2018-03-07	2019-03-07	007185

Acoustic Calibration

Measured according to IEC 61672-3:2013 10 and ANSI S1.4-2014 Part 3: 10

Measurement	Test Result [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
1000 Hz	114.00	113.80	114.20	0.14	Pass

Acoustic Signal Tests, C-weighting

Measured according to IEC 61672-3:2013 12 and ANSI S1.4-2014 Part 3: 12 using a comparison coupler with Unit Under Test (UUT) and reference SLM using slow time-weighted sound level for compliance to IEC 61672-1:2013 5.5; ANSI S1.4-2014 Part 1: 5.5

Frequency [Hz]	Test Result [dB]	Expected [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
125	-0.16	-0.20	-1.20	0.80	0.23	Pass
1000	0.24	0.00	-0.70	0.70	0.23	Pass
8000	-3.72	-3.00	-5.50	-1.50	0.32	Pass

-- End of measurement results--

Self-generated Noise

Measured according to IEC 61672-3:2013 11.1 and ANSI S1.4-2014 Part 3: 11.1

Measurement	Test Result [dB]
A-weighted	40.29

-- End of measurement results--

– End of Report–

Signatory: Ron Harris

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001

ACCREDITED
Cert. #3622.01

LARSON DAVIS
A PCB PIEZOTRONICS DIV.

~ Certificate of Calibration and Compliance ~

Microphone Model: 377B02 Serial Number: 309404 Manufacturer: PCB

Calibration Environmental Conditions

Environmental test conditions as printed on microphone calibration chart.

Reference Equipment

Manufacturer	Model #	Serial #	PCB Control #	Cal Date	Due Date
National Instruments	PCIe-6351	1896F08	CA1918	10/19/18	10/18/19
Larson Davis	PRM915	148	CA2180	3/6/18	3/6/19
Larson Davis	PRM902	4407	CA1248	5/23/18	5/23/19
Larson Davis	PRM916	125	TA469	6/26/18	6/26/19
Larson Davis	CAL250	5569	CA2284	5/22/18	5/22/19
Larson Davis	2201	115	TA472	4/12/18	4/12/19
Bruel & Kjaer	4192	2764626	CA1636	8/15/18	8/15/19
Larson Davis	GPRM902	4163	CA1089	6/12/18	6/12/19
Newport	iTHX-SD/N	1080002	CA1511	2/9/18	2/8/19
Larson Davis	PRA951-4	222	LD026	12/19/17	12/19/18
Larson Davis	PRM915	147	CA2179	6/8/18	6/7/19
PCB	68510-02	N/A	CA2672	12/27/17	12/27/18
0	0	0	0	not required	not required
0	0	0	0	not required	not required
0	0	0	0	not required	not required

Frequency sweep performed with B&K UA0033 electrostatic actuator.

Condition of Unit

As Found: n/a

As Left: New Unit, In Tolerance

Notes

1. Calibration of reference equipment is traceable to one or more of the following National Labs; NIST, PTB or DFM.
2. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc.
3. Calibration is performed in compliance with ISO 10012-1, ANSI/NCSL Z540.3 and ISO 17025.
4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications.
5. Open Circuit Sensitivity is measured using the insertion voltage method following procedure AT603-5.
6. Measurement uncertainty (95% confidence level with coverage factor of 2) for sensitivity is +/-0.20 dB.
7. Unit calibrated per ACS-20.

Technician: Leonard Lukasik Date: December 10, 2018

ilac-MRA ACCREDITED
CALIBRATION CERT #1662.01

PCB PIEZOTRONICS
VIBRATION DIVISION
3425 Walden Avenue, Depew, New York, 14043
TEL: 888-684-0013 FAX: 716-685-3886 www.pcb.com

Appendix C

Scranton Beltway - Wyoming Valley Interchange
TNM Traffic Volumes based on Conceptual Point of Access Study

Roadway	Roadway SPEED	Peak Hour Traffic Volume	Vehicle Mix						Hourly Volume by Veh. Class				
			% Trucks	%Auto	%MT of %Trk	%HT of %Trk	%Bus	%MC	Auto	MT	HT	Bus	MC
Existing (2018)													
I-81 NB	55	2390	12.0%	-	23.0%	77.0%	-	-	2103	66	221	0	0
I-81 SB	55	2048	12.0%	-	17.0%	83.0%	-	-	1802	42	204	0	0
I-476 NB	70	535	-	68.2%	14.2%	17.1%	0.2%	0.3%	365	76	91	1	2
I-476 SB	70	320	-	68.2%	14.2%	17.1%	0.2%	0.3%	218	45	55	1	1
Future No-Build (2045)													
I-81 NB	55	2258	12.0%	-	23.0%	77.0%	-	-	1987	62	209		
I-81 SB	55	2366	12.0%	-	17.0%	83.0%	-	-	2082	48	236		
I-476 NB	70	1406	-	68.2%	14.2%	17.1%	0.2%	0.3%	959	200	240	3	4
I-476 SB	70	657	-	68.2%	14.2%	17.1%	0.2%	0.3%	448	93	112	1	2
Future Build (2045)													
I-81 NB	55	2764	12.0%	-	23.0%	77.0%	-	-	2432	76	255	0	0
I-81 SB	55	1905	12.0%	-	17.0%	83.0%	-	-	1676	39	190	0	0
I-81 NB (after NB RAMP)	55	1689	12.0%	-	23.0%	77.0%	-	-	1486	47	156	0	0
I-81 SB (after SB RAMP)	55	2535	12.0%	-	17.0%	83.0%	-	-	2231	52	252	0	0
I-476 NB	70	270	-	68.2%	14.2%	17.1%	0.2%	0.3%	184	38	46	1	1
I-476 SB	70	785	-	68.2%	14.2%	17.1%	0.2%	0.3%	535	111	134	2	2
Proposed NB RAMP	45	1075	-	68.2%	14.2%	17.1%	0.2%	0.3%	733	153	184	2	3
Proposed SB RAMP	45	630	-	68.2%	14.2%	17.1%	0.2%	0.3%	430	89	108	1	2
I-476 NB (after NB RAMP)	70	1345	-	68.2%	14.2%	17.1%	0.2%	0.3%	917	191	230	3	4
I-476 SB (after SB RAMP)	70	155	-	68.2%	14.2%	17.1%	0.2%	0.3%	106	22	27	0	0

CONCEPTUAL POINT OF ACCESS STUDY

SCRANTON BELTWAY

Direct connections between I -476 (Pennsylvania Turnpike Northeastern Extension) and I-81

At Wyoming Valley (Exit 115) and Clarks Summit (Exit 131) Interchanges

Luzerne & Lackawanna Counties

Appendix A : Traffic Volume Diagrams

November 2019

Prepared For:

Pennsylvania Turnpike Commission

and

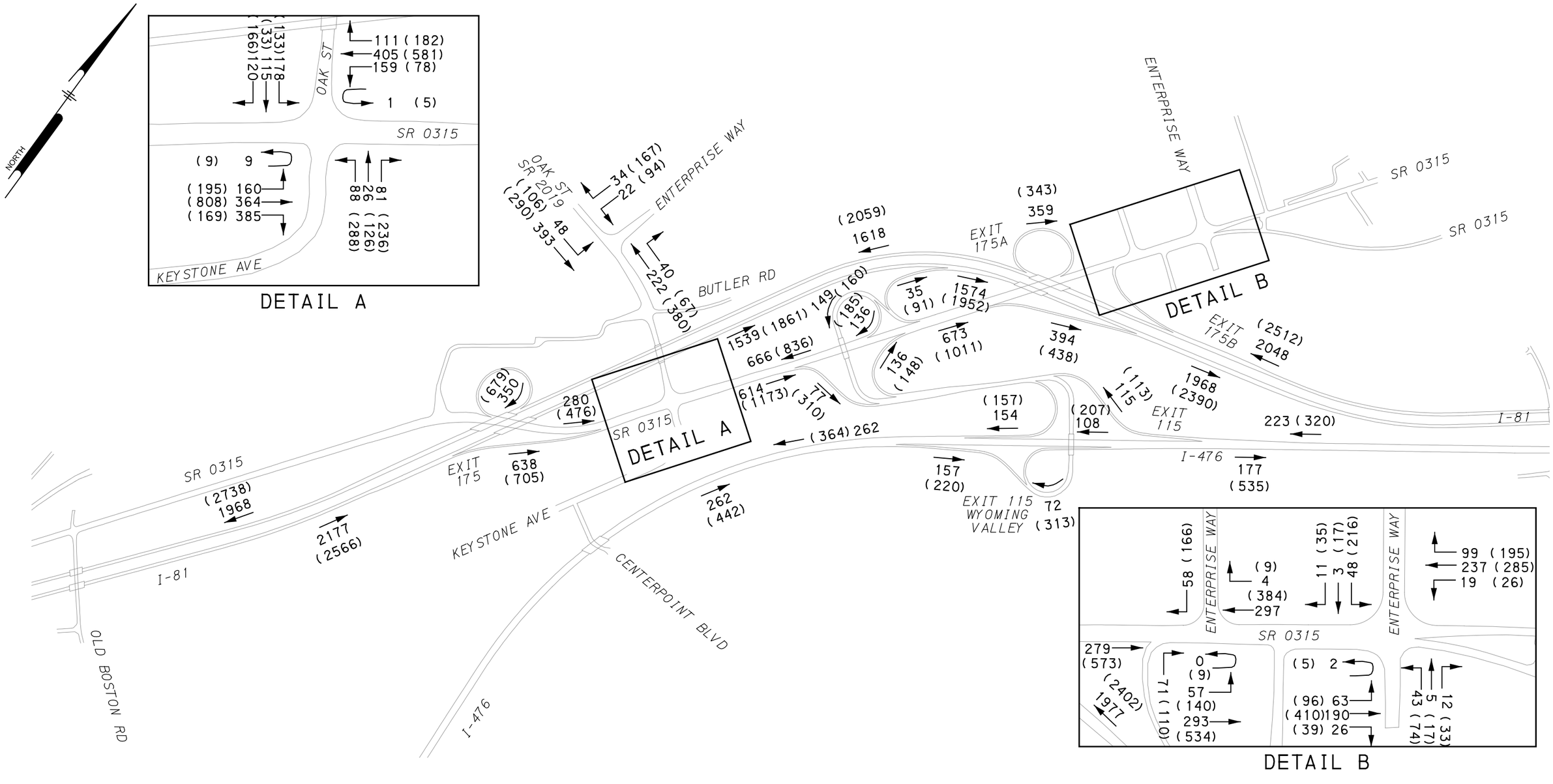
U.S. Department of Transportation
Federal Highway Administration

and

Pennsylvania Department of Transportation

Prepared By

URBAN ENGINEERS Pennoni



SEE SHEET 2

PTC WBS No.: A-115.70P001-2	
PROJECT: SCRANTON BELTWAY POINT OF ACCESS STUDY	
TRAFFIC VOLUME DIAGRAMS	
TITLE: EXISTING (2018) PEAK HOUR AM (PM)	
NTS	SHEET 1 OF 8

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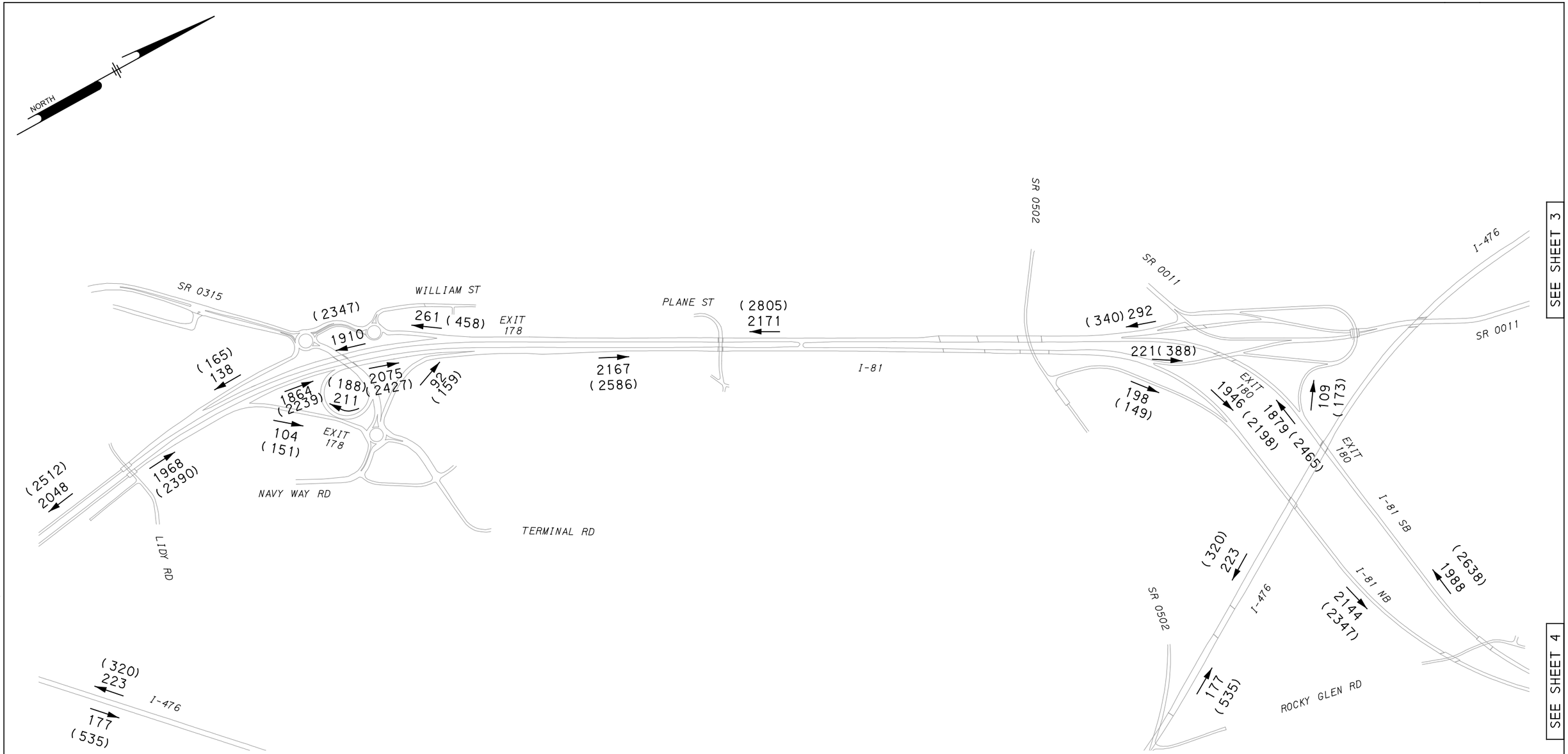

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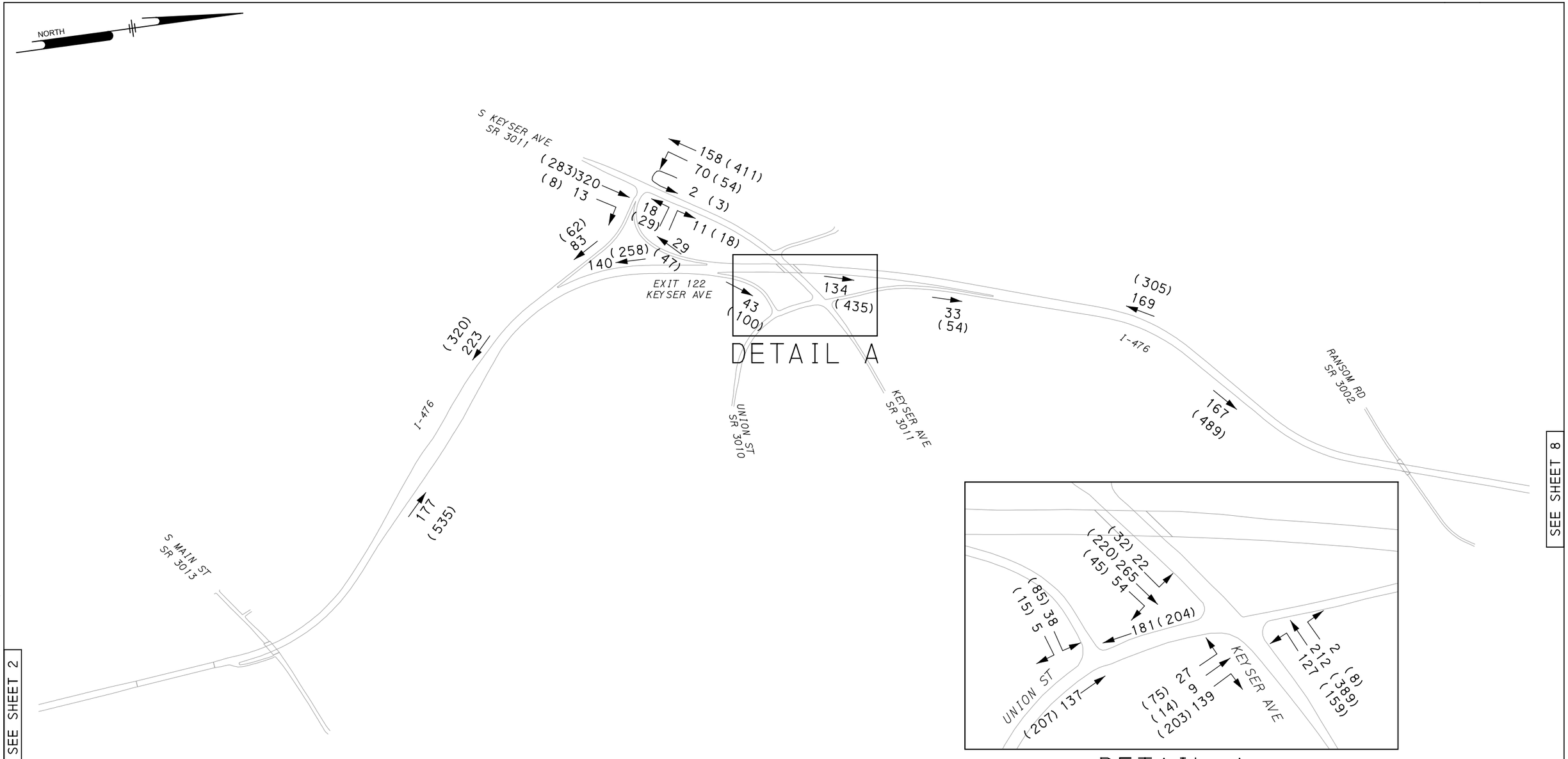

DETAIL A

DETAIL A

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AM (PM)

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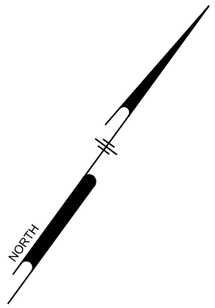

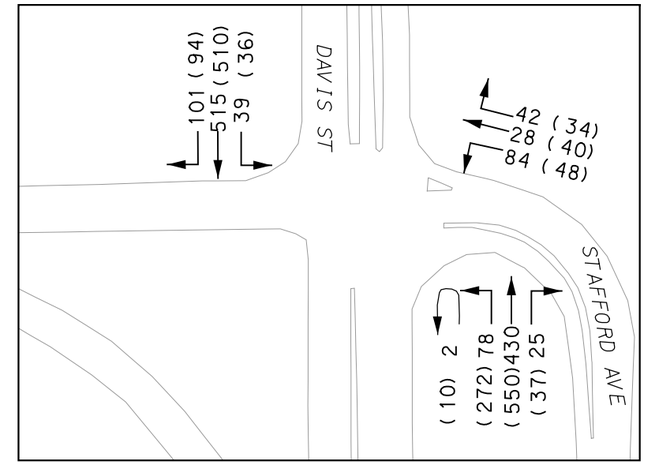

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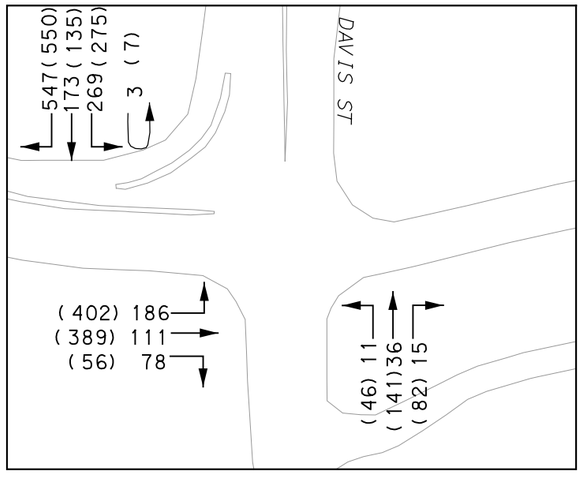

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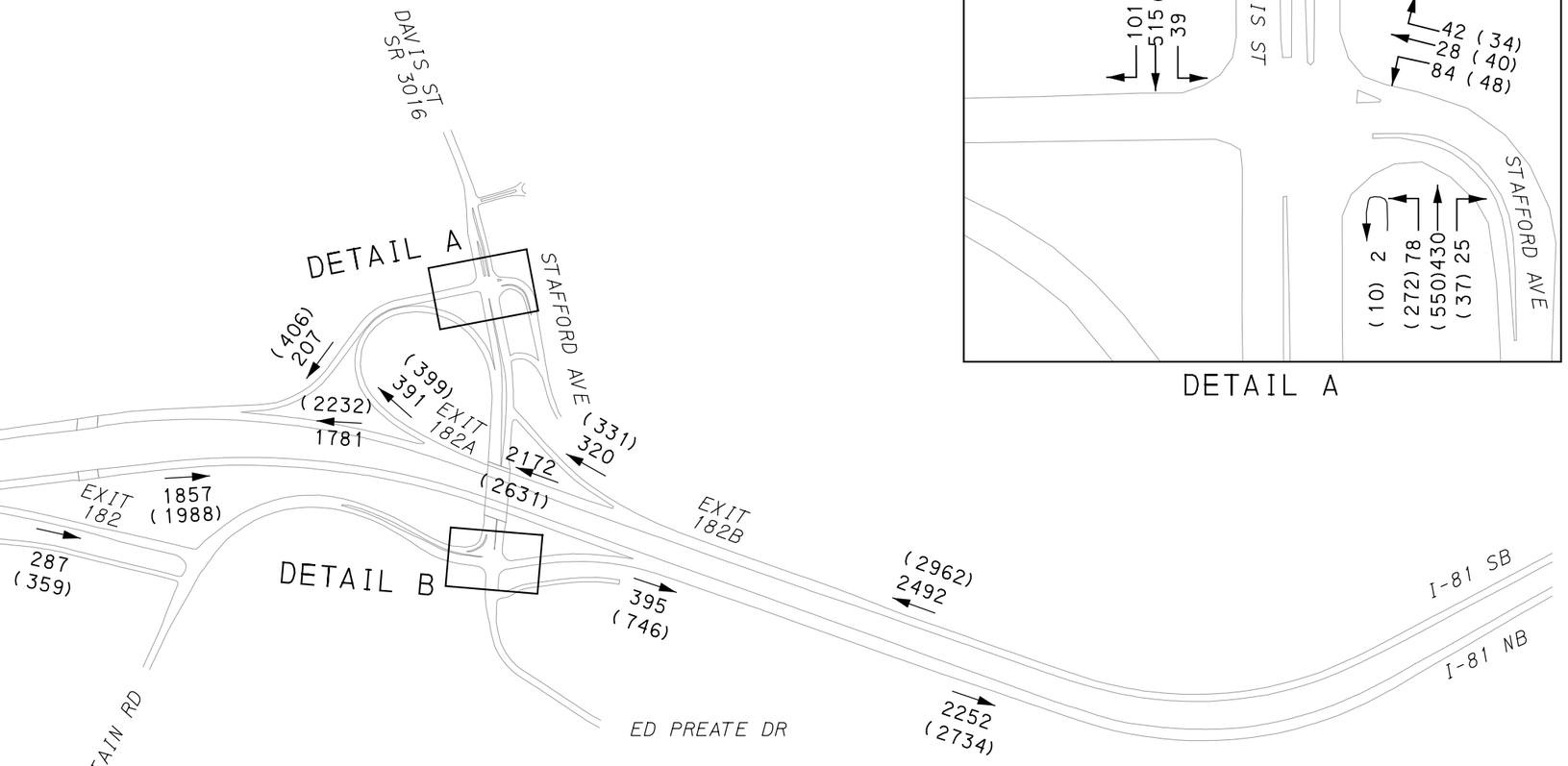

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	PROJECT: SCRANTON BELTWAY POINT OF ACCESS STUDY
	TRAFFIC VOLUME DIAGRAMS
	TITLE: EXISTING (2018) PEAK HOUR AM (PM)
	NTS | SHEET 4 OF 8

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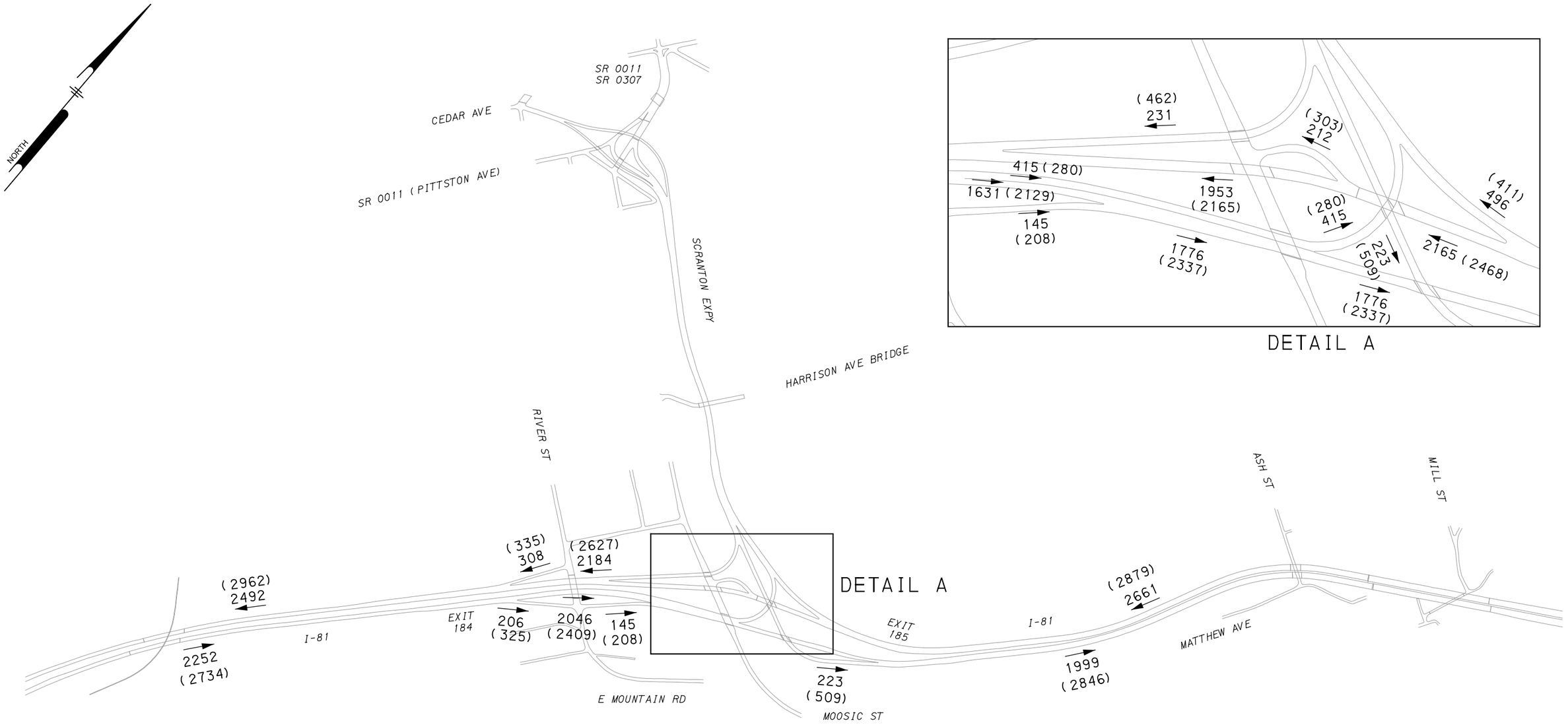

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POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

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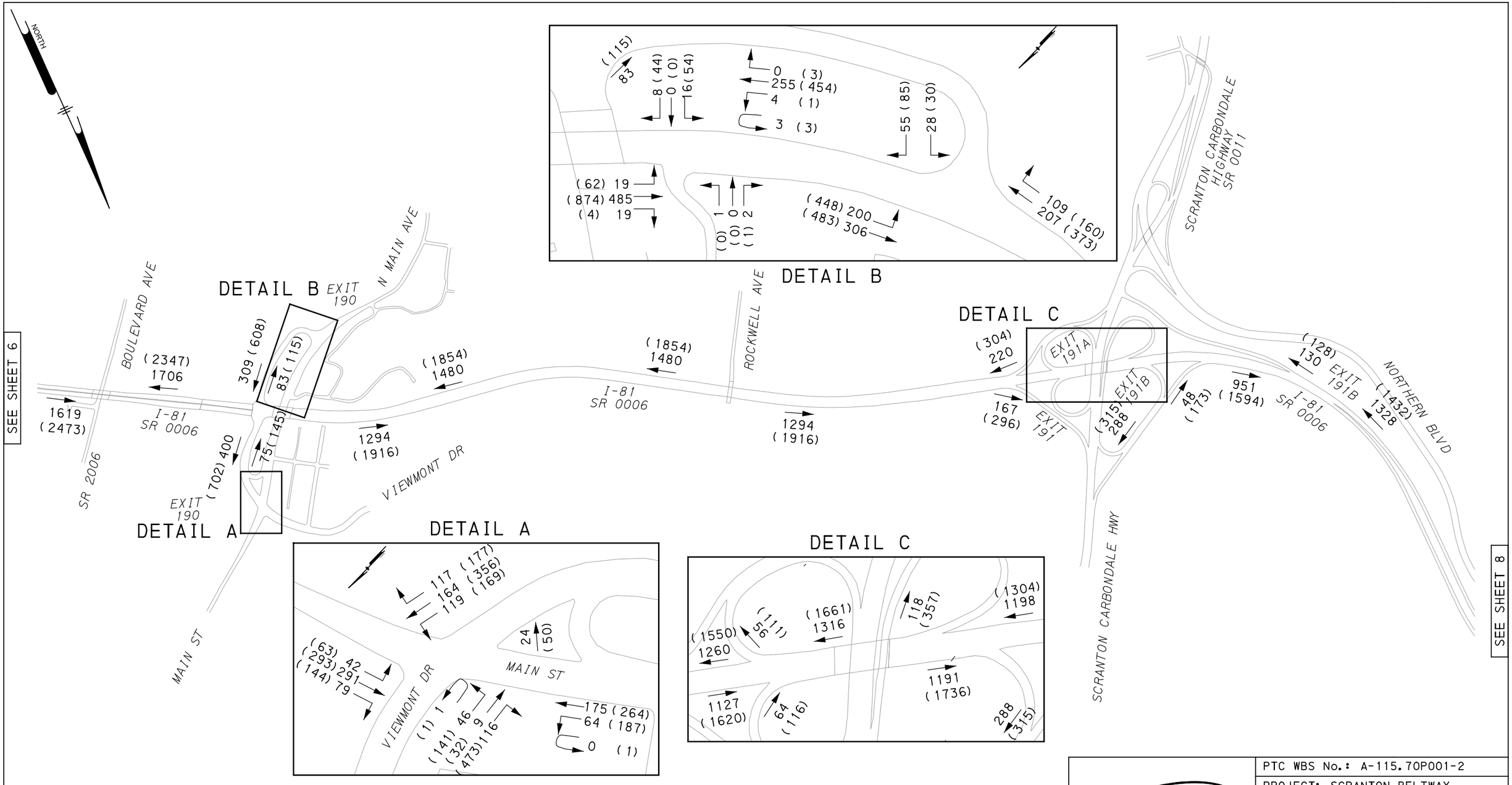

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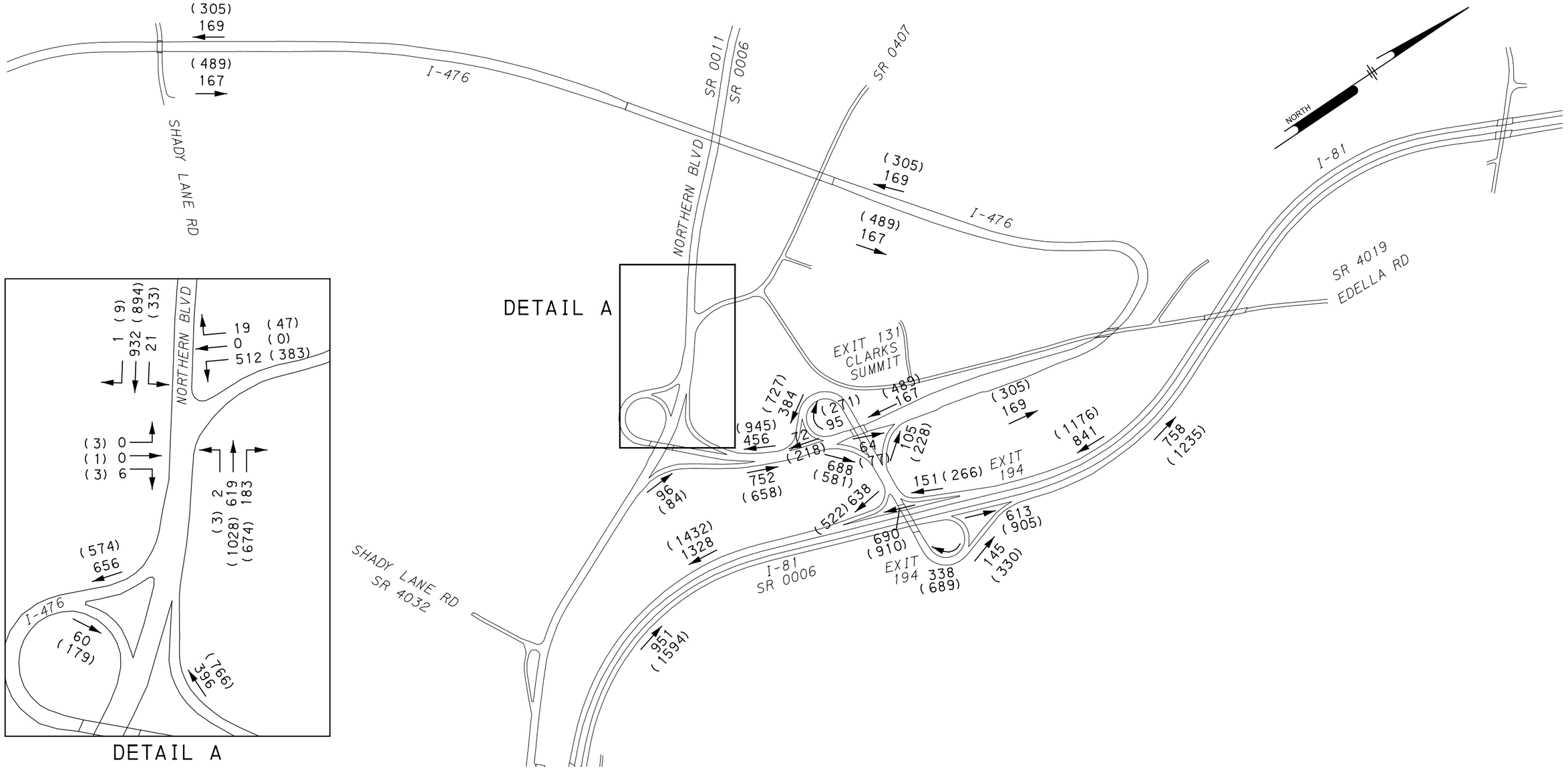
POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: EXISTING (2018) PEAK HOUR
AM (PM)

NTS

SEE SHEET 3



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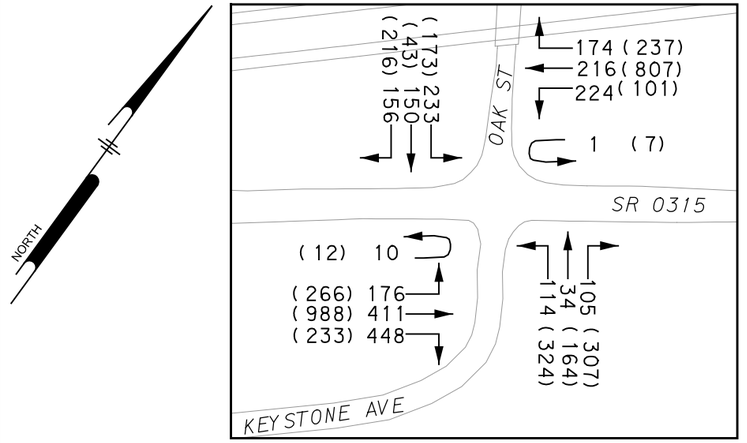

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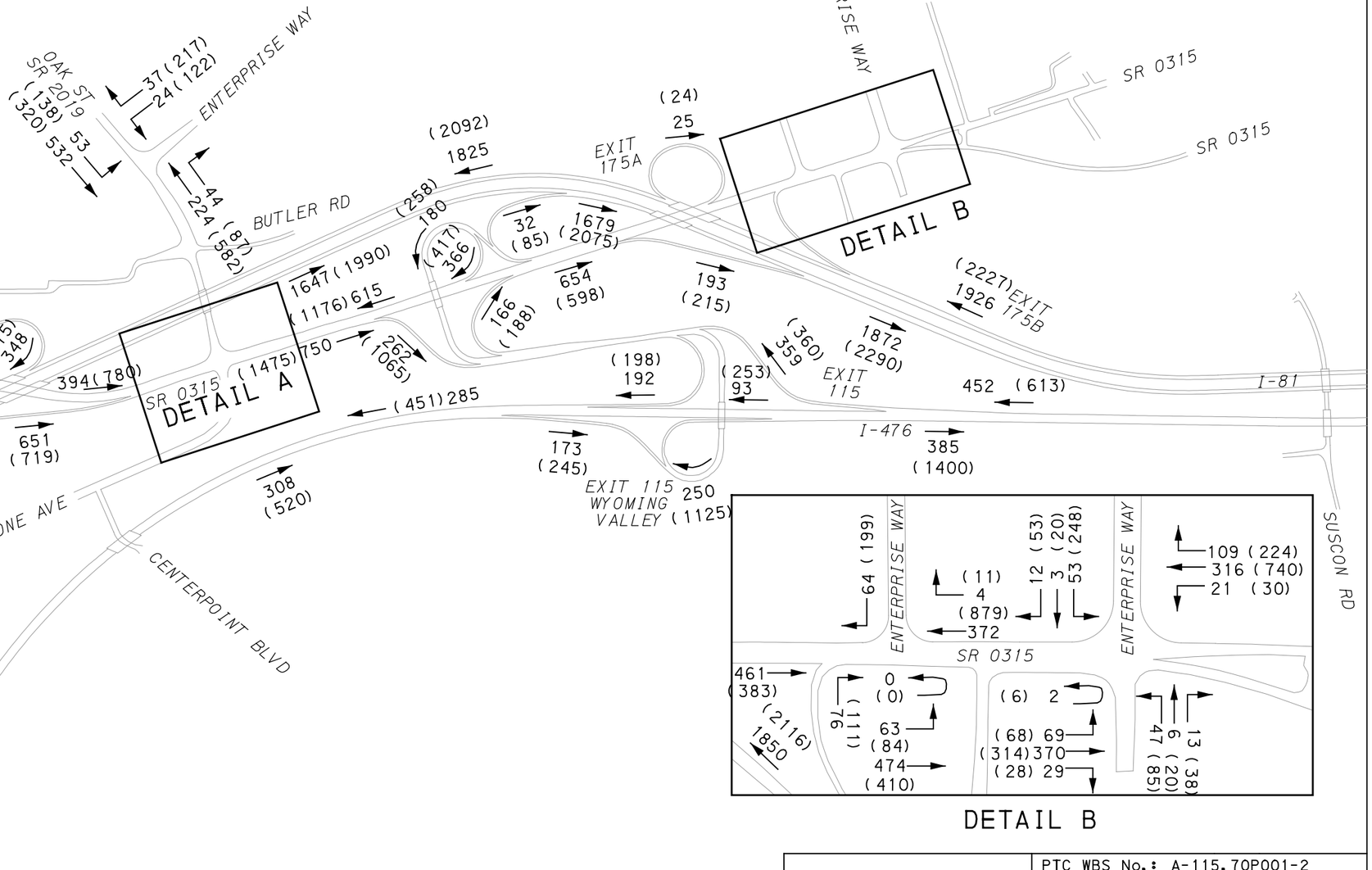

DETAIL B

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PTC WBS No.: A-115.70P001-2

PROJECT: SCRANTON BELTWAY
POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: DESIGN YEAR (2045)
NO-BUILD PEAK HOUR
AM (PM)

NTS

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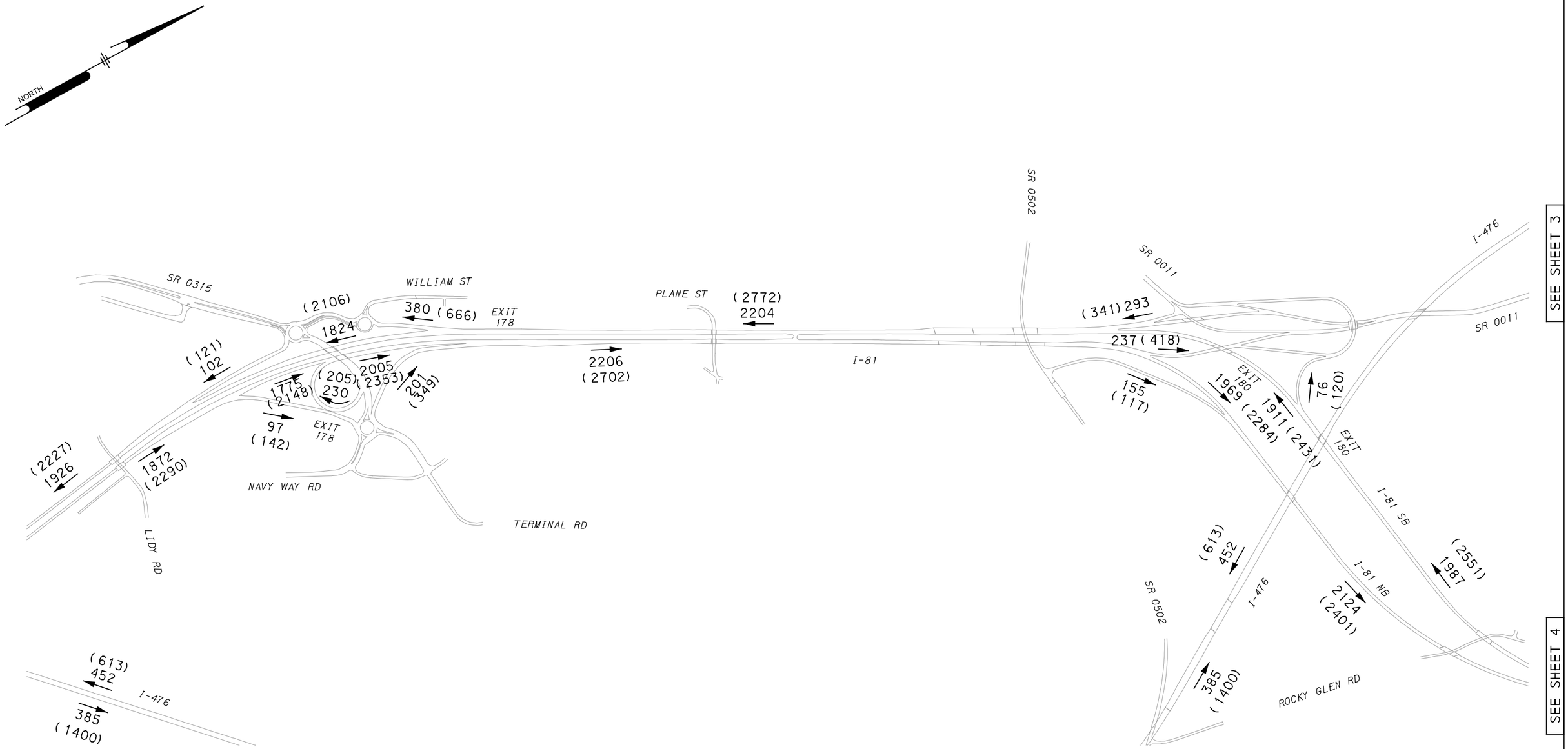

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TRAFFIC VOLUME DIAGRAMS

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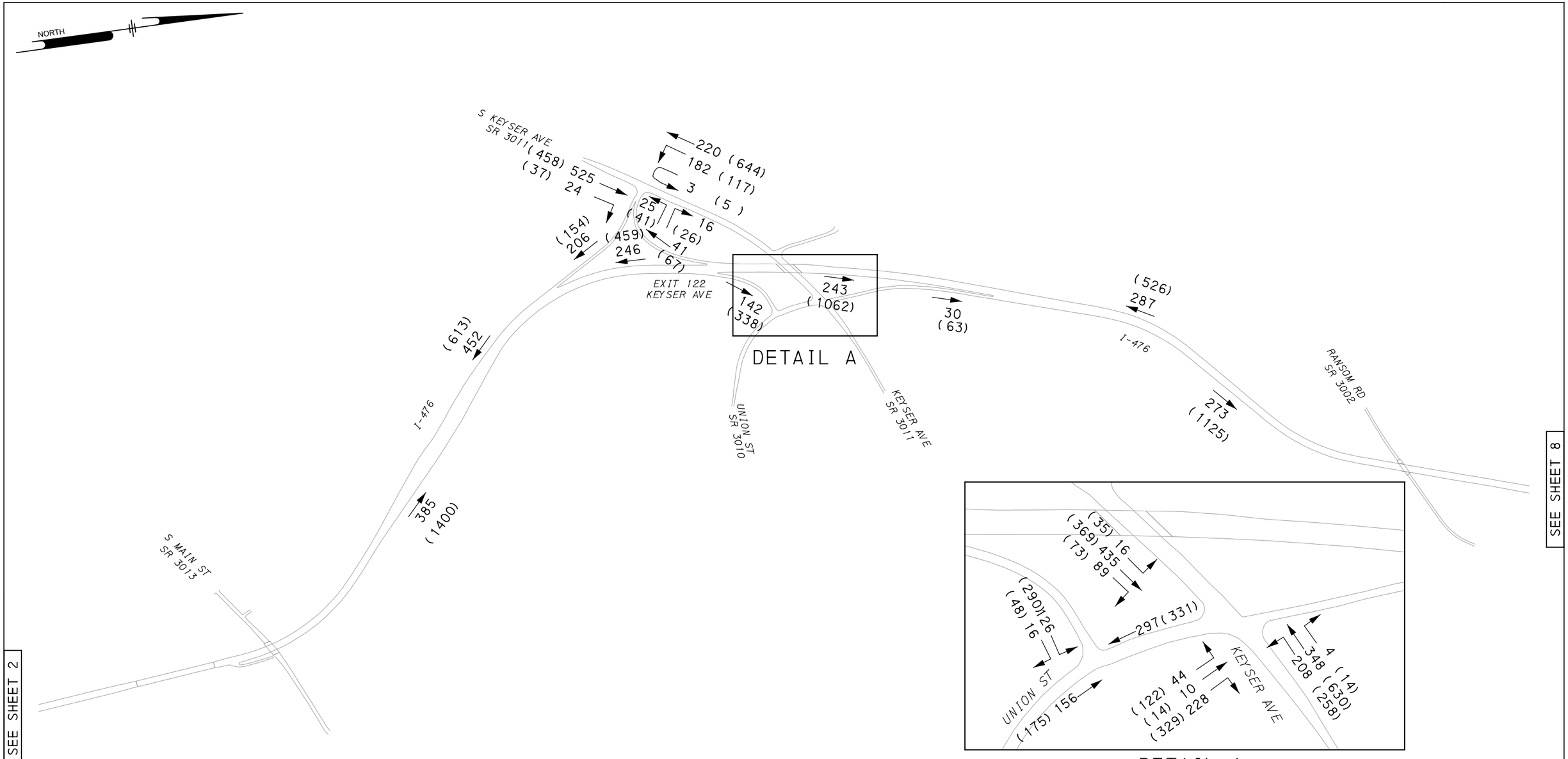

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TRAFFIC VOLUME DIAGRAMS

TITLE: DESIGN YEAR (2045)
NO-BUILD PEAK HOUR
AM (PM)

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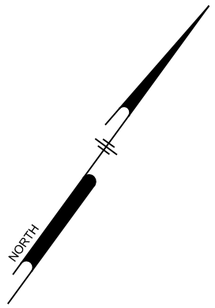

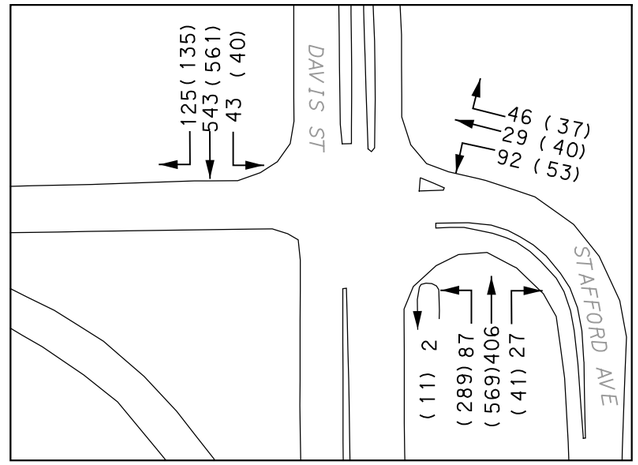

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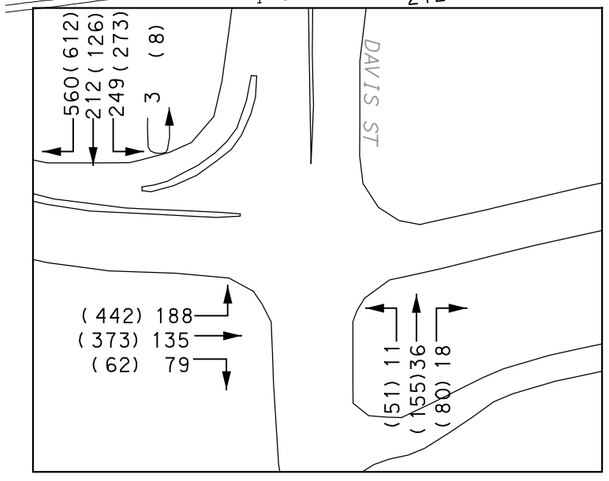

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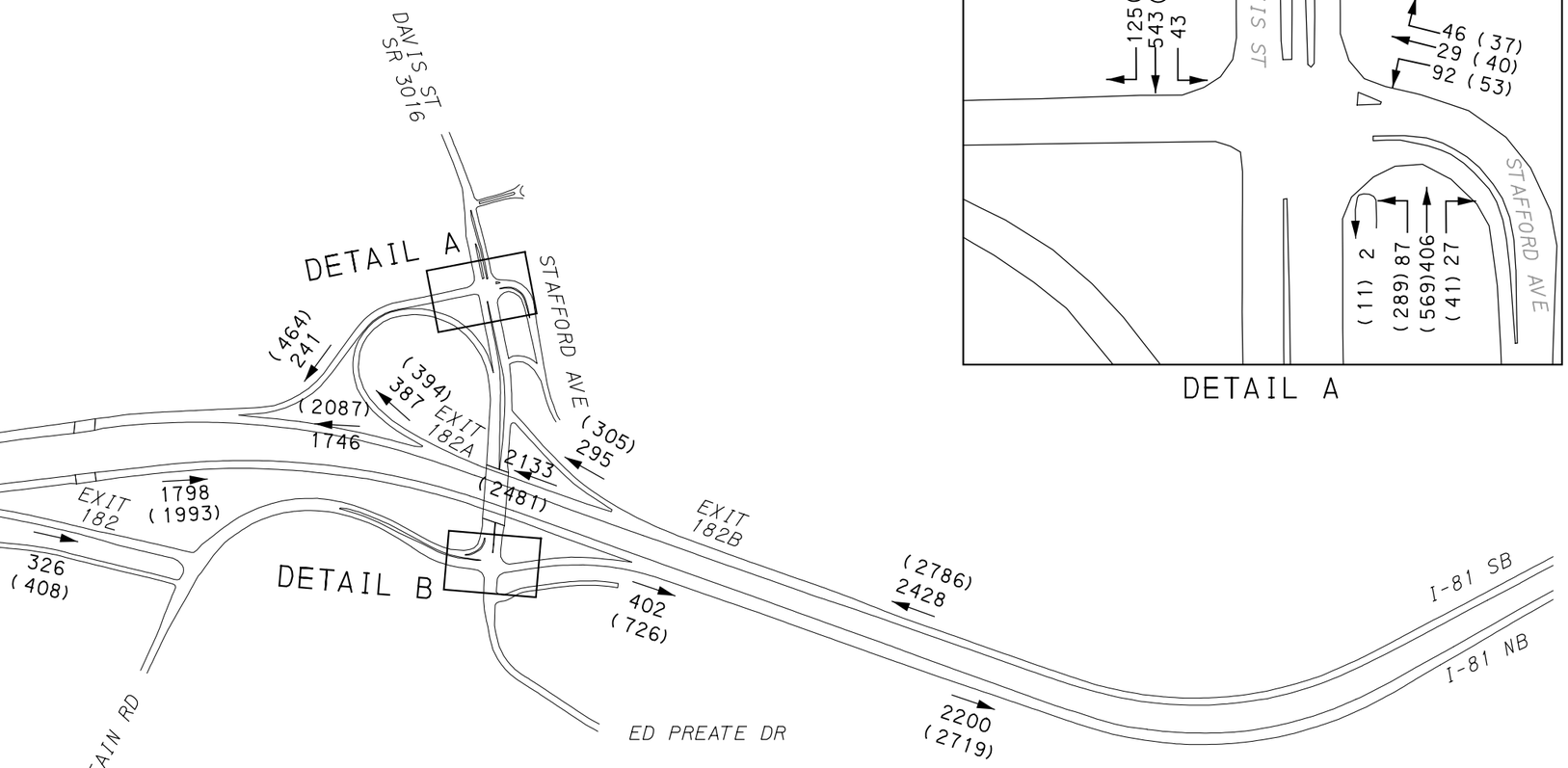

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POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: DESIGN YEAR (2045)
NO-BUILD PEAK HOUR
AM (PM)

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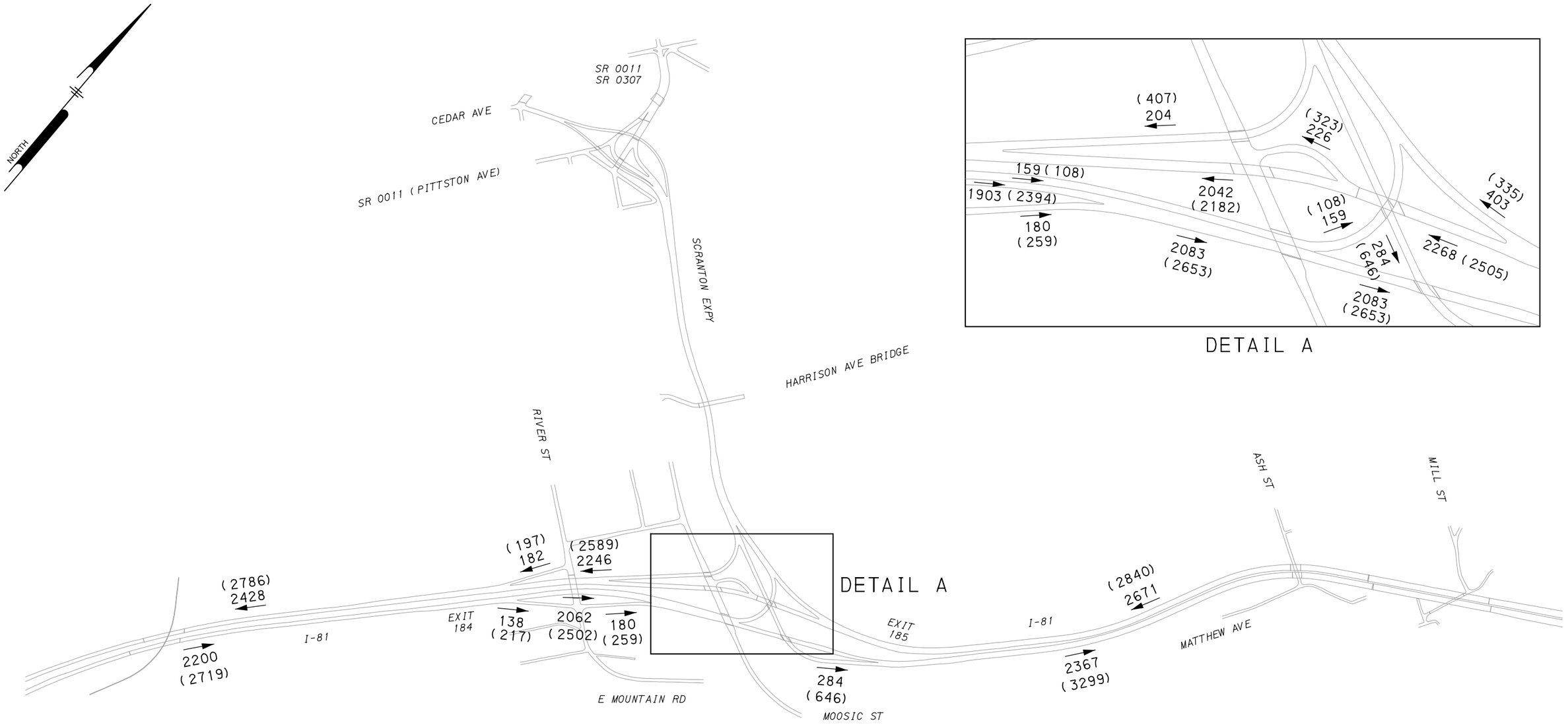

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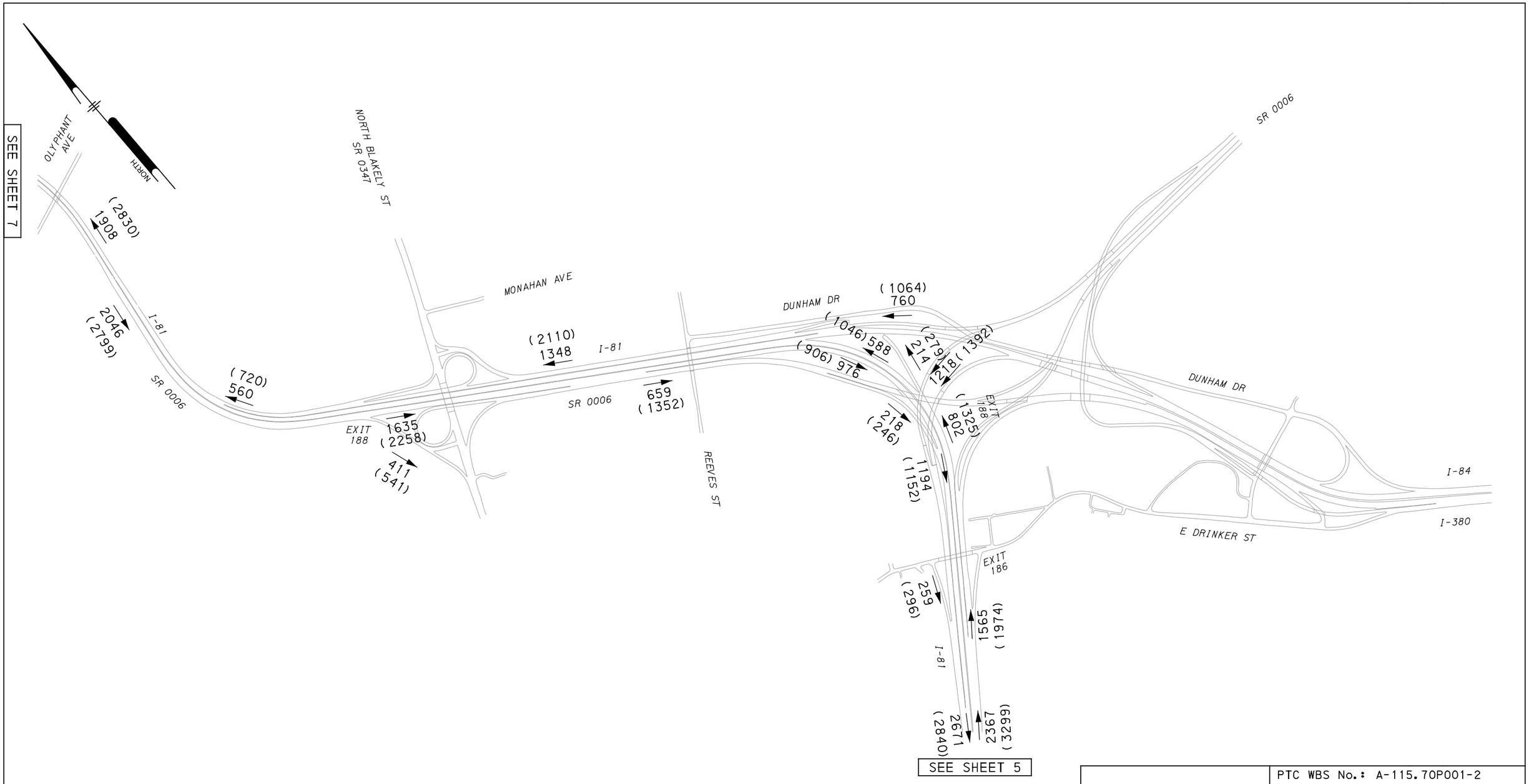

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PROJECT: SCRANTON BELTWAY POINT OF ACCESS STUDY	
TRAFFIC VOLUME DIAGRAMS	
TITLE: DESIGN YEAR (2045) NO-BUILD PEAK HOUR AM (PM)	
NTS	SHEET 6 OF 8

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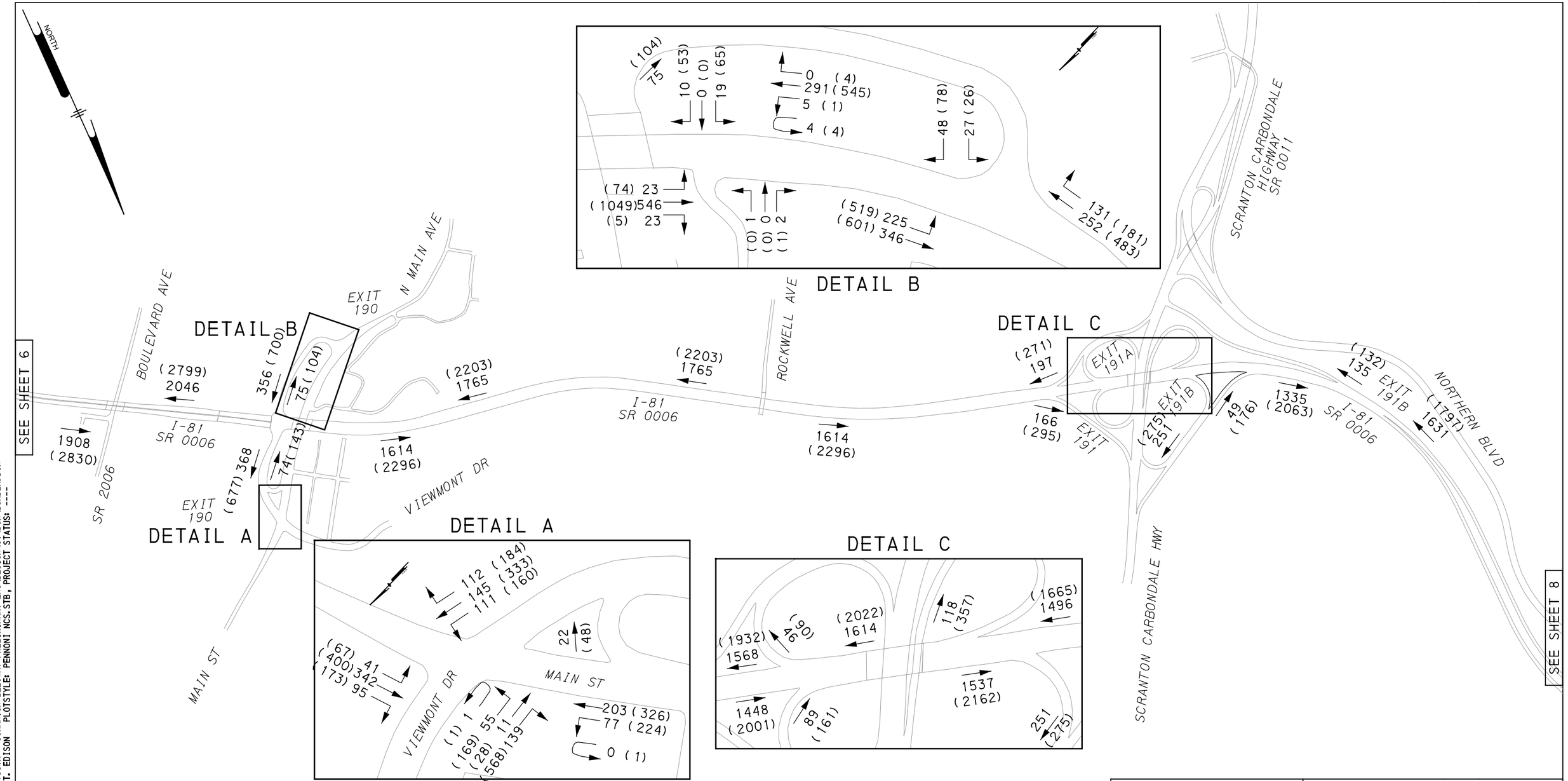

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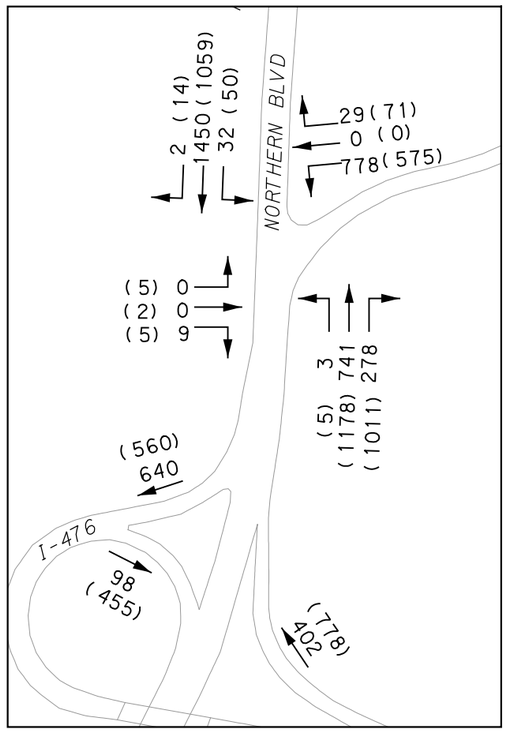
POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: DESIGN YEAR (2045)
NO-BUILD PEAK HOUR
AM (PM)

NTS

SEE SHEET 3



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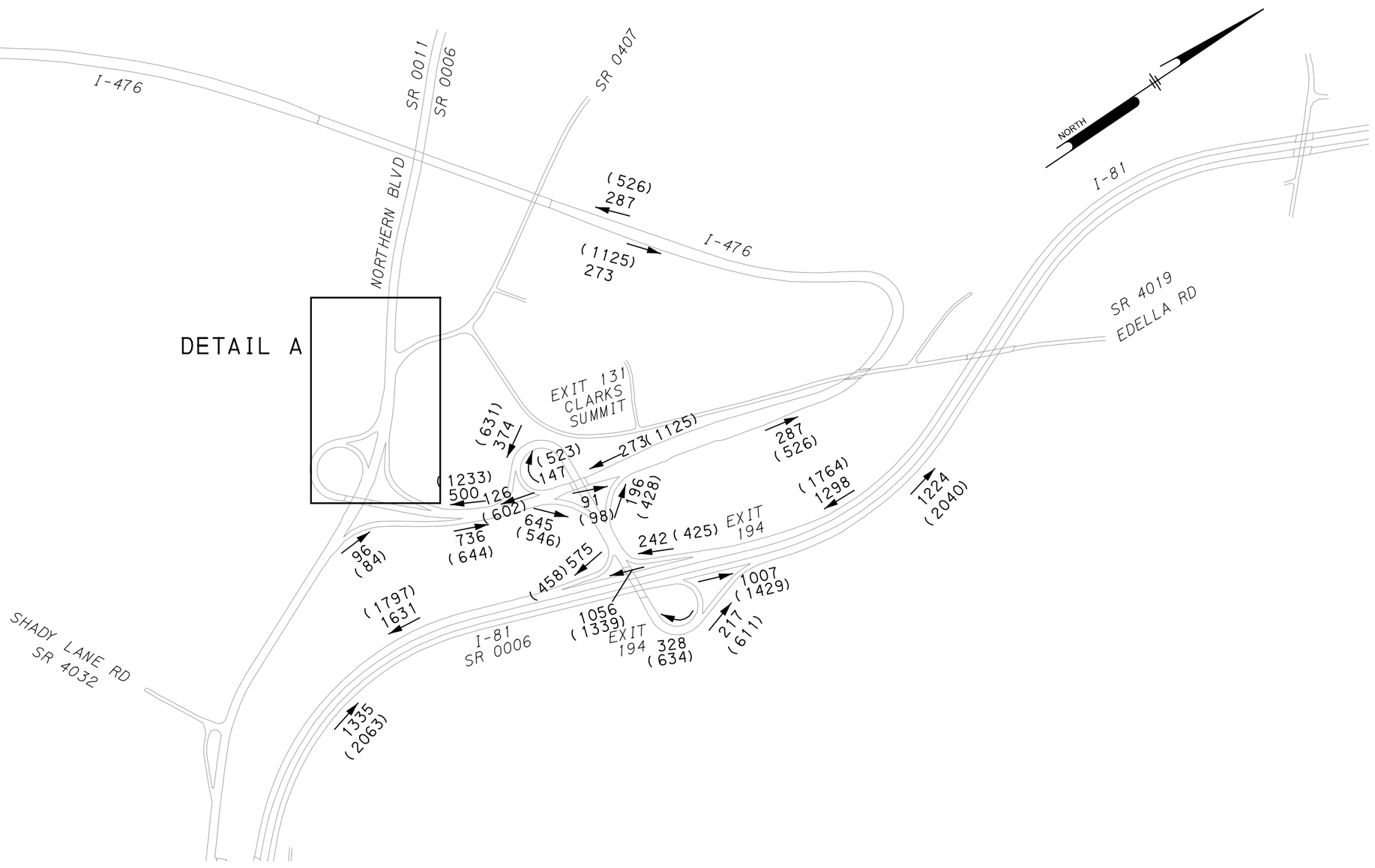

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PTC WBS No.: A-115.70P001-2

PROJECT: SCRANTON BELTWAY
POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: DESIGN YEAR (2045)
NO-BUILD PEAK HOUR
AM (PM)

NTS

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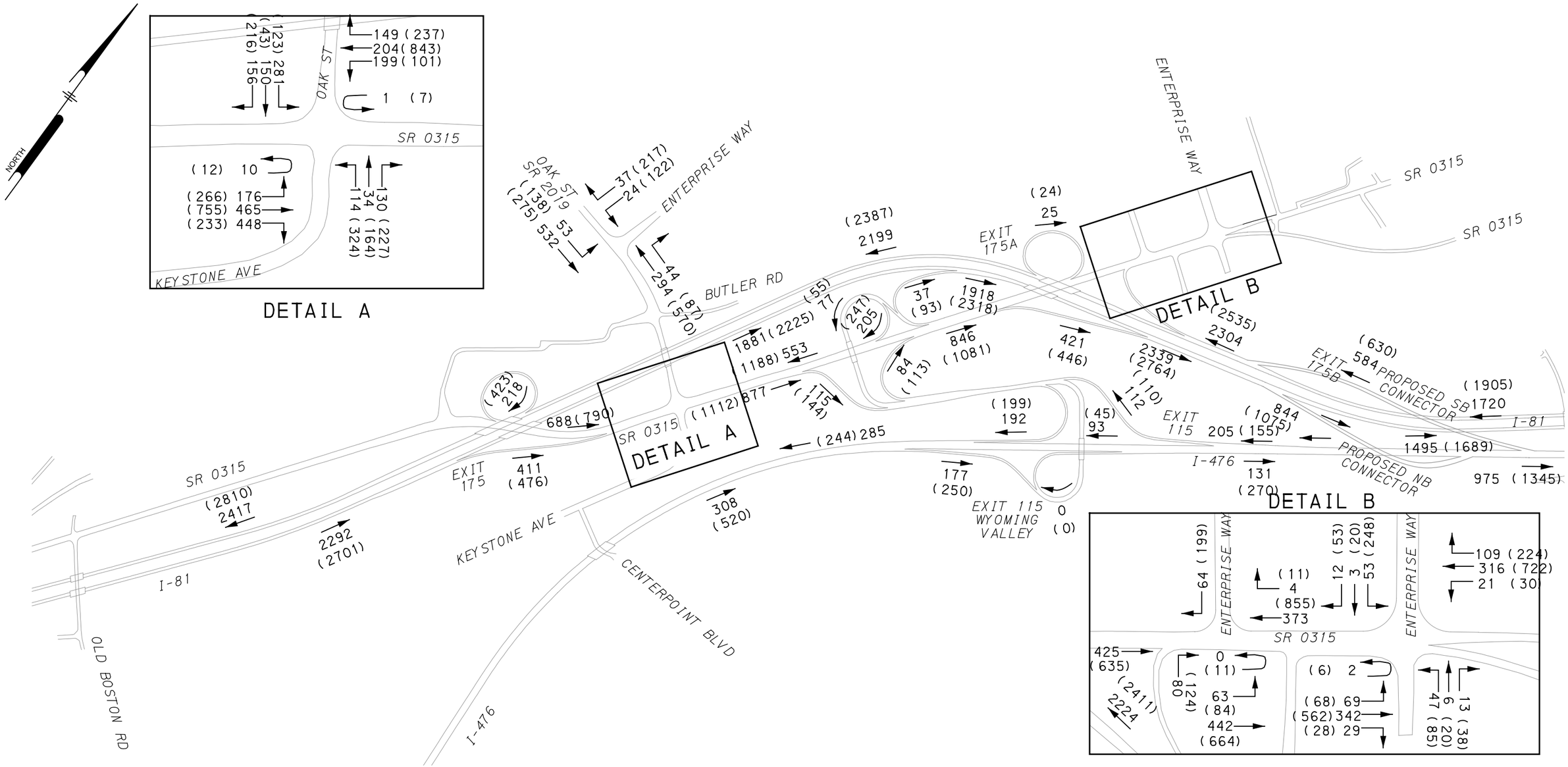

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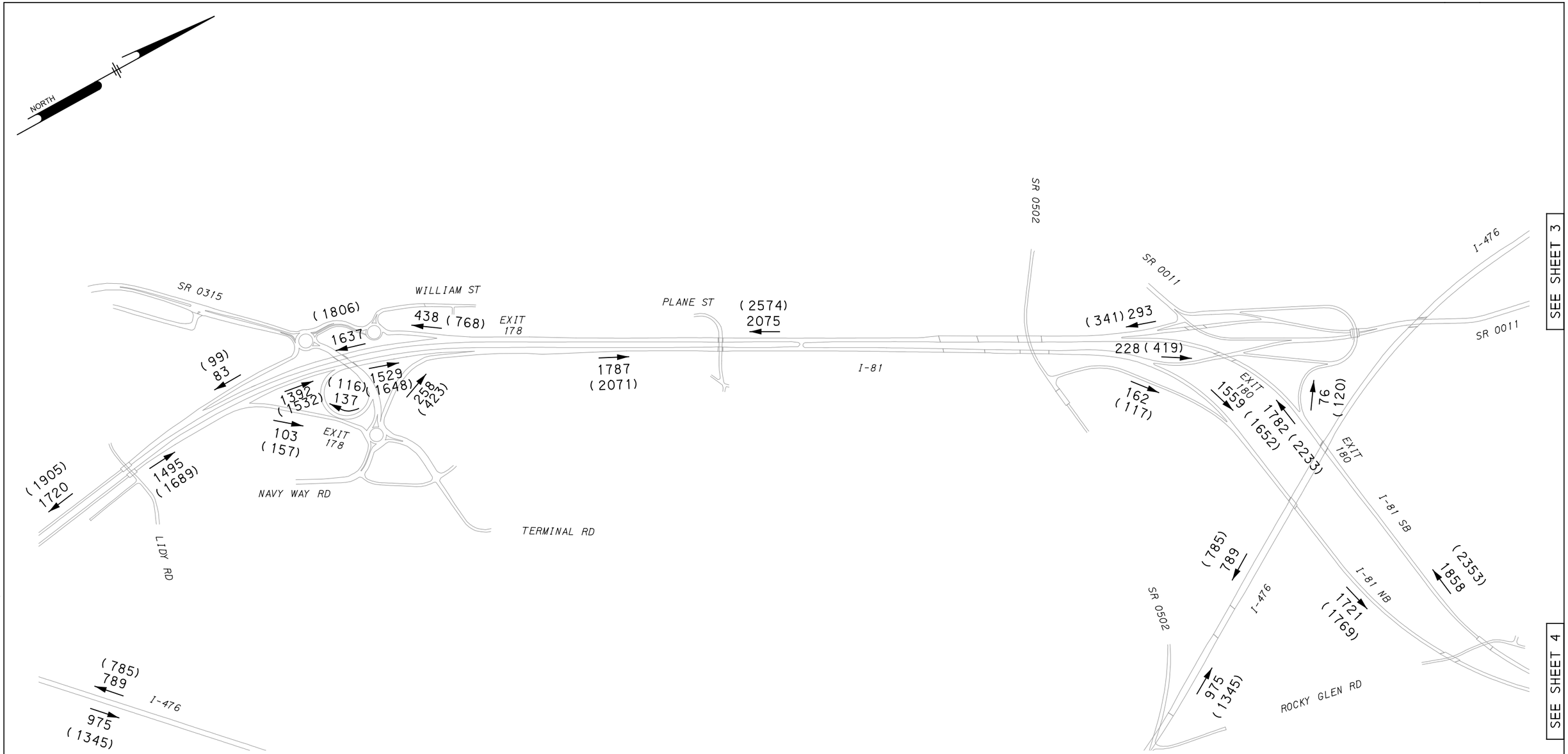
POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: DESIGN YEAR (2045)
BUILD PEAK HOUR
AM (PM)

NTS



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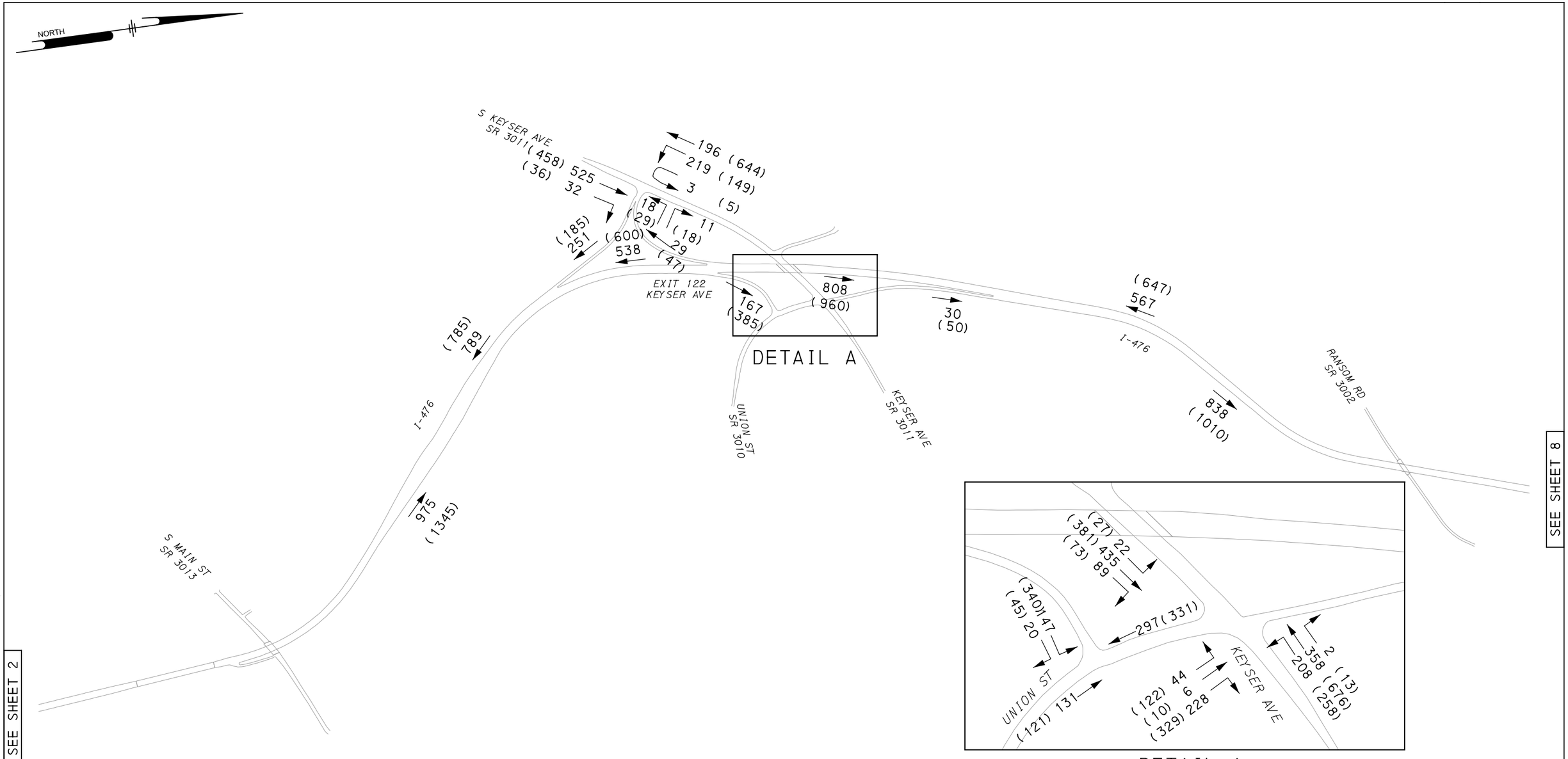
PROJECT: SCRANTON BELTWAY
POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: HORIZON YEAR (2045)
BUILD PEAK HOUR
AM (PM)

NTS



DETAIL A

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PENNONI ASSOCIATES INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

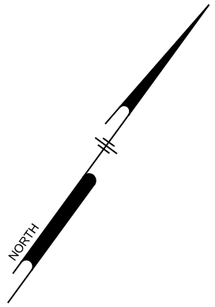
PTC WBS No.: A-115.70P001-2

PROJECT: SCRANTON BELTWAY
POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: DESIGN YEAR (2045)
BUILD PEAK HOUR
AM (PM)

NTS



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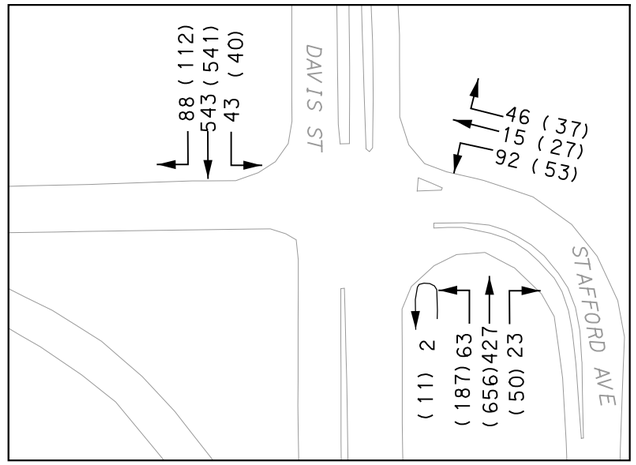
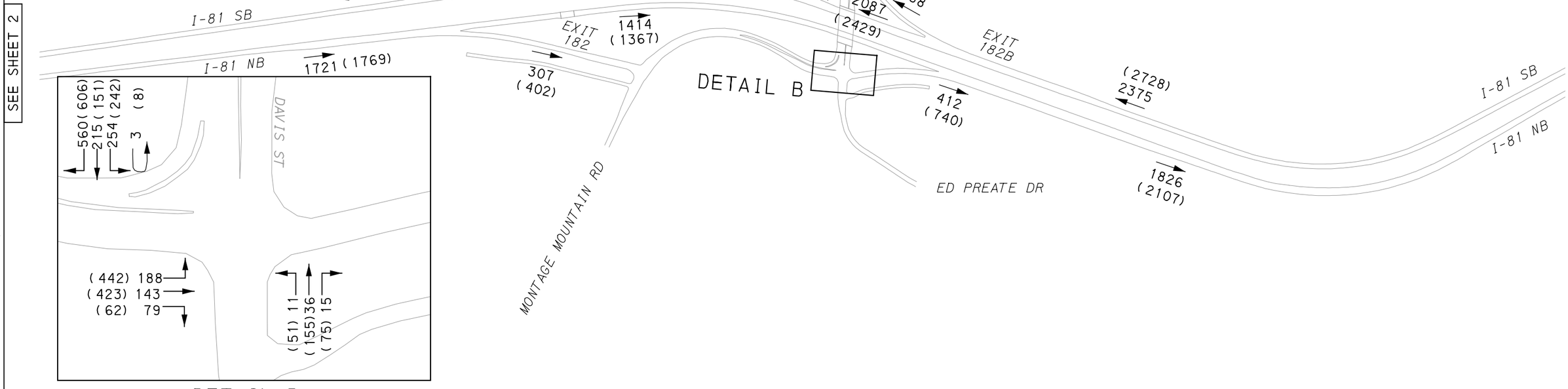


DETAIL A



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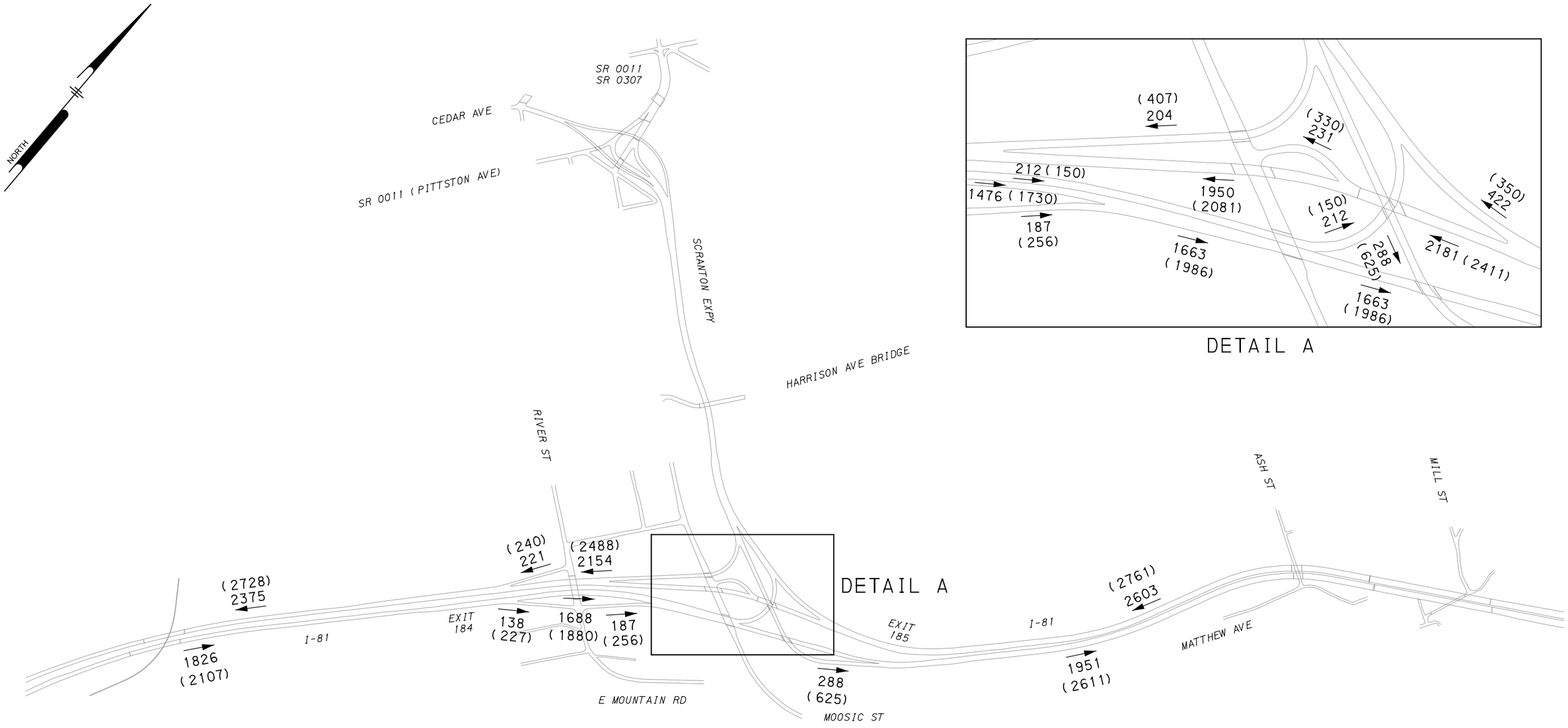

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PLOTTED: 1/1/0001 12:00:00 AM, BY: IAN T. EDISON PLOTSTYLE: PENNONI NCS.STB, PROJECT STATUS: ---

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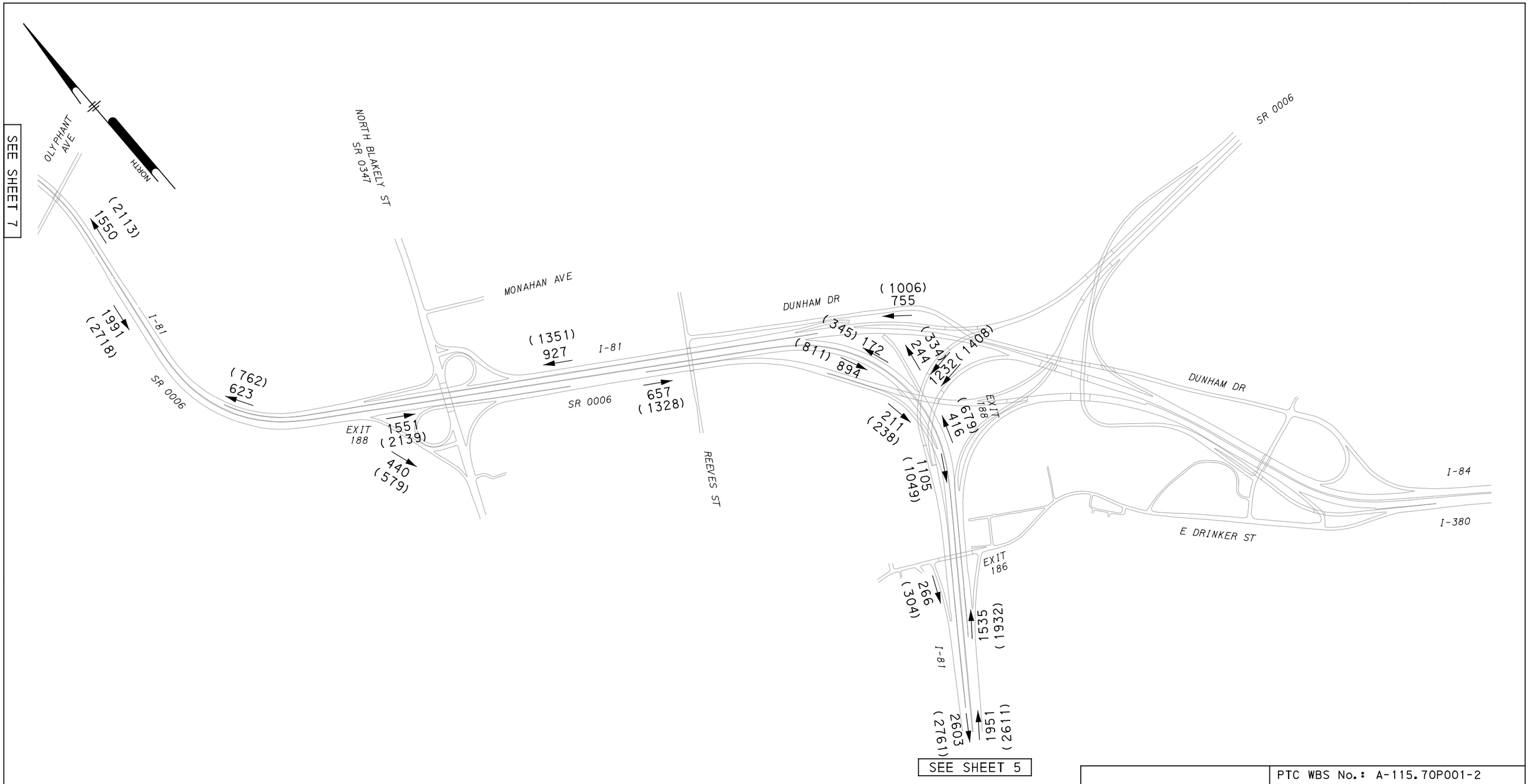
NTS



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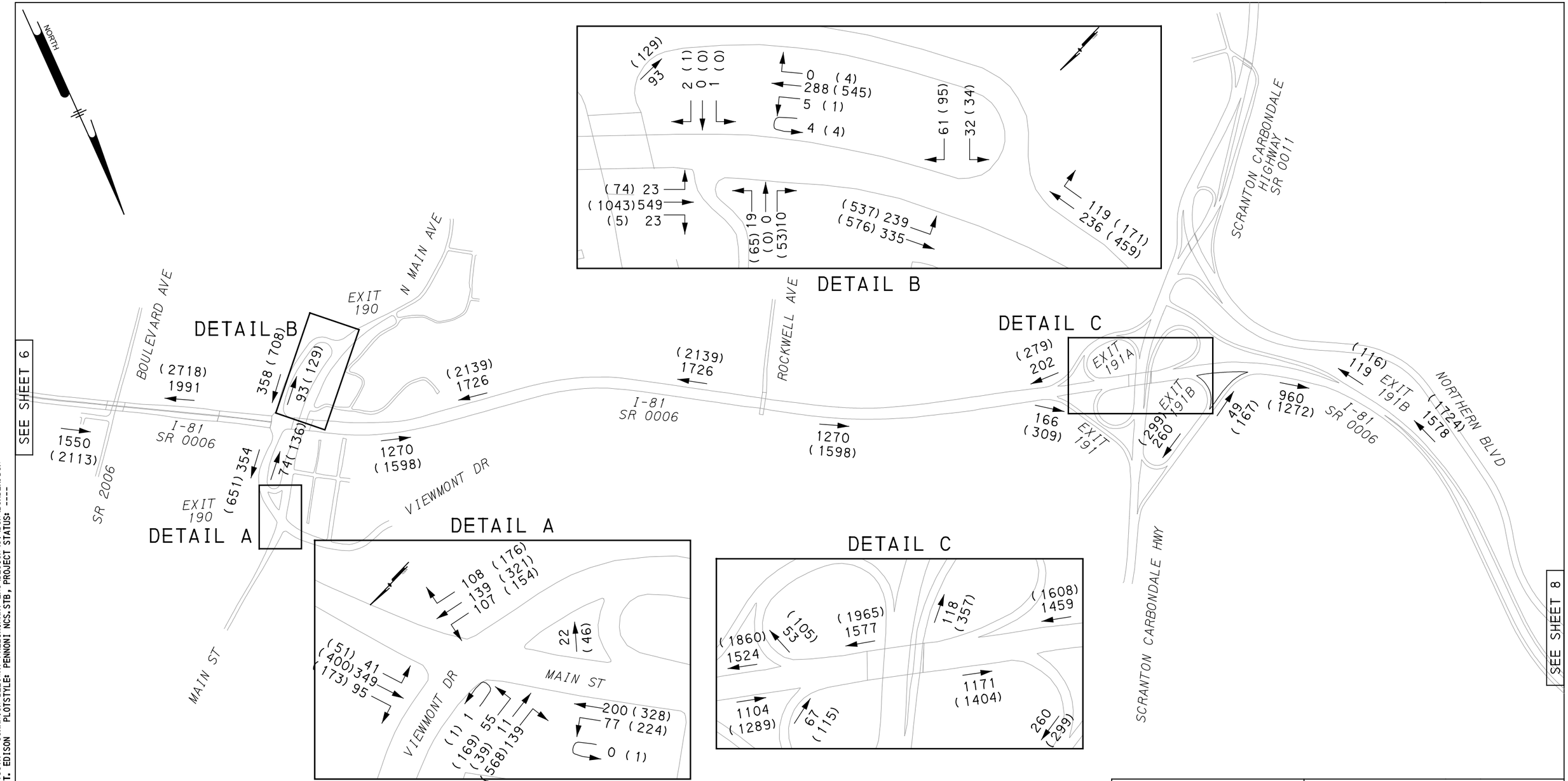
POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: DESIGN YEAR (2045)
BUILD PEAK HOUR
AM (PM)

NTS



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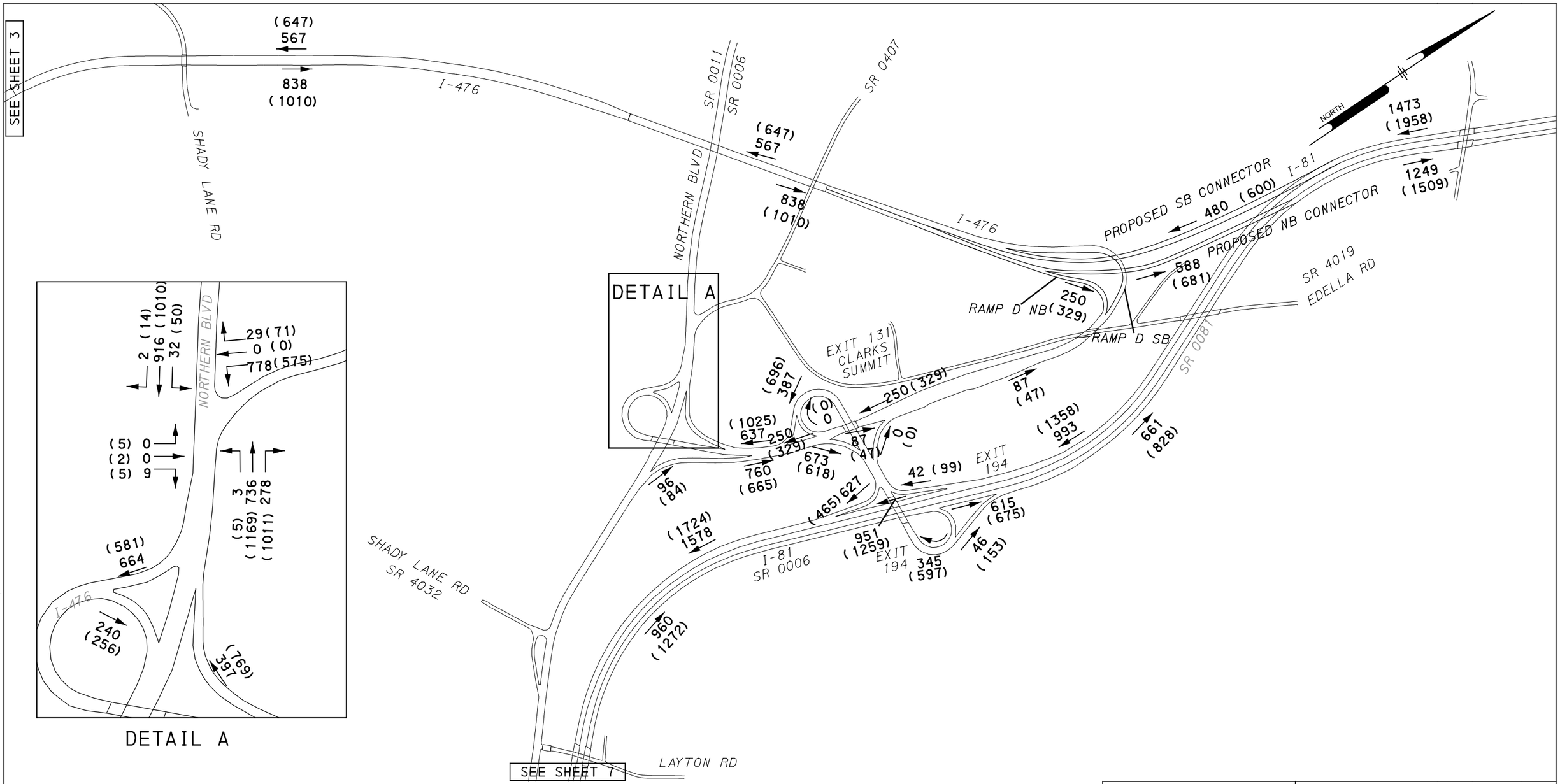

DETAIL A

\\PENNONI.COM\DATA\ACCOUNTS\URBAN\URBAN1801A - SCRANTON BELTWAY PRELIMINARY ENG\DESIGN\CT\DGN\BORDER.DGN
PLOTTED: 1/1/0001 12:00:00 AM, BY: IAN T. EDISON PLOTSTYLE: PENNONI NCS.STB, PROJECT STATUS: ----

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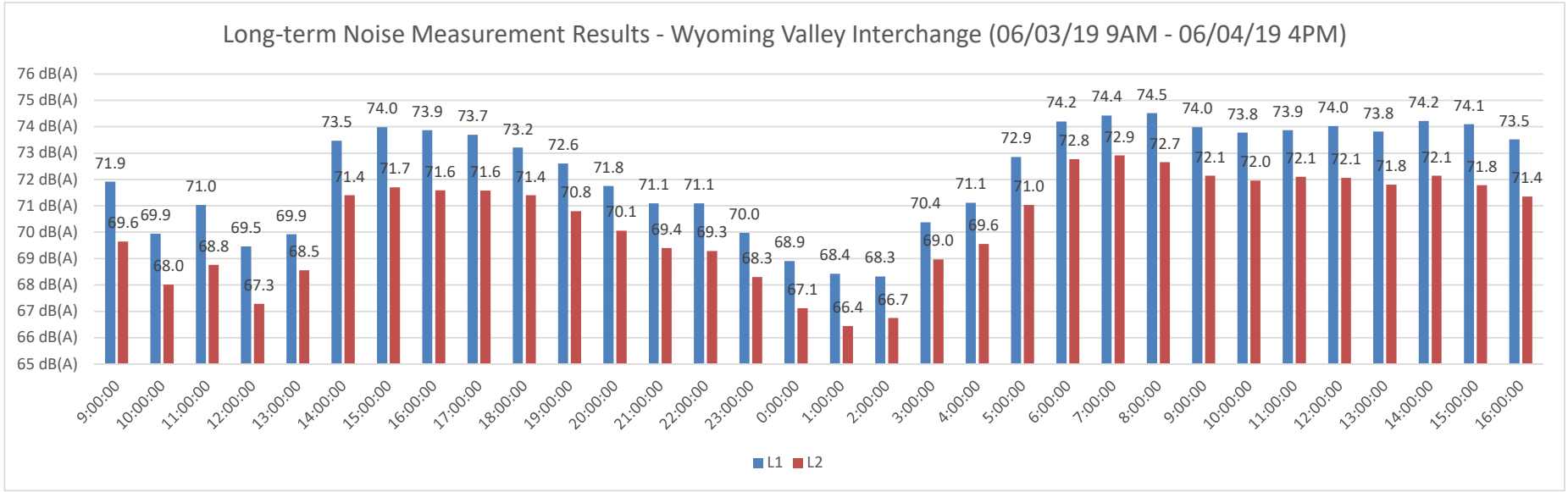
POINT OF ACCESS STUDY

TRAFFIC VOLUME DIAGRAMS

TITLE: DESIGN YEAR (2045)
BUILD PEAK HOUR
AM (PM)

NTS

Appendix D


Long-term Noise Measurement Results - Wyoming Valley Interchange (06/03/19 9AM - 06/04/19 4PM)
76 dB(A)
75 dB(A)
74 dB(A)
73 dB(A)
72 dB(A)
71 dB(A)
70 dB(A)
69 dB(A)
68 dB(A)
67 dB(A)
66 dB(A)
65 dB(A)
71.9 69.6
69.9 68.0
71.0 68.8
69.5 67.3
69.9 68.5
73.5 71.4
74.0 71.7
73.9 71.6
73.7 71.6
73.2 71.4
72.6 70.8
71.8 70.1
71.1 69.4
71.1 69.3
70.0 68.3
68.9 67.1
68.4 66.4
68.3 66.7
70.4 69.0
71.1 69.6
72.9 71.0
74.2 72.8
74.4 72.9
74.5 72.7
74.0 72.1
73.8 72.0
73.9 72.1
74.0 72.1
73.8 71.8
74.2 72.1
74.1 71.8
73.5 71.4
9:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
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22:00:00
23:00:00
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2:00:00
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14:00:00
15:00:00
16:00:00
L1
L2

Appendix E

List of Preparers

- Ahmed El-Aassar, PhD, P.E., Group Lead
- Adam Alexander, ENV SP, Senior Noise Analyst
- Sondra Peterson, Noise Analyst
- Kevin Brown, Noise Analyst