



**CLEAR SPRING ROAD
CORRIDOR STUDY**

**NORTH ANNVILLE TOWNSHIP
LEBANON COUNTY**

NOVEMBER 2023

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ELA PROJECT #1273-001



Clear Spring Road Corridor Study

North Annville Township, Lebanon County

November 2023

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Clear Spring Road Corridor Study

North Annville Township, Lebanon County

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Introduction

This corridor study evaluated Clear Spring Road(T-376) from Benjamin Franklin Highway (US 422) to the Bellegrove Road (SR 0934) for possible widening, pavement structure improvements, bridge/culvert improvements and other safety improvements. The impetus for the study is the expected increase in traffic volume from surrounding land developments and the expected large increase in truck traffic.

The study involved conducting an inventory of the existing roadway features and comparing the current conditions with the 3R (Resurfacing, Restoration, and Rehabilitation) Criteria in PennDOT's Design Manual Part 2, based upon the anticipated future traffic volumes and truck volumes, to determine appropriate lane and shoulder widths. The 3R Criteria analysis was supplemented with an evaluation of tractor trailer off-tracking as trucks travel through the numerous horizontal curves along the corridor. The study also included evaluating the existing pavement structure and bridge/culvert structures versus the projected future traffic volumes, and evaluating crash data to identify any safety-related deficiencies.

Existing Roadway Conditions

Clear Spring Road from Benjamin Franklin Highway to Bellegrove Road is approximately 2.1 miles long. In general, there are 11' lanes with 1' shoulders throughout the focus area. The shoulder widths range from 0' to 3' and the right-of-way width generally 33 feet (16.5 feet from centerline). There are some properties on the northern end of the corridor that have 25 feet of right-of-way from centerline. The posted speed limit is 40 mph throughout the study area. The pavement surface is generally in good condition.

The study area was broken into three distinct sections based on surrounding land use and road characteristics. Section A is from Benjamin Franklin Highway to Syner Road. Section B is from Syner Road to the northern limit of the 2009 reconstruction project that included the construction of a new bridge over Quittapahilla Creek. Section C is from the northern limit of the 2009 reconstruction project to Bellegrove Road. A study area corridor plan, prepared with Lebanon County GIS information, and supplemented with field measurements, is provided in **Appendix B**.

Improvements by Others

The study area does not include the intersection with Benjamin Franklin Highway or the intersection with Bellegrove Road, as it is our understanding that there are plans for these intersections to be improved by others. The intersection of Clear Spring Road and Bellegrove Road is planned for improvement as part of a grant obtained by the developer of the DHL warehouses. The improvement involves the construction of a roundabout. The project is currently in the design phase, with construction planned in 2024/2025.

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The intersection of Benjamin Franklin Highway and Clear Spring Road/Killinger Road was analyzed as part of the Clear Springs Logistic Park (DHL) Transportation Impact Study. That report shows that this intersection is projected to operate at Level of Service (LOS) D or better for all movements through the 2028 horizon year for that project. (LOS is a relative measure of the operational characteristics of an intersection based upon average vehicle delay, With LOS A being the best and LOS F being the worst. More information on the concept of LOS is provided in **Appendix J**.) The analyses in this report included traffic from the DHL warehouses, Northpoint warehouse, and the planned expansion of the Hershey Foods warehouse. In addition, it is our understanding that as the remaining Eastern Land and Resources industrial land is developed, that developer will be responsible for additional improvements at this intersection.

For these reasons outlined above, these two intersections were not included in this study area.

Traffic Volumes

Existing traffic volume and vehicle classification data were collected at one location in each Section A and Section B using automatic traffic recorders (ATR) set from Monday July 17 to Tuesday July 25, 2023. The existing traffic volumes and truck percentages are as follows:

Section A	– 4,638 vehicles per day	5.2% trucks
Section B/C	– 3,888 vehicles per day	4.3% trucks

The existing traffic volumes were projected to the study design year (2042) using an average annual growth rate of 0.62% per year. The 2042 design year was selected as being 15 years from the projected year (2027) for making the pavement widening and pavement structure improvements. Traffic from major known developments in the area (DHL Warehouses, Northpoint Warehouse, and Hershey Foods Warehouse Expansion) were added to the 2042 projections to develop the following 2042 design traffic volumes and truck percentages:

Section A	– 7,132 vehicles per day	13% trucks
Section B/C	– 6,288 vehicles per day	13% trucks

As shown above, the 3 warehouse developments are projected to add a significant volume of both passenger car traffic and truck traffic to Clear Spring Road when they are fully operational. Based upon the traffic impact studies prepared for each of the 3 warehouses, they are expected to add the following traffic volumes to Clear Spring Road when fully operational:

DHL	– 1,413 total vehicle trips per day	509 truck trips per day
Northpoint	– 394 total vehicle trips per day	86 truck trips per day
Hershey Foods	– 109 total vehicle trips per day	51 truck trips per day

The vehicle and truck trip volumes shown above are one-way trips (i.e. a single truck traveling to a warehouse and then leaving the warehouse would be two trips). Traffic count data is included in **Appendix C** and the future traffic volume calculations are included in **Appendix D**.

Cartway and Shoulder Width Evaluation

PennDOT 3R (Resurfacing, Restoration, and Rehabilitation) Criteria

PennDOT's Design Manual Part 2 - Highway Design (DM-2) establishes design criteria for existing roadways undergoing improvements. Those criteria include lane and shoulder widths based upon traffic

volume and truck percentage. On roadways with a design speed less than 50 mph, 11-foot lanes and 4-foot shoulders are recommended for ADT (average daily traffic) ranges between 4,001 and 10,000 vehicles per day. For ADT ranges between 10,001 and 20,000 vehicles per day, 11-foot lanes and 5-foot shoulders are recommended. When the truck percentage exceeds 10%, 6-foot shoulders are recommended regardless of ADT. The PennDOT 3R criteria are provided in **Appendix E**.

Section A (Benjamin Franklin Highway to Syner Road)

Existing Right of Way: 33' (except at intersection with Benjamin Franklin Highway)
Existing Cartway Width: 22' (except at intersection with Benjamin Franklin Highway)
Existing Shoulder Width: primarily 1'

General land uses are a stone quarry and undeveloped land. The cartway is 22' wide (11' lanes), except at the intersection with Benjamin Franklin Highway, with 1-foot shoulders. Based upon the projected traffic volume and truck percentage, the 3R Criteria recommends 11-foot travel lanes and 6-foot shoulders.

Section B (Syner Road to Northern Limit of 2009 Reconstruction)

Existing Right of Way: 33'
Existing Cartway Width: 22'
Existing Shoulder Width: 3'- 5'

General land uses are a mix of residential, agricultural, and woodland. The cartway is 22' wide (11' lanes) and shoulder widths are approximately 4-5 feet. Based upon the projected traffic volume and truck percentage, the 3R Criteria recommends 11-foot travel lanes and 6-foot shoulders.

Section C (Northern Limit of 2009 Reconstruction to Bellegrove Road)

Existing Right of Way: varies from 33' to 50'
Existing Cartway Width: 22'
Existing Shoulder Width: varies 0' to 3'

General land uses are a mix of residential and agricultural. The cartway is 22' wide (11' lanes), with 0 to 3-foot shoulders (primarily 1-foot). Based upon the projected traffic volume and truck percentage, the 3R Criteria recommends 11-foot travel lanes and 6-foot shoulders.

Tractor Trailer Off-Tracking Analysis

An analysis of tractor trailer off-tracking was completed for the various curves along the length of the study corridor. Off-tracking occurs when combination vehicles (tractor-trailers) turn at a radius so tight that the rear trailer wheels do not follow the same path as the tractor wheels. For these tight radii, additional pavement is needed on the inside of the curve to accommodate the off-tracking. This analysis was completed using AutoTURN software on base mapping developed using GIS data supplemented with field measurements. The results of the analysis are provided in **Appendix F**. The analysis shows that all off-tracking will be accommodated with the proposed 6-foot shoulders, however there are some curves where the rear trailer wheels do run off the existing pavement (Curves 3, 6 and 7). An additional analysis was done to determine the largest truck that can navigate these curves while remaining on the existing pavement. The results of that analysis show that a WB-50 (43-foot trailer) is the largest truck that will not off-track off of the existing pavement.

Pavement Analysis and Design

Pavement Core Samples

Pavement core samples were collected at 4 locations along the study corridor, with one location in Section A, one location in Section B, and two locations in Section C. Three samples were collected at each location, with one sample at the roadway centerline and one sample in each travel lane, approximately 2 feet inside the white edge line. The pavement core sample report is included in **Appendix G** and the results of the core sample analysis are as follows:

Section A – 5.5” 19 mm Binder / 9.5 “ 2A Modified Stone Subbase

Section B – 1.5” Wearing / 6” Base / 4” 2A Modified Stone Subbase

Section C - 5.5” 19 mm Binder / 9.5 “ 2A Modified Stone Subbase

Pavement Analysis

A pavement analysis/design was prepared in accordance with the guidelines contained in PennDOT Publication 242 – Pavement Policy Manual. Several assumptions were made while preparing the analysis. It was assumed that the existing pavement structure along the corridor would need to be improved to support the projected future truck volumes. It was also assumed that it could take a few years to design the improvements and secure the necessary funding to construct them, so a construction year of 2027 was selected. In addition, a 15-year design period was selected for the pavement, so this study uses a design year of 2042.

The pavement loading over the course of the design period was calculated in the form of Equivalent Single-Axle Loadings (ESALs) using the existing traffic volumes and vehicle classifications contained in **Appendix C** and the future projected increase in truck volumes contained in **Appendix D**. All truck traffic generated by the planned warehouses was assumed to be FHWA (Federal Highway Administration) Class 9 tractor trailers. More information on the FHWA vehicle classifications is provided in **Appendix G**. The results of the calculations show that 3 million ESALs are anticipated over the design period. The ESAL calculations are included in **Appendix G**.

Another parameter used in the pavement analysis calculations is the structural stability of the subgrade soil supporting the pavement, or Resilient Modulus (M_R). For Sections A and B, $M_R = 6,000$ psi was assumed based upon the underlying limestone geology, and for Section C, $M_R = 9,000$ psi was assumed based upon the underlying shale and siltstone geology. If North Annville Township decides to advance this project to the design phase, then it is recommended that geotechnical soil testing be performed to get a more accurate determination of M_R variations throughout the corridor.

Other pavement analysis parameters used in the pavement analysis process were selected based upon guidance contained in the Pavement Policy Manual. These parameters are shown in **Appendix G**, along with the nomograph used to calculate the required pavement structural number (SN) for each section. The pavement analysis calculations are included in **Appendix G** and resultant structural numbers are as follows:

Section A – SN = 5.0

Section B – SN = 5.0

Section C – SN = 4.3

Pavement Design

A pavement design for each section was prepared using the results of the core samples and the structural numbers calculated above. Using the existing subbase depths, the recommended pavement sections for each corridor section are as follows:

Section A – 1.5” Wearing / 8.5” Base / 9.5 “ 2A Modified Stone Subbase

Section B – 1.5” Wearing / 10” Base / 4” 2A Modified Stone Subbase

Section C – 1.5” Wearing / 6.5” Base / 9.5 “ 2A Modified Stone Subbase

Structure (Bridges/Culverts) Analysis

See **Appendix H** for the bridge locations and the bridge notations used in the report:

- NA-51 Bridge: steel thru-girder bridge over railroad, built in 1937
- NA-1 Bridge: steel plate girder bridge over Quittapahilla Creek, built in 2009
- South Culvert: culvert structure of concrete pipe and two SLCP at ends
- North Culvert: culvert structure of concrete pipe

Bridge widths are evaluated using similar criteria to travel lanes and shoulders. Using the design year and traffic volumes listed in the Traffic Volumes section of this report, and solely based upon the ADT, the corresponding minimum width required is 22'-0" pavement plus 4'-0" shoulders on each side to conform to the criteria established for 3R (resurfacing, restoration and rehabilitation) rural projects in PennDOT Design Manual Part 2 Highway Design (DM-2). Because the truck percentage (13%) is greater than 10%, the recommended shoulder width increases to 6'-0". See **Appendix C** for the projected traffic volume calculations.

NA-51 Bridge (owned by Norfolk Southern)

The bridge is generally in fair condition, as indicated in the 2023 Bridge Inspection Report by Wilson Consulting Group. The thru-girder structure is fractural critical: the failure of steel member in tension can potentially cause the entire bridge, or a portion of it, to collapse. With the substantial increase in truck traffic, the fatigue on the fracture-critical members is of concern. However, a detailed load rating analysis of the structure, including fatigue analysis, is not feasible because the floorbeams and the bottom of girders are encased in concrete, making the measurements of these main structural members impossible.

The existing roadway width between the knee braces is 30'±, which includes 5'-3" sidewalk on the left as shown on the cross section in **Appendix H**. This does not meet the required 34' roadway width.

Alternative 1: Rehabilitate the superstructure.

To increase the roadway width, the existing concrete slab should extend to the sidewalk. The knee braces need to be encased to mitigate the potential damage by an errant vehicle. These measures will increase the dead load of the structure. Since the capacities of steel members are unknown, it is not feasible to determine if such an increase in loading can be safely supported. In addition, the bridge was originally constructed in 1937 and will be well beyond the end of its service life in the design year 2042. Therefore, although this alternative was considered, it is strongly recommended that the superstructure be replaced.

Alternative 2: Replace the superstructure.

The proposed superstructure will be either steel or reinforced concrete box beams with a composite concrete deck. The substructure is in satisfactory condition and will remain. Repairs on the remaining

structure are required, including repairing abutment spalls and rotated wingwalls. Traffic safety features, such as approach guide rail and its transition to parapet walls, will be updated to the current standards.

Coordination with PA Public Utility Commission (PUC) and the railroad company (Norfolk Southern Railroad) is anticipated in either scenario to notify them of the large increase in truck volumes, the anticipated road improvement project, and the concerns regarding the capacity of the bridge to support the project loading.

NA-1 Bridge

The bridge is in good condition with no major deficiencies, as noted in the 2023 Bridge Inspection Report by Wilson Consulting Group. The curb-to-curb width is 32', which is just short of the recommended width. The bridge, which was constructed in 2009, will be within the anticipated service life in the design year of 2042. Therefore, no major repairs or replacement are required or recommended.

South Culvert

The culvert is in fair condition. The undermining of the concrete pipe and the separation and misalignment of pipes were noted. The width between the headwalls is 35.4'±. The guide rail, placed inside of the headwall on each side, does not meet the current safety standards. The guide rail post spacing at the culvert is not close enough for an errant vehicle to be contained and redirected back to the roadway. The guide rail should extend further at both approaches and the erroneous turndowns of end treatment need to be replaced.

Alternative 1: Improve traffic safety features only.

The estimated fill over the culvert is over 7' high. The impact of increased truck traffic won't be as significant as other structure types, such as NA-51. Unless the roadway needs to be widened, the culvert does not need to be replaced based on the current condition. Although the date of construction of the culvert is unknown, crack repairs to the headwall and pipe will allow the service life of the structure to extend beyond the design year of 2042. The traffic safety features are required to meet the current standards.

Alternative 2: Improve traffic safety features and replace culvert.

Should the roadway be widened, it will be necessary to replace the culvert. The culvert may also be replaced proactively for potential undermining issues. The corrugated plastic pipes at either end of the concrete pipe have different sizes, which will likely cause the advance of undermining at the interfaces. Under this scenario, the structure will be entirely replaced, including headwalls.

North Culvert

The culvert is in satisfactory condition. No major deficiencies are noted. The width between the headwalls is 35.0'±. The guide rail, placed inside of the headwall on each side, does not meet the current safety standards. The guide rail post spacing at the culvert is not close enough for an errant vehicle to be contained and redirected back to the roadway. The guide rail should extend further at both approaches and the erroneous turndowns of end treatment need to be replaced.

Alternative 1: Improve traffic safety features only.

The estimated fill over the culvert is 10'± high. The impact of increased truck traffic won't be as significant as other structure types, such as NA-51. Unless the roadway needs to be widened, the culvert does not need to be replaced based on the current condition. Although the date of construction of the culvert is unknown, crack repairs to the headwall and pipe will allow the service life of the structure to extend beyond the design year of 2042. The traffic safety features are required to meet

the current standards. Embankment stabilization is anticipated at the culvert due to the tight clearance between the guide rail and the east headwall.

Alternative 2: Improve traffic safety features and replace culvert.

Should the roadway be widened, it will be necessary to replace the culvert. Under this scenario, the structure will be entirely replaced, including headwalls.

Supplemental information related to the structural analysis is provided in **Appendix H**.

Crash Analysis

Crash data was obtained from PennDOT for reportable crashes occurring along the study corridor from January 1, 2018 through December 31, 2022. A reportable crash is a crash that either involves a personal injury or requires that a vehicle be towed from the scene. This data was analyzed to determine if there are any discernable trends in the crashes.

There were eleven (11) reportable crashes along the study corridor during the 5-year period, not including crashes at the intersections with Benjamin Franklin Highway or Bellegrove Road. Six (6) of the eleven (11) crashes were single-vehicle run-off-the-road crashes, and five (5) of those six (6) crashes involved a wet pavement surface. Four (4) of those same six (6) crashes occurred on curves, and all four (4) of those crashes involved a wet pavement surface.

The actual crash data obtained from PennDOT is confidential and is therefore not included in this report. It can be made available to municipal officials upon request. Data for non-reportable crashes was obtained from Cleona Borough Police Department, but that data did not contain sufficient detail to perform an engineering analysis. A map showing the locations of the reportable crashes is provided in **Appendix I**.

Recommended Improvements

A comprehensive list of recommendations was developed as a result of the completion of the analyses described in the previous sections. The recommendations have been divided into 3 categories: long-term improvements; shorter-term, lower-cost improvements; and short-term actions in preparation for long-term improvements. Approximate costs are included for the short-term improvement recommendations and some of the short-term improvements actions.

Long-Term Improvement Recommendations

- Widen Clear Spring Road to provide 11-foot travel lanes and 6-foot shoulders in Sections A and C;
- Overlay existing pavement to create the recommended pavement sections outlined above;
- Full-depth reconstruction of bridge approaches in Section B to match existing bridge elevation;
- Replace north and south culverts in Section C in conjunction with roadway widening;
- Replace superstructure of bridge over Norfolk Southern railway (by Norfolk Southern).

Short-Term Improvement Recommendations

- Widen Clear Spring Road in horizontal curves 3, 6 and 7 to provide 11-foot travel lanes and 6-foot shoulders (this project can be done as an interim improvement depending upon the timing of the widening of the entire lengths of Sections A and C); (\$480,000)
- Install Curve Warning Signs at the horizontal curves per recommendations in a traffic and engineering study to be completed. (\$6,000)

Short-Term Action Recommendations

- Complete traffic and engineering study for placement of curve warning signs; (\$3,000)
- Complete geotechnical soil testing and refine pavement design; (\$15,000)
- Complete topographic survey of entire corridor and prepare final design plans;
- Refine Construction Cost Estimate;
- Explore funding opportunities;
- Acquire right-of-way needed for roadway widening;
- Utility Coordination.

Construction Cost Opinion

Limitations and Exclusions

The cost opinion was prepared using a conceptual layout without conducting a topographic survey or locating underground utilities. All visible features were inventoried and generally located during multiple field views. The cost opinion does not include costs for any necessary categorical exclusion evaluations, hydrologic and/or hydraulic analyses, geotechnical investigations, underground utility relocations, construction phase engineering services, or right-of-way acquisition.

Cost Opinion Results

Detailed cost opinions for the construction of all Long-Term Improvement Recommendations for each roadway section are provided in **Appendix A**. All estimated costs are in 2023 dollars and include construction, survey, engineering, utility coordination, E&S control, construction plans and specs, and waterway permits (culverts). These costs should be converted to year of expenditure as the project advances. The results of the cost opinion are summarized below.

Section A –	\$738,162
Section B –	\$370,075
Section C –	\$2,985,323
Total	\$4,093,560

APPENDICES

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APPENDIX A – COST ESTIMATES



Clear Spring Road Corridor Study
Opinion of Probable Cost - Section A

September 27, 2023

Item Description	Units	Quantity	Unit Price	Price
SUPERPAVE ASPHALT MIXTURE DESIGN BASE COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 25.0 MM MIX, 3" DEPTH (BUILDUP ROADWAY)	SY	5300.0	\$ 35.00	\$ 185,500.00
SUPERPAVE ASPHALT MIXTURE DESIGN BASE COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 25.0 MM MIX, 8.5" DEPTH (FULL DEPTH)	SY	2100.0	\$ 55.00	\$ 115,500.00
SUBBASE 9.5" DEPTH (NO. 2A) (FULL DEPTH)	SY	2100.0	\$ 20.00	\$ 42,000.00
SUPERPAVE ASPHALT MIXTURE DESIGN WEARING COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 12.5 MM MIX, 1.5" DEPTH, SRL-H (FINAL OVERLAY)	SY	7400.0	\$ 14.00	\$ 103,600.00
MOBILIZATION	LS	1.0	\$ 20,000.00	\$ 20,000.00
REMOVE EXISTING PAVEMENT	SY	600.0	\$ 6.00	\$ 3,600.00
MILLING BITUMINOUS PAVEMENT SURFACE, 1.5" DEPTH	SY	150.0	\$ 4.00	\$ 600.00
EARTHWORK	LS	1.0	\$ 7,500.00	\$ 7,500.00
TYPE M CONCRETE TOP UNIT AND BICYCLE SAFE GRATE	SET	1.0	\$ 1,600.00	\$ 1,600.00
STANDARD INLET BOX, HEIGHT <= 10'	EA	1.0	\$ 2,000.00	\$ 2,000.00
MANHOLE ADJUSTMENT	EA	1.0	\$ 500.00	\$ 500.00
RELOCATED UTILITY POLE	EA	8.0	\$ 5,000.00	\$ 40,000.00
TOPSOIL AND SEED	LS	1.0	\$ 3,000.00	\$ 3,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1.0	\$ 5,000.00	\$ 5,000.00
4" STAN PAVEMENT MARKING, PAINT & BEADS, YELLOW	LF	3300.0	\$ 0.50	\$ 1,650.00
4" STAN PAVEMENT MARKING, PAINT & BEADS, WHITE	LF	3300.0	\$ 0.50	\$ 1,650.00
RELOCATE POST MOUNTED SIGNS, TYPE B	LS	1.0	\$ 1,200.00	\$ 1,200.00

Total	\$ 534,900.00
20% Contingency	\$ 106,980.00
CONSTRUCTION TOTAL	\$ 641,880.00
15% Engineering	\$ 96,282.00
GRAND TOTAL	\$ 738,162.00



Clear Spring Road Corridor Study
Opinion of Probable Cost - Section B

September 27, 2023

Item Description	Units	Quantity	Unit Price	Price
SUPERPAVE ASPHALT MIXTURE DESIGN BASE COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 25.0 MM MIX, 4" DEPTH (BUILDUP ROADWAY)	SY	3100.0	\$ 35.00	\$ 108,500.00
SUPERPAVE ASPHALT MIXTURE DESIGN BASE COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 25.0 MM MIX, 10" DEPTH (FULL DEPTH)	SY	900.0	\$ 55.00	\$ 49,500.00
SUBBASE 4" DEPTH (NO. 2A) (FULL DEPTH)	SY	900.0	\$ 14.00	\$ 12,600.00
SUPERPAVE ASPHALT MIXTURE DESIGN WEARING COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 12.5 MM MIX, 1.5" DEPTH, SRL-H (FINAL OVERLAY)	SY	4000.0	\$ 14.00	\$ 56,000.00
MOBILIZATION	LS	1.0	\$ 10,000.00	\$ 10,000.00
REMOVE EXISTING PAVEMENT	SY	900.0	\$ 6.00	\$ 5,400.00
MILLING BITUMINOUS PAVEMENT SURFACE, 1.5" DEPTH	SY	3100.0	\$ 4.00	\$ 12,400.00
EARTHWORK	LS	1.0	\$ 2,000.00	\$ 2,000.00
DRIVEWAY ADJUSTMENTS	EA	2.0	\$ 1,500.00	\$ 3,000.00
TOPSOIL AND SEED	LS	1.0	\$ 1,000.00	\$ 1,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1.0	\$ 5,000.00	\$ 5,000.00
4" STAN PAVEMENT MARKING, PAINT & BEADS, YELLOW	LF	2270.0	\$ 0.50	\$ 1,135.00
4" STAN PAVEMENT MARKING, PAINT & BEADS, WHITE	LF	2270.0	\$ 0.50	\$ 1,135.00
RELOCATE POST MOUNTED SIGNS, TYPE B	LS	1.0	\$ 500.00	\$ 500.00

Total	\$ 268,170.00
20% Contingency	\$ 53,634.00
CONSTRUCTION TOTAL	\$ 321,804.00
15% Engineering	\$ 48,270.60
GRAND TOTAL	\$ 370,074.60



Clear Spring Road Corridor Study
Opinion of Probable Cost - Section C

September 27, 2023

Item Description	Units	Quantity	Unit Price	Price
SUPERPAVE ASPHALT MIXTURE DESIGN BASE COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 25.0 MM MIX, 1" DEPTH (BUILDUP ROADWAY)	SY	16100.0	\$ 18.00	\$ 289,800.00
SUPERPAVE ASPHALT MIXTURE DESIGN BASE COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 25 MM MIX, 8.5" DEPTH (FULL DEPTH)	SY	9200.0	\$ 55.00	\$ 506,000.00
SUBBASE 9.5" DEPTH (NO. 2A) (FULL DEPTH)	SY	9200.0	\$ 20.00	\$ 184,000.00
SUPERPAVE ASPHALT MIXTURE DESIGN WEARING COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 12.5 MM MIX, 1.5" DEPTH, SRL-H (FINAL OVERLAY)	SY	25300.0	\$ 14.00	\$ 354,200.00
MOBILIZATION	LS	1.0	\$ 40,000.00	\$ 40,000.00
REMOVE EXISTING PAVEMENT	SY	3400.0	\$ 6.00	\$ 20,400.00
MILLING BITUMINOUS PAVEMENT SURFACE, 1.5" DEPTH	SY	300.0	\$ 4.00	\$ 1,200.00
EARTHWORK	LS	1.0	\$ 2,000.00	\$ 2,000.00
DRIVEWAY ADJUSTMENTS	EA	40.0	\$ 1,500.00	\$ 60,000.00
TYPE M CONCRETE TOP UNIT AND BICYCLE SAFE GRATE	SET	5.0	\$ 1,600.00	\$ 8,000.00
STANDARD INLET BOX, HEIGHT <= 10'	EA	5.0	\$ 2,000.00	\$ 10,000.00
TYPE DW HEADWALL/ENDWALL	EA	5.0	\$ 2,200.00	\$ 11,000.00
PIPE REPLACEMENT	LF	270.0	\$ 45.00	\$ 12,150.00
RELOCATED UTILITY POLE	EA	16.0	\$ 5,000.00	\$ 80,000.00
SINGLE FACE CONCRETE BARRIER	LF	650.0	\$ 60.00	\$ 39,000.00
TOPSOIL AND SEED	LS	1.0	\$ 6,000.00	\$ 6,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1.0	\$ 5,000.00	\$ 5,000.00
4" STAN PAVEMENT MARKING, PAINT & BEADS, YELLOW	LF	13200.0	\$ 0.50	\$ 6,600.00
4" STAN PAVEMENT MARKING, PAINT & BEADS, WHITE	LF	13200.0	\$ 0.50	\$ 6,600.00
RELOCATE POST MOUNTED SIGNS, TYPE B	LS	1.0	\$ 2,500.00	\$ 2,500.00

Total	\$ 1,644,450.00
20% Contingency	\$ 328,890.00
CONSTRUCTION TOTAL	\$ 1,973,340.00
15% Engineering	\$ 296,001.00
GRAND TOTAL	\$ 2,269,341.00

CLEAR SPRING ROAD (T-376) BRIDGE STUDY

Owner Name: North Annville Township
Project Manager: Logan P. Swartz, P.E.

Date: September 27, 2023
Engineer's Project No: 4302.8.05.00

COST ESTIMATE FOR CONSTRUCTION OF TWO (2) CULVERTS			
	North Bridge	South Bridge	TOTAL
Culvert Size			
Span	5'-0"	5'-0"	
Rise	5'-0"	5'-0"	
Length	42'-0"	48'-6"	
Construction Cost			
Base Bid †	\$ 230,660.00	\$ 269,325.00	\$ 499,985.00
Contingency (20%)	\$ 46,132.00	\$ 53,865.00	\$ 99,997.00
Subtotal of Construction Cost	\$ 276,792.00	\$ 323,190.00	\$ 599,982.00
Engineering Cost *	\$ 55,000.00	\$ 55,000.00	\$ 110,000.00
Bog turtle and wetland studies	\$ 3,000.00	\$ 3,000.00	\$ 6,000.00
TOTAL COST **			\$ 715,982.00

† paving cost excluded

* Engineering cost includes

Survey, waterway permits, utility coordination;
 Roadway, E&S, traffic control, and structure design; and
 Construction plans and specifications.

** Total cost excludes

Categorical exclusion evaluation;
 Hydrologic and hydraulic analysis;
 Geotechnical investigation;
 Underground utility relocation;
 Construction phase engineering services;
 Right-of-way acquisition; and
 PennDOT concurrence & submissions, including safety review, TS&L, and structural adequacy



Clear Spring Road Corridor Study
Opinion of Probable Cost - Curves 3,6,7

October 2, 2023

Item Description	Units	Quantity	Unit Price	Price
SUPERPAVE ASPHALT MIXTURE DESIGN BASE COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 25.0 MM MIX, 1" DEPTH (BUILDUP ROADWAY)	SY	3200.0	\$ 18.00	\$ 57,600.00
SUPERPAVE ASPHALT MIXTURE DESIGN BASE COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 25 MM MIX, 8.5" DEPTH (FULL DEPTH)	SY	1700.0	\$ 55.00	\$ 93,500.00
SUBBASE 9.5" DEPTH (NO. 2A) (FULL DEPTH)	SY	1700.0	\$ 20.00	\$ 34,000.00
SUPERPAVE ASPHALT MIXTURE DESIGN WEARING COURSE, PG 64S-22, 3 TO <10 MILLION ESALS 12.5 MM MIX, 1.5" DEPTH, SRL-H (FINAL OVERLAY)	SY	4900.0	\$ 14.00	\$ 68,600.00
MOBILIZATION	LS	1.0	\$ 20,000.00	\$ 20,000.00
REMOVE EXISTING PAVEMENT	SY	800.0	\$ 6.00	\$ 4,800.00
MILLING BITUMINOUS PAVEMENT SURFACE, 1.5" DEPTH	SY	200.0	\$ 4.00	\$ 800.00
EARTHWORK	LS	1.0	\$ 2,000.00	\$ 2,000.00
DRIVEWAY ADJUSTMENTS	EA	7.0	\$ 1,500.00	\$ 10,500.00
TYPE M CONCRETE TOP UNIT AND BICYCLE SAFE GRATE	SET	1.0	\$ 1,600.00	\$ 1,600.00
STANDARD INLET BOX, HEIGHT <= 10'	EA	1.0	\$ 2,000.00	\$ 2,000.00
TYPE DW HEADWALL/ENDWALL	EA	1.0	\$ 2,200.00	\$ 2,200.00
PIPE REPLACEMENT	LF	40.0	\$ 45.00	\$ 1,800.00
RELOCATED UTILITY POLE	EA	4.0	\$ 5,000.00	\$ 20,000.00
SINGLE FACE CONCRETE BARRIER	LF	270.0	\$ 60.00	\$ 16,200.00
TOPSOIL AND SEED	LS	1.0	\$ 2,500.00	\$ 2,500.00
MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1.0	\$ 5,000.00	\$ 5,000.00
4" STAN PAVEMENT MARKING, PAINT & BEADS, YELLOW	LF	2500.0	\$ 0.50	\$ 1,250.00
4" STAN PAVEMENT MARKING, PAINT & BEADS, WHITE	LF	2500.0	\$ 0.50	\$ 1,250.00
RELOCATE POST MOUNTED SIGNS, TYPE B	LS	1.0	\$ 1,000.00	\$ 1,000.00

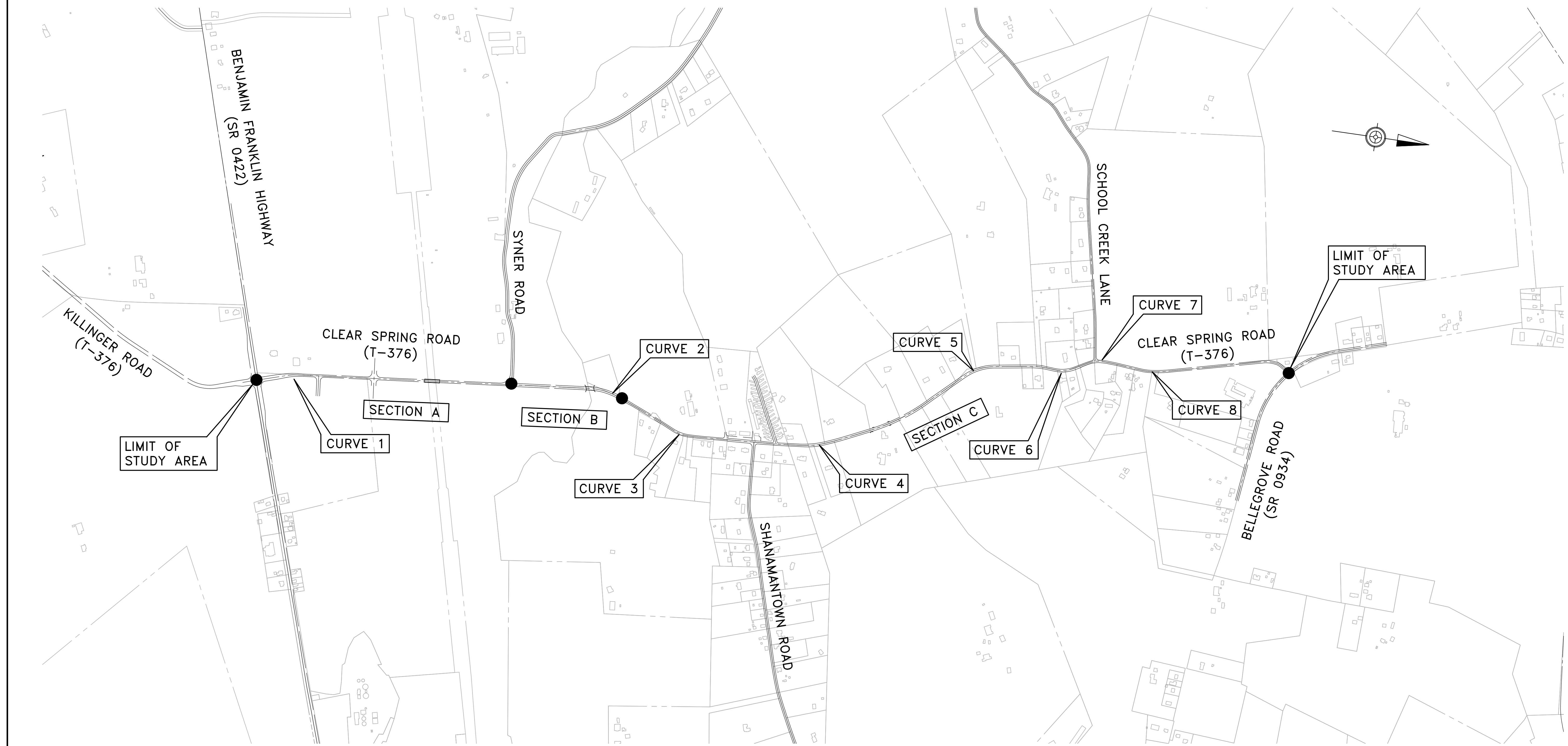
Total	\$ 346,600.00
20% Contingency	\$ 69,320.00
CONSTRUCTION TOTAL	\$ 415,920.00
15% Engineering	\$ 62,388.00
GRAND TOTAL	\$ 478,308.00

APPENDIX B – CORRIDOR PLAN

PLAN NOTES:

THIS DRAWING HAS BEEN PREPARED USING AVAILABLE GIS DATA AND FIELD MEASUREMENTS. THIS DRAWING IS FOR GRAPHICAL PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.

CLEAR SPRING ROAD STUDY AREA: BENJAMIN FRANKLIN HIGHWAY (SR 0422) TO BELLEGGROVE ROAD (SR 0934) – APPROX. 10,755 LF (2.04 MI.)



Scale: 1"=500'

NO.	REVISION	DATE	BY	APP.

SEAL

SEAL

MANAGER
M. HENISE
DESIGN
D. SHINDLER
DRAFT
D. SHINDLER
CHKD. BY
M. MADZELAN
NOTES

CIVIL/MUNICIPAL ENGINEERING
LAND PLANNING
LANDSCAPE ARCHITECTURE
LAND DEVELOPMENT
TRANSPORTATION ENGINEERING

EA
group, inc.
ENGINEERING & LANDSCAPE ARCHITECTURE

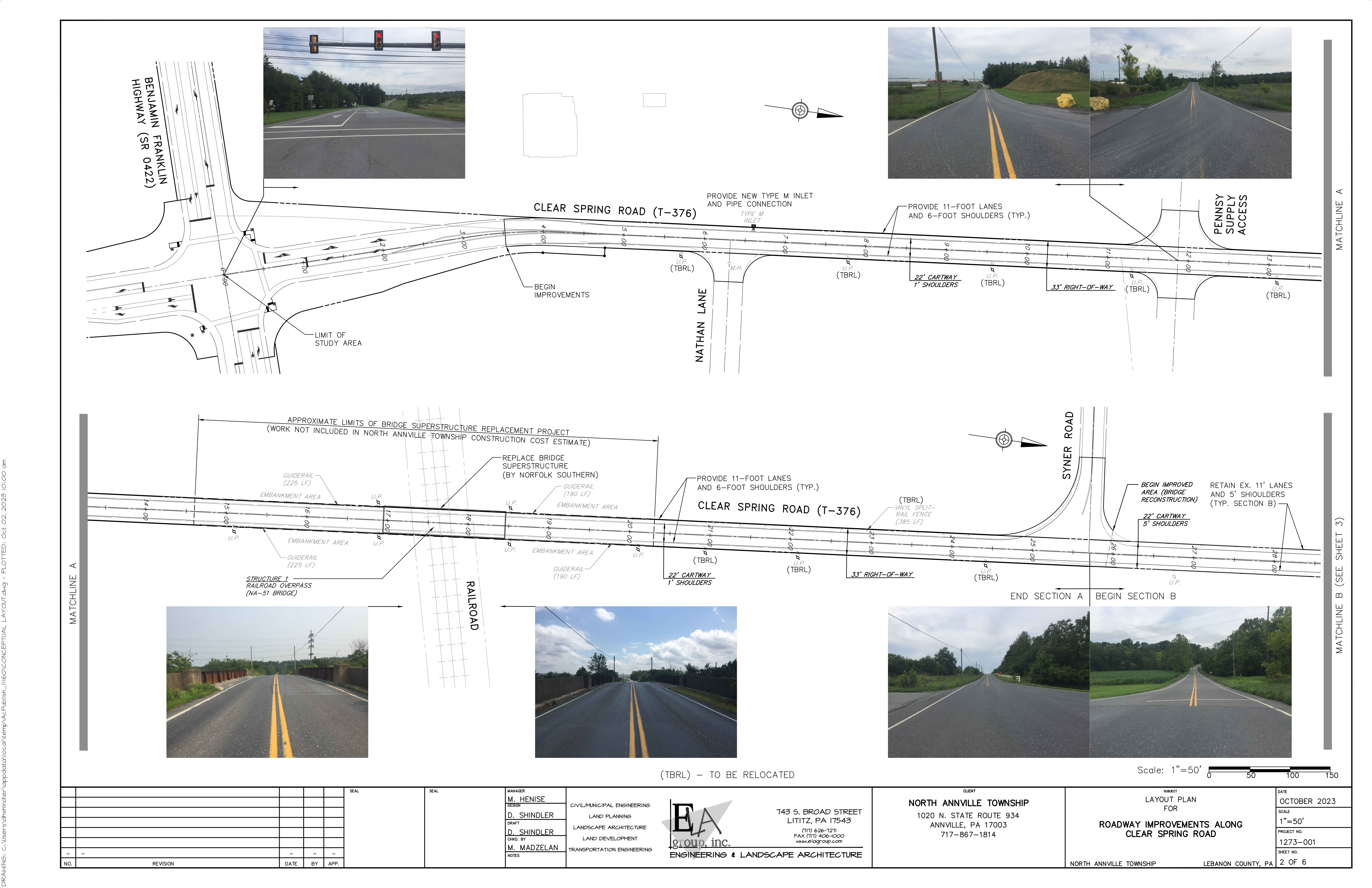
743 S. BROAD STREET
LITITZ, PA 17543
(717) 626-1211
FAX (717) 406-1000
www.elagroup.com

CLIENT
NORTH ANNVILLE TOWNSHIP
1020 N. STATE ROUTE 934
ANNVILLE, PA 17003
717-867-1814

SUBJECT
OVERALL LAYOUT PLAN
FOR
**ROADWAY IMPROVEMENTS ALONG
CLEAR SPRING ROAD**

NORTH ANNVILLE TOWNSHIP
LEBANON COUNTY, PA

DATE
OCTOBER 2023
SCALE
1"=500'
PROJECT NO.
1273-001
SHEET NO.
1 OF 6



MATCHLINE A

MATCHLINE B (SEE SHEET 3)

(TBRL) - TO BE RELOCATED

Scale: 1"=50'
 0 50 100 150

NO.	REVISION	DATE	BY	APP.

SEAL	
SEAL	

MANAGER M. HENISE
DESIGN D. SHINDLER
DRAFT D. SHINDLER
CHKD. BY M. MADZELAN
NOTES

CIVIL/MUNICIPAL ENGINEERING
 LAND PLANNING
 LANDSCAPE ARCHITECTURE
 LAND DEVELOPMENT
 TRANSPORTATION ENGINEERING

EAGroup, Inc.
 ENGINEERING & LANDSCAPE ARCHITECTURE

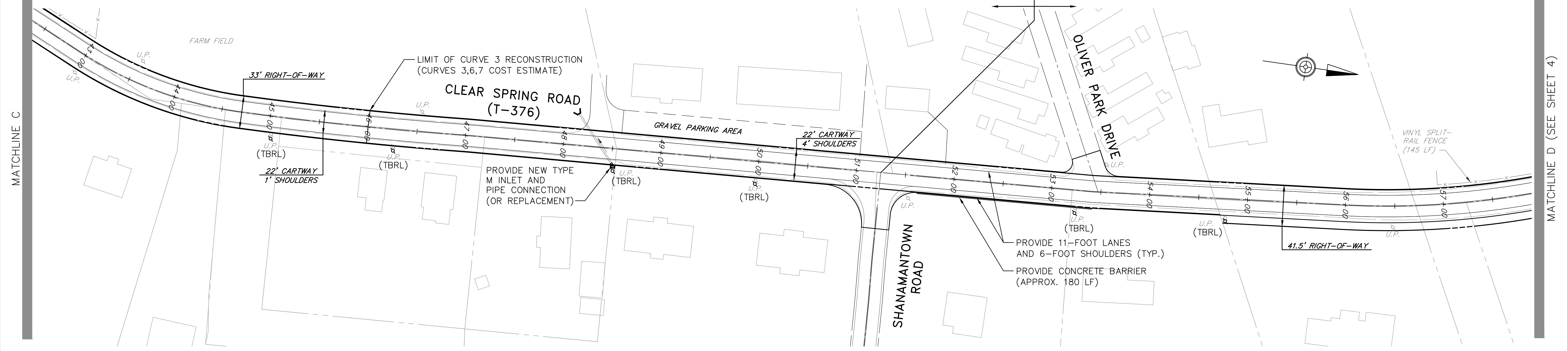
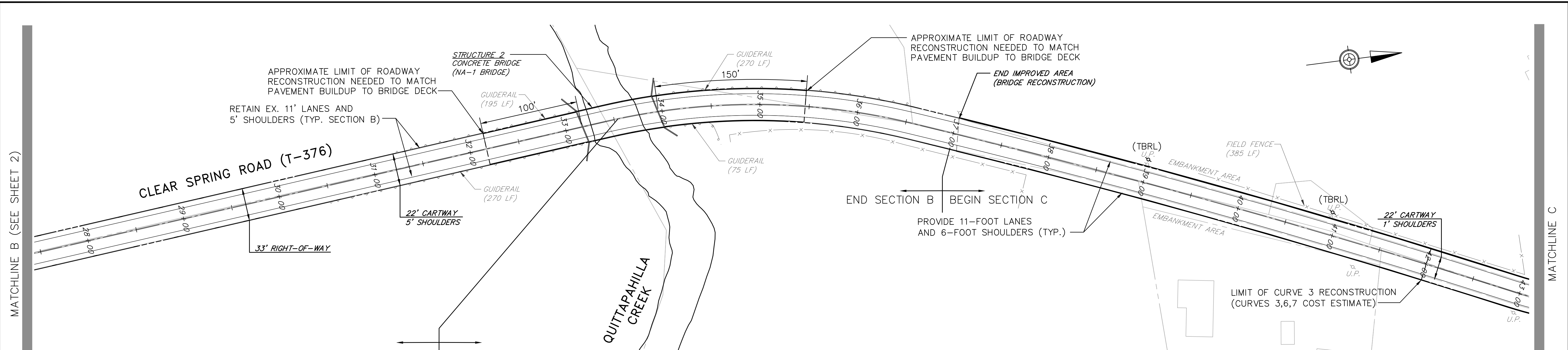
743 S. BROAD STREET
 LITITZ, PA 17543
 (717) 626-1211
 FAX (717) 406-1000
 www.eagroup.com

CLIENT
NORTH ANNVILLE TOWNSHIP
 1020 N. STATE ROUTE 934
 ANNVILLE, PA 17003
 717-867-1814

SUBJECT
 LAYOUT PLAN
 FOR
**ROADWAY IMPROVEMENTS ALONG
 CLEAR SPRING ROAD**

NORTH ANNVILLE TOWNSHIP
 LEBANON COUNTY, PA

DATE OCTOBER 2023
SCALE 1"=50'
PROJECT NO. 1273-001
SHEET NO. 2 OF 6



(TBRL) - TO BE RELOCATED

Scale: 1"=50'

NO.	REVISION	DATE	BY	APP.

SEAL	SEAL
------	------

MANAGER
M. HENISE
DESIGN
D. SHINDLER
DRAFT
D. SHINDLER
CHKD. BY
M. MADZELAN
NOTES

CIVIL/MUNICIPAL ENGINEERING
LAND PLANNING
LANDSCAPE ARCHITECTURE
LAND DEVELOPMENT
TRANSPORTATION ENGINEERING

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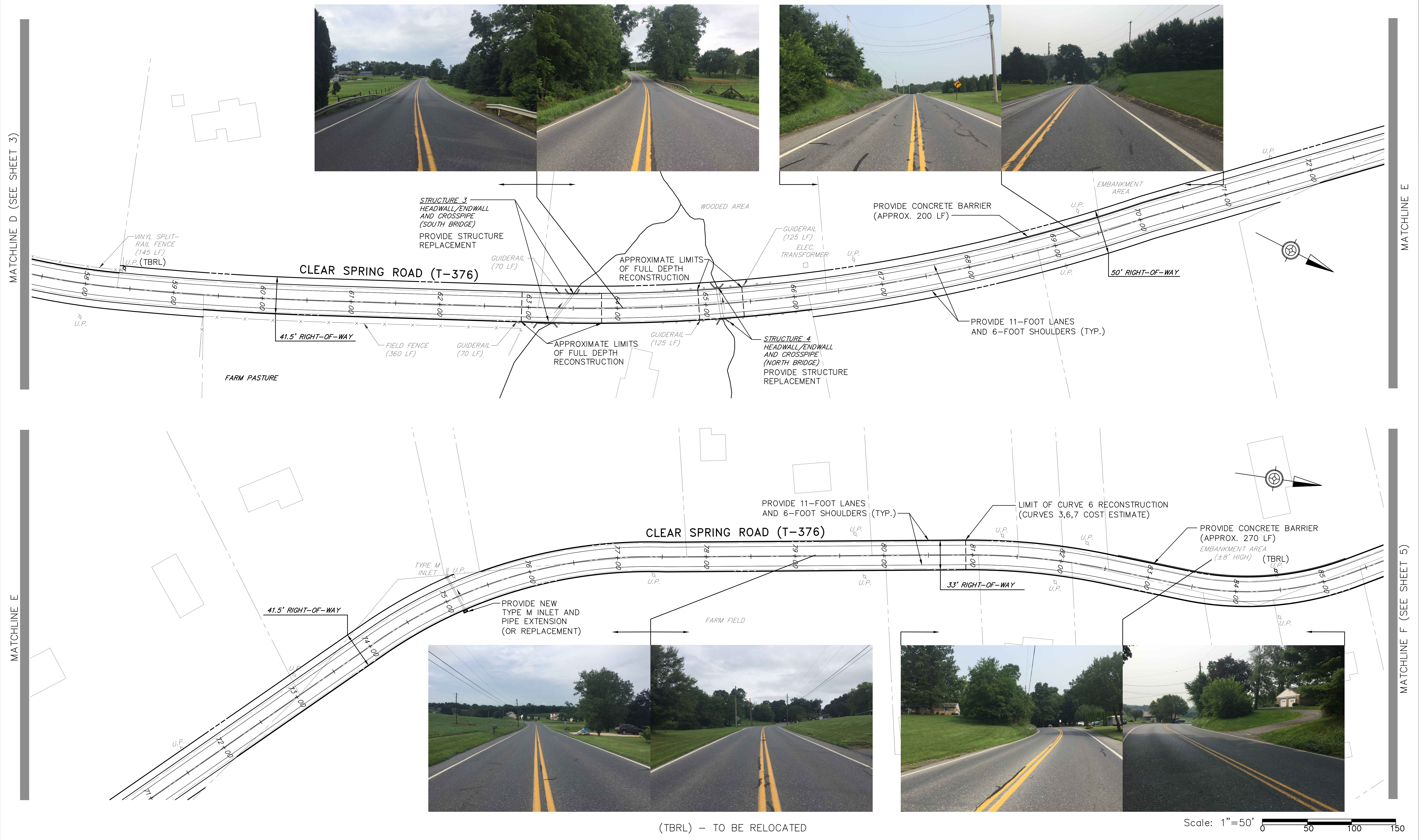
CLIENT
NORTH ANNVILLE TOWNSHIP
1020 N. STATE ROUTE 934
ANNVILLE, PA 17003
717-867-1814

SUBJECT
LAYOUT PLAN
FOR
**ROADWAY IMPROVEMENTS ALONG
CLEAR SPRING ROAD**

NORTH ANNVILLE TOWNSHIP
LEBANON COUNTY, PA

DATE
OCTOBER 2023
SCALE
1"=50'
PROJECT NO.
1273-001
SHEET NO.
3 OF 6

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(TBRL) - TO BE RELOCATED

Scale: 1"=50'

NO.	REVISION	DATE	BY	APP.

SEAL	
SEAL	

MANAGER
M. HENISE
DESIGN
D. SHINDLER
DRAFT
D. SHINDLER
CHKD. BY
M. MADZELAN
NOTES

CIVIL/MUNICIPAL ENGINEERING
LAND PLANNING
LANDSCAPE ARCHITECTURE
LAND DEVELOPMENT
TRANSPORTATION ENGINEERING

EIA
group, inc.
ENGINEERING & LANDSCAPE ARCHITECTURE

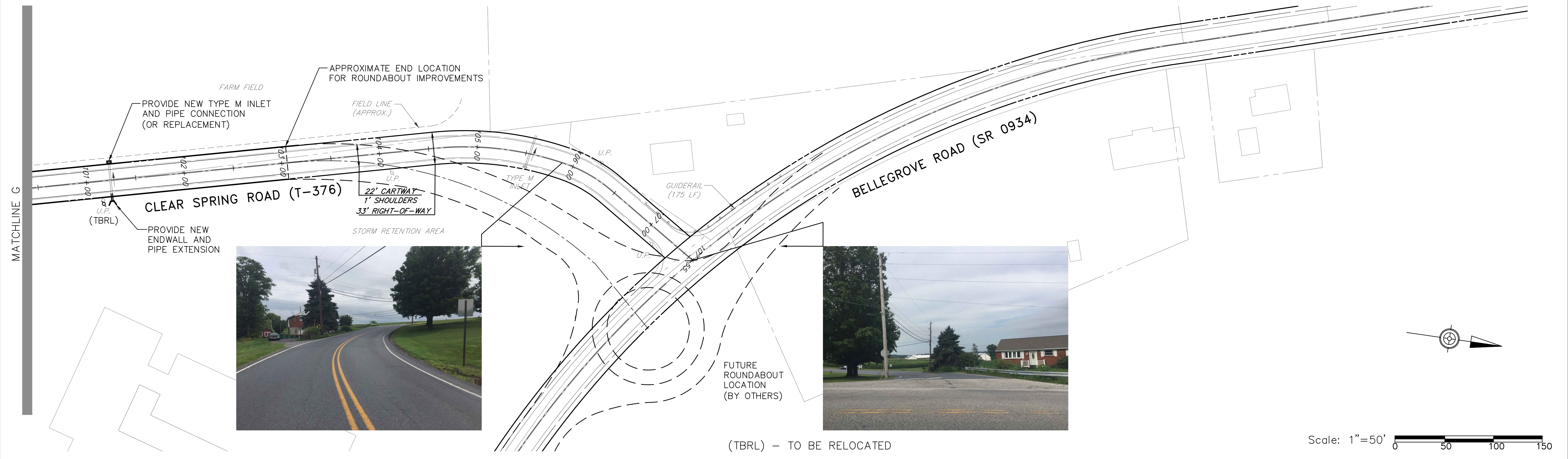
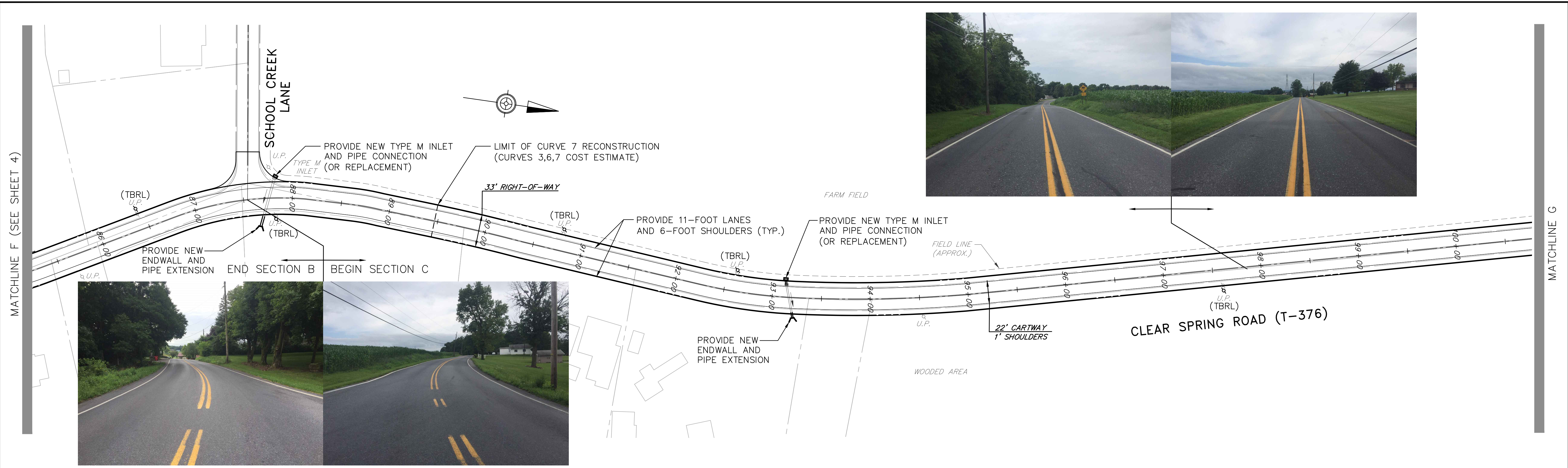
743 S. BROAD STREET
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FAX (717) 406-1000
www.eiagroup.com

CLIENT
NORTH ANNVILLE TOWNSHIP
1020 N. STATE ROUTE 934
ANNVILLE, PA 17003
717-867-1814

SUBJECT
LAYOUT PLAN
FOR
**ROADWAY IMPROVEMENTS ALONG
CLEAR SPRING ROAD**

NORTH ANNVILLE TOWNSHIP
LEBANON COUNTY, PA

DATE
OCTOBER 2023
SCALE
1"=50'
PROJECT NO.
1273-001
SHEET NO.
4 OF 6



NO.	REVISION	DATE	BY	APP.

SEAL	
SEAL	

MANAGER M. HENISE
DESIGN D. SHINDLER
DRAFT D. SHINDLER
CHKD. BY M. MADZELAN
NOTES

CIVIL/MUNICIPAL ENGINEERING
 LAND PLANNING
 LANDSCAPE ARCHITECTURE
 LAND DEVELOPMENT
 TRANSPORTATION ENGINEERING

EIA
 group, inc.
 ENGINEERING & LANDSCAPE ARCHITECTURE

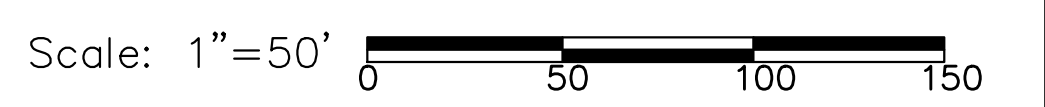
743 S. BROAD STREET
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 (717) 626-1211
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CLIENT
NORTH ANNVILLE TOWNSHIP
 1020 N. STATE ROUTE 934
 ANNVILLE, PA 17003
 717-867-1814

SUBJECT
 LAYOUT PLAN
 FOR
**ROADWAY IMPROVEMENTS ALONG
 CLEAR SPRING ROAD**

NORTH ANNVILLE TOWNSHIP
 LEBANON COUNTY, PA

DATE OCTOBER 2023
SCALE 1"=50'
PROJECT NO. 1273-001
SHEET NO. 5 OF 6



SECTION A – SR 0422 TO SYNER ROAD

SECTION LENGTH – APPROX. 2,570 LF (0.49 MI.)

ROADWAY IMPROVEMENTS – PROVIDE 11' LANES, 6' SHOULDERS

BASE COURSE/SUBBASE FULL DEPTH – 2,100 SY
 BASE COURSE OVERLAY – 5,300 SY
 WEARING COURSE OVERLAY – 7,400 SY
 AFFECTED DRIVEWAY/RESTORATION – 0

STORM DRAINAGE IMPROVEMENTS –

STORM INLET – 1 TYPE M

UTILITY IMPROVEMENTS –

UTILITY POLE RELOCATION – 8

STRUCTURE IMPROVEMENTS –

RAILROAD OVERPASS (STRUCTURE 1) (BY OTHERS)

SECTION B – SYNER ROAD TO SCHOOL CREEK LANE

SECTION LENGTH – APPROX. 1,135 LF (0.21 MI.)

ROADWAY IMPROVEMENTS – RETAIN 11' LANES, 5' SHOULDERS

BASE COURSE/SUBBASE FULL DEPTH – 900 SY
 BASE COURSE OVERLAY – 3,100 SY
 WEARING COURSE OVERLAY – 4,000 SY
 AFFECTED DRIVEWAY/RESTORATION – 2

SECTION C – SCHOOL CREEK LANE TO SR 0934

SECTION LENGTH – APPROX. 7,050 LF (1.34 MI.)

ROADWAY IMPROVEMENTS – PROVIDE 11' LANES, 6' SHOULDERS

BASE COURSE/SUBBASE FULL DEPTH – 8,800 SY
 BASE COURSE OVERLAY – 16,500 SY
 WEARING COURSE OVERLAY – 25,300 SY
 CONCRETE BARRIER – 650 LF
 AFFECTED DRIVEWAY/RESTORATION – 40

STORM DRAINAGE IMPROVEMENTS –

STORM INLET – 5 TYPE M
 HEADWALL/ENDWALL – 5 TYPE DW
 PIPE/PIPE REPLACEMENT – 270 LF


UTILITY IMPROVEMENTS –

UTILITY POLE RELOCATION – 16

STRUCTURE IMPROVEMENTS –

CULVERT IMPROVEMENTS (STRUCTURES 3 & 4)

NOTE: ALL QUANTITIES SHOWN ARE APPROXIMATE AND ARE FOR INFORMATIONAL PURPOSES ONLY.

				SEAL	SEAL	MANAGER M. HENISE DESIGN D. SHINDLER DRAFT D. SHINDLER CHKD. BY M. MADZELAN NOTES	CIVIL/MUNICIPAL ENGINEERING LAND PLANNING LANDSCAPE ARCHITECTURE LAND DEVELOPMENT TRANSPORTATION ENGINEERING	 EA group, inc. ENGINEERING & LANDSCAPE ARCHITECTURE	CLIENT NORTH ANNVILLE TOWNSHIP 1020 N. STATE ROUTE 934 ANNVILLE, PA 17003 717-867-1814	SUBJECT NOTES FOR ROADWAY IMPROVEMENTS ALONG CLEAR SPRING ROAD	DATE OCTOBER 2023 SCALE NO SCALE PROJECT NO. 1273-001 SHEET NO. 6 OF 6
NO.	REVISION	DATE	BY	APP.							

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APPENDIX C – TRAFFIC COUNT DATA

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Clear Spring Rd
Location: 330 ft N of Nathan Ln
Counter: 40601

Site Code: 2
Station ID:
A to B NB
Latitude: 40° 19.6087 North
Longitude: 76° 32.4554 West

Start Time	Monday, July 17, 2023		Tuesday, July 18, 2023		Wednesday, July 19, 2023		Thursday, July 20, 2023		Friday, July 21, 2023		Saturday, July 22, 2023		Sunday, July 23, 2023		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	5	10	7	4	6	6	11	6	15	21	15	15	10	10
01:00	*	*	9	7	5	7	7	4	7	2	7	5	6	6	7	5
02:00	*	*	7	7	8	9	6	9	7	8	3	4	4	4	6	7
03:00	*	*	6	8	13	7	10	7	6	14	4	5	4	8	7	8
04:00	*	*	22	23	19	21	12	21	14	20	12	12	8	8	14	18
05:00	*	*	61	62	72	65	65	61	53	54	36	28	22	15	52	48
06:00	*	*	91	196	87	189	79	195	71	155	41	76	24	37	66	141
07:00	*	*	125	189	111	183	119	182	93	151	60	93	46	52	92	142
08:00	*	*	114	148	129	151	103	143	117	155	86	124	65	87	102	135
09:00	*	*	108	138	139	141	109	160	145	166	126	126	100	97	121	138
10:00	*	*	107	118	123	134	122	129	136	144	162	153	115	126	128	134
11:00	*	*	151	126	138	149	128	116	158	144	170	167	124	148	145	142
12:00 PM	165	128	168	149	163	122	130	128	154	149	157	154	150	170	155	143
01:00	133	126	153	136	138	119	168	144	149	144	125	140	155	143	146	136
02:00	176	161	171	163	181	151	183	162	197	184	173	155	127	113	173	156
03:00	223	171	246	183	243	170	213	163	250	203	160	159	150	118	212	167
04:00	236	176	250	167	244	183	244	167	228	166	171	153	130	120	215	162
05:00	230	159	229	208	233	187	218	190	203	202	115	132	103	154	190	176
06:00	154	122	146	143	129	128	153	146	151	159	102	127	137	120	139	135
07:00	145	96	124	115	107	89	113	92	141	102	115	92	128	111	125	100
08:00	93	74	139	85	114	66	104	61	130	87	89	84	77	68	107	75
09:00	79	54	67	52	51	54	83	63	75	54	83	66	62	70	71	59
10:00	37	36	38	25	41	36	39	32	54	45	56	38	39	44	43	37
11:00	32	19	27	21	31	15	36	17	35	19	34	12	20	16	31	17
Total	1703	1322	2564	2479	2526	2380	2450	2398	2585	2533	2102	2126	1811	1850	2357	2291
Day	3025		5043		4906		4848		5118		4228		3661		4648	
AM Peak	-	-	11:00	06:00	09:00	06:00	11:00	06:00	11:00	09:00	11:00	11:00	11:00	11:00	11:00	07:00
Vol.	-	-	151	196	139	189	128	195	158	166	170	167	124	148	145	142
PM Peak	16:00	16:00	16:00	17:00	16:00	17:00	16:00	17:00	15:00	15:00	14:00	15:00	13:00	12:00	16:00	17:00
Vol.	236	176	250	208	244	187	244	190	250	203	173	159	155	170	215	176

WEEKDAY ADT - 4,915 VPD
WEEKLY ADT - 4,638 VPD

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Clear Spring Rd
Location: 330 ft N of Nathan Ln
Counter: 40601

Site Code: 2
Station ID:
A to B NB
Latitude: 40° 19.6087 North
Longitude: 76° 32.4554 West

Start Time	Monday, July 24, 2023		Tuesday, July 25, 2023		Wednesday, July 26, 2023		Thursday, July 27, 2023		Friday, July 28, 2023		Saturday, July 29, 2023		Sunday, July 30, 2023		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	5	8	12	3	*	*	*	*	*	*	*	*	*	*	8	6
01:00	4	5	6	4	*	*	*	*	*	*	*	*	*	*	5	4
02:00	5	8	7	7	*	*	*	*	*	*	*	*	*	*	6	8
03:00	7	7	10	10	*	*	*	*	*	*	*	*	*	*	8	8
04:00	22	31	19	22	*	*	*	*	*	*	*	*	*	*	20	26
05:00	64	46	59	63	*	*	*	*	*	*	*	*	*	*	62	54
06:00	64	190	80	180	*	*	*	*	*	*	*	*	*	*	72	185
07:00	109	168	128	177	*	*	*	*	*	*	*	*	*	*	118	172
08:00	93	139	*	*	*	*	*	*	*	*	*	*	*	*	93	139
09:00	104	104	*	*	*	*	*	*	*	*	*	*	*	*	104	104
10:00	94	140	*	*	*	*	*	*	*	*	*	*	*	*	94	140
11:00	146	129	*	*	*	*	*	*	*	*	*	*	*	*	146	129
12:00 PM	167	156	*	*	*	*	*	*	*	*	*	*	*	*	167	156
01:00	159	141	*	*	*	*	*	*	*	*	*	*	*	*	159	141
02:00	179	164	*	*	*	*	*	*	*	*	*	*	*	*	179	164
03:00	230	183	*	*	*	*	*	*	*	*	*	*	*	*	230	183
04:00	226	163	*	*	*	*	*	*	*	*	*	*	*	*	226	163
05:00	202	162	*	*	*	*	*	*	*	*	*	*	*	*	202	162
06:00	144	127	*	*	*	*	*	*	*	*	*	*	*	*	144	127
07:00	85	94	*	*	*	*	*	*	*	*	*	*	*	*	85	94
08:00	106	49	*	*	*	*	*	*	*	*	*	*	*	*	106	49
09:00	43	47	*	*	*	*	*	*	*	*	*	*	*	*	43	47
10:00	50	37	*	*	*	*	*	*	*	*	*	*	*	*	50	37
11:00	43	12	*	*	*	*	*	*	*	*	*	*	*	*	43	12
Total Day	2351	2310	321	466	0	0	0	0	0	0	0	0	0	0	2370	2310
AM Peak	11:00	06:00	07:00	06:00	-	-	-	-	-	-	-	-	-	-	11:00	06:00
Vol.	146	190	128	180	-	-	-	-	-	-	-	-	-	-	146	185
PM Peak	15:00	15:00	-	-	-	-	-	-	-	-	-	-	-	-	15:00	15:00
Vol.	230	183	-	-	-	-	-	-	-	-	-	-	-	-	230	183

Comb. Total	7686	5830	4906	4848	5118	4228	3661	9328
ADT	ADT 4,665	AADT 4,665						

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Clear Spring Rd
Location: 200 ft N of Syner Rd
Counter: 40574

Site Code: 1
Station ID:
A to B NB
Latitude: 40° 19.9080 North
Longitude: 76° 32.4744 West

Start Time	Monday, July 17, 2023		Tuesday, July 18, 2023		Wednesday, July 19, 2023		Thursday, July 20, 2023		Friday, July 21, 2023		Saturday, July 22, 2023		Sunday, July 23, 2023		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	2	6	10	5	6	6	10	6	13	18	13	14	9	9
01:00	*	*	2	4	4	4	5	4	7	2	7	8	4	4	5	4
02:00	*	*	3	4	6	6	6	7	6	9	2	3	3	1	4	5
03:00	*	*	3	4	12	8	9	6	5	11	3	4	2	7	6	7
04:00	*	*	15	19	15	22	13	22	12	20	11	9	4	6	12	16
05:00	*	*	35	75	37	68	38	64	29	58	26	25	15	12	30	50
06:00	*	*	61	162	63	163	56	176	50	135	35	68	19	33	47	123
07:00	*	*	101	153	80	140	95	144	85	128	55	73	37	48	76	114
08:00	*	*	86	113	93	122	74	112	83	130	68	105	57	69	77	108
09:00	*	*	80	104	108	116	83	127	118	138	108	108	89	85	98	113
10:00	*	*	88	94	94	113	95	112	103	115	143	135	97	107	103	113
11:00	*	*	115	103	121	115	100	97	140	126	147	131	106	132	122	117
12:00 PM	*	*	130	109	114	102	106	99	125	135	129	123	118	150	120	120
01:00	92	98	113	102	122	102	126	117	122	116	109	122	144	118	118	111
02:00	145	124	134	128	149	132	158	130	167	144	150	126	108	94	144	125
03:00	202	150	212	152	217	134	181	128	220	178	129	140	137	101	185	140
04:00	194	149	213	149	220	159	225	149	225	153	153	137	106	109	191	144
05:00	193	142	203	171	201	164	203	163	166	171	106	95	86	130	165	148
06:00	129	108	122	127	123	115	130	129	130	129	87	105	111	99	119	116
07:00	108	82	103	87	86	74	85	74	123	89	98	80	119	102	103	84
08:00	76	54	117	69	99	57	94	45	122	78	74	79	61	59	92	63
09:00	75	37	54	45	46	42	71	53	72	47	76	60	51	51	64	48
10:00	28	28	35	24	36	34	34	28	46	43	44	36	37	43	37	34
11:00	26	14	26	15	27	13	31	11	32	17	29	11	17	13	27	13
Total	1268	986	2053	2019	2083	2010	2024	2003	2198	2178	1802	1801	1541	1587	1954	1925
Day	2254	986	4072	2019	4093	2010	4027	2003	4376	2178	3603	1801	3128	1587	3879	1925
AM Peak	-	-	11:00	06:00	11:00	06:00	11:00	06:00	11:00	09:00	11:00	10:00	11:00	11:00	11:00	06:00
Vol.	-	-	115	162	121	163	100	176	140	138	147	135	106	132	122	123
PM Peak	15:00	15:00	16:00	17:00	16:00	17:00	16:00	17:00	16:00	15:00	16:00	15:00	13:00	12:00	16:00	17:00
Vol.	202	150	213	171	220	164	225	163	225	178	153	140	144	150	191	148

WEEKDAY ADT - 4,098 VPD
WEEKLY ADT - 3,888 VPD

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Clear Spring Rd
Location: 200 ft N of Syner Rd
Counter: 40574

Site Code: 1
Station ID:
A to B NB
Latitude: 40° 19.9080 North
Longitude: 76° 32.4744 West

Start Time	Monday, July 24, 2023		Tuesday, July 25, 2023		Wednesday, July 26, 2023		Thursday, July 27, 2023		Friday, July 28, 2023		Saturday, July 29, 2023		Sunday, July 30, 2023		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	5	7	11	3	*	*	*	*	*	*	*	*	*	*	8	5
01:00	3	3	6	4	*	*	*	*	*	*	*	*	*	*	4	4
02:00	5	6	5	5	*	*	*	*	*	*	*	*	*	*	5	6
03:00	4	11	7	11	*	*	*	*	*	*	*	*	*	*	6	11
04:00	17	25	16	22	*	*	*	*	*	*	*	*	*	*	16	24
05:00	33	59	27	67	*	*	*	*	*	*	*	*	*	*	30	63
06:00	46	173	60	168	*	*	*	*	*	*	*	*	*	*	53	170
07:00	97	146	97	155	*	*	*	*	*	*	*	*	*	*	97	150
08:00	72	114	*	*	*	*	*	*	*	*	*	*	*	*	72	114
09:00	96	91	*	*	*	*	*	*	*	*	*	*	*	*	96	91
10:00	76	114	*	*	*	*	*	*	*	*	*	*	*	*	76	114
11:00	115	112	*	*	*	*	*	*	*	*	*	*	*	*	115	112
12:00 PM	140	131	*	*	*	*	*	*	*	*	*	*	*	*	140	131
01:00	125	105	*	*	*	*	*	*	*	*	*	*	*	*	125	105
02:00	144	123	*	*	*	*	*	*	*	*	*	*	*	*	144	123
03:00	207	147	*	*	*	*	*	*	*	*	*	*	*	*	207	147
04:00	212	138	*	*	*	*	*	*	*	*	*	*	*	*	212	138
05:00	172	144	*	*	*	*	*	*	*	*	*	*	*	*	172	144
06:00	132	108	*	*	*	*	*	*	*	*	*	*	*	*	132	108
07:00	62	77	*	*	*	*	*	*	*	*	*	*	*	*	62	77
08:00	95	39	*	*	*	*	*	*	*	*	*	*	*	*	95	39
09:00	37	34	*	*	*	*	*	*	*	*	*	*	*	*	37	34
10:00	39	31	*	*	*	*	*	*	*	*	*	*	*	*	39	31
11:00	37	11	*	*	*	*	*	*	*	*	*	*	*	*	37	11
Total Day	1971	1949	229	435	0	0	0	0	0	0	0	0	0	0	1980	1952
AM Peak	11:00	06:00	07:00	06:00	-	-	-	-	-	-	-	-	-	-	11:00	06:00
Vol.	115	173	97	168	-	-	-	-	-	-	-	-	-	-	115	170
PM Peak	16:00	15:00	-	-	-	-	-	-	-	-	-	-	-	-	16:00	15:00
Vol.	212	147	-	-	-	-	-	-	-	-	-	-	-	-	212	147

Comb. Total	6174	4736	4093	4027	4376	3603	3128	7811
ADT	ADT 3,905	AADT 3,905						

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/17/23	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	1	102	29	1	14	13	3	0	2	0	0	0	0	165
13:00	0	70	27	1	15	5	8	4	3	0	0	0	0	133
14:00	1	102	42	1	15	4	7	1	3	0	0	0	0	176
15:00	3	140	53	1	19	2	0	2	3	0	0	0	0	223
16:00	3	145	59	0	18	4	0	3	3	1	0	0	0	236
17:00	4	152	53	0	20	1	0	0	0	0	0	0	0	230
18:00	0	102	37	0	13	0	0	2	0	0	0	0	0	154
19:00	0	105	24	0	12	1	0	0	3	0	0	0	0	145
20:00	0	72	13	1	6	1	0	0	0	0	0	0	0	93
21:00	0	64	11	0	3	0	0	1	0	0	0	0	0	79
22:00	0	25	5	0	4	1	0	0	2	0	0	0	0	37
23:00	0	27	3	0	1	0	0	0	1	0	0	0	0	32
Total	12	1106	356	5	140	32	18	13	20	1	0	0	0	1703
Percent	0.7%	64.9%	20.9%	0.3%	8.2%	1.9%	1.1%	0.8%	1.2%	0.1%	0.0%	0.0%	0.0%	
AM Peak Vol.														
PM Peak Vol.	17:00	17:00	16:00	12:00	17:00	12:00	13:00	13:00	13:00	16:00				16:00
	4	152	59	1	20	13	8	4	3	1				236

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/18/23	0	5	0	0	0	0	0	0	0	0	0	0	0	5
01:00	1	2	2	0	1	0	0	0	3	0	0	0	0	9
02:00	0	3	1	0	1	0	0	0	2	0	0	0	0	7
03:00	0	5	0	0	1	0	0	0	0	0	0	0	0	6
04:00	0	13	4	0	3	0	0	0	2	0	0	0	0	22
05:00	0	34	18	2	4	1	0	0	2	0	0	0	0	61
06:00	1	49	25	2	7	5	0	2	0	0	0	0	0	91
07:00	1	82	19	5	7	6	3	0	2	0	0	0	0	125
08:00	0	68	18	0	13	6	4	2	3	0	0	0	0	114
09:00	1	63	20	1	10	7	2	0	4	0	0	0	0	108
10:00	1	66	17	2	6	7	1	1	6	0	0	0	0	107
11:00	1	84	35	2	16	4	4	0	5	0	0	0	0	151
12 PM	3	101	35	0	17	5	4	0	3	0	0	0	0	168
13:00	1	85	29	1	19	7	7	1	3	0	0	0	0	153
14:00	0	99	39	2	13	8	7	1	2	0	0	0	0	171
15:00	3	161	53	2	20	3	1	2	1	0	0	0	0	246
16:00	5	162	55	0	20	2	0	4	2	0	0	0	0	250
17:00	3	161	44	0	15	3	0	3	0	0	0	0	0	229
18:00	1	100	31	0	13	0	0	0	1	0	0	0	0	146
19:00	0	90	24	0	8	1	0	0	1	0	0	0	0	124
20:00	0	104	26	0	7	0	0	1	1	0	0	0	0	139
21:00	1	54	9	0	3	0	0	0	0	0	0	0	0	67
22:00	0	31	6	0	0	0	0	0	1	0	0	0	0	38
23:00	0	23	4	0	0	0	0	0	0	0	0	0	0	27
Total	23	1645	514	19	204	65	33	17	44	0	0	0	0	2564
Percent	0.9%	64.2%	20.0%	0.7%	8.0%	2.5%	1.3%	0.7%	1.7%	0.0%	0.0%	0.0%	0.0%	
AM Peak	01:00	11:00	11:00	07:00	11:00	09:00	08:00	06:00	10:00					11:00
Vol.	1	84	35	5	16	7	4	2	6					151
PM Peak	16:00	16:00	16:00	14:00	15:00	14:00	13:00	16:00	12:00					16:00
Vol.	5	162	55	2	20	8	7	4	3					250

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/19/23	0	4	0	0	1	0	0	0	2	0	0	0	0	7
01:00	0	3	0	0	1	0	0	0	1	0	0	0	0	5
02:00	0	7	0	0	0	0	0	0	1	0	0	0	0	8
03:00	0	7	0	0	4	1	0	0	1	0	0	0	0	13
04:00	0	11	3	0	3	0	0	0	2	0	0	0	0	19
05:00	1	41	22	1	4	1	0	1	1	0	0	0	0	72
06:00	0	45	25	0	8	6	0	1	2	0	0	0	0	87
07:00	0	65	20	1	10	10	2	2	1	0	0	0	0	111
08:00	0	65	30	2	11	12	3	2	4	0	0	0	0	129
09:00	0	74	34	0	10	12	4	1	4	0	0	0	0	139
10:00	0	70	23	0	13	6	7	2	2	0	0	0	0	123
11:00	0	81	33	2	12	4	2	1	3	0	0	0	0	138
12 PM	3	94	42	1	16	3	0	2	1	1	0	0	0	163
13:00	1	90	28	2	9	2	2	2	2	0	0	0	0	138
14:00	2	98	42	2	17	9	7	2	2	0	0	0	0	181
15:00	1	162	50	3	16	4	0	4	3	0	0	0	0	243
16:00	0	163	50	0	25	1	0	2	3	0	0	0	0	244
17:00	4	159	48	0	17	2	0	2	1	0	0	0	0	233
18:00	1	97	24	0	6	0	0	1	0	0	0	0	0	129
19:00	4	68	28	0	5	0	0	2	0	0	0	0	0	107
20:00	0	84	19	0	8	1	0	1	1	0	0	0	0	114
21:00	0	36	6	0	7	2	0	0	0	0	0	0	0	51
22:00	1	30	5	0	3	0	0	0	2	0	0	0	0	41
23:00	0	25	4	1	1	0	0	0	0	0	0	0	0	31
Total	18	1579	536	15	207	76	27	28	39	1	0	0	0	2526
Percent	0.7%	62.5%	21.2%	0.6%	8.2%	3.0%	1.1%	1.1%	1.5%	0.0%	0.0%	0.0%	0.0%	
AM Peak	05:00	11:00	09:00	08:00	10:00	08:00	10:00	07:00	08:00					09:00
Vol.	1	81	34	2	13	12	7	2	4					139
PM Peak	17:00	16:00	15:00	15:00	16:00	14:00	14:00	15:00	15:00	12:00				16:00
Vol.	4	163	50	3	25	9	7	4	3	1				244

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/20/23	0	3	1	0	1	1	0	0	0	0	0	0	0	6
01:00	0	4	1	0	1	0	0	0	1	0	0	0	0	7
02:00	0	4	0	0	2	0	0	0	0	0	0	0	0	6
03:00	1	3	1	0	3	0	0	0	2	0	0	0	0	10
04:00	0	7	1	0	1	0	0	1	2	0	0	0	0	12
05:00	3	35	18	1	5	1	0	1	1	0	0	0	0	65
06:00	1	43	25	0	5	3	0	0	1	1	0	0	0	79
07:00	0	69	22	3	11	6	2	1	4	0	0	0	1	119
08:00	0	47	21	2	13	11	2	5	2	0	0	0	0	103
09:00	1	55	23	2	14	7	1	1	5	0	0	0	0	109
10:00	1	71	25	3	10	8	2	1	1	0	0	0	0	122
11:00	2	71	26	2	16	3	4	0	3	1	0	0	0	128
12 PM	0	75	24	1	14	7	4	2	3	0	0	0	0	130
13:00	0	95	30	3	17	13	8	1	1	0	0	0	0	168
14:00	2	110	32	3	17	7	7	3	2	0	0	0	0	183
15:00	0	133	51	1	17	4	5	1	1	0	0	0	0	213
16:00	4	168	46	0	21	1	0	1	3	0	0	0	0	244
17:00	1	143	50	0	18	2	0	1	3	0	0	0	0	218
18:00	0	109	36	0	7	0	0	0	1	0	0	0	0	153
19:00	1	83	20	0	7	0	0	0	2	0	0	0	0	113
20:00	2	78	18	0	6	0	0	0	0	0	0	0	0	104
21:00	2	60	15	1	5	0	0	0	0	0	0	0	0	83
22:00	0	32	4	1	1	0	0	0	1	0	0	0	0	39
23:00	0	30	5	0	1	0	0	0	0	0	0	0	0	36
Total	21	1528	495	23	213	74	35	19	39	2	0	0	1	2450
Percent	0.9%	62.4%	20.2%	0.9%	8.7%	3.0%	1.4%	0.8%	1.6%	0.1%	0.0%	0.0%	0.0%	
AM Peak	05:00	10:00	11:00	07:00	11:00	08:00	11:00	08:00	09:00	06:00			07:00	11:00
Vol.	3	71	26	3	16	11	4	5	5	1			1	128
PM Peak	16:00	16:00	15:00	13:00	16:00	13:00	13:00	14:00	12:00					16:00
Vol.	4	168	51	3	21	13	8	3	3					244

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/21/23	0	7	3	0	0	0	0	0	1	0	0	0	0	11
01:00	0	3	0	0	2	0	0	0	2	0	0	0	0	7
02:00	0	5	0	0	1	0	0	0	1	0	0	0	0	7
03:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
04:00	0	6	5	0	1	0	0	0	2	0	0	0	0	14
05:00	0	32	12	1	7	0	0	0	1	0	0	0	0	53
06:00	1	41	19	0	8	1	0	0	1	0	0	0	0	71
07:00	0	61	7	1	12	5	2	0	5	0	0	0	0	93
08:00	0	57	26	1	5	15	3	4	6	0	0	0	0	117
09:00	0	81	34	2	13	12	0	2	1	0	0	0	0	145
10:00	1	74	29	1	12	14	2	0	3	0	0	0	0	136
11:00	1	95	31	0	14	5	4	4	4	0	0	0	0	158
12 PM	0	82	40	1	19	4	2	1	5	0	0	0	0	154
13:00	0	88	38	0	7	7	2	3	4	0	0	0	0	149
14:00	1	113	45	0	12	12	6	3	5	0	0	0	0	197
15:00	2	162	53	3	23	4	0	0	3	0	0	0	0	250
16:00	1	140	59	0	25	0	0	2	1	0	0	0	0	228
17:00	3	143	40	1	12	1	0	0	3	0	0	0	0	203
18:00	0	116	26	0	4	2	0	1	2	0	0	0	0	151
19:00	2	105	22	0	7	1	0	2	2	0	0	0	0	141
20:00	0	94	28	1	6	0	0	1	0	0	0	0	0	130
21:00	0	59	9	0	7	0	0	0	0	0	0	0	0	75
22:00	0	39	10	0	4	0	0	0	1	0	0	0	0	54
23:00	0	27	7	0	1	0	0	0	0	0	0	0	0	35
Total	12	1636	543	12	202	83	21	23	53	0	0	0	0	2585
Percent	0.5%	63.3%	21.0%	0.5%	7.8%	3.2%	0.8%	0.9%	2.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	11:00	09:00	09:00	11:00	08:00	11:00	08:00	08:00					11:00
Vol.	1	95	34	2	14	15	4	4	6					158
PM Peak	17:00	15:00	16:00	15:00	16:00	14:00	14:00	13:00	12:00					15:00
Vol.	3	162	59	3	25	12	6	3	5					250

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/22/23	0	12	2	0	1	0	0	0	0	0	0	0	0	15
01:00	0	6	0	0	0	0	0	0	1	0	0	0	0	7
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	2	1	0	1	0	0	0	0	0	0	0	0	4
04:00	0	10	1	0	0	0	0	1	0	0	0	0	0	12
05:00	1	19	10	0	4	0	0	1	1	0	0	0	0	36
06:00	3	24	10	0	3	0	0	0	1	0	0	0	0	41
07:00	1	34	18	0	5	0	0	1	1	0	0	0	0	60
08:00	2	55	19	0	5	1	0	2	2	0	0	0	0	86
09:00	2	83	31	0	7	2	0	1	0	0	0	0	0	126
10:00	1	115	32	0	10	1	0	1	2	0	0	0	0	162
11:00	8	111	35	0	11	1	0	3	1	0	0	0	0	170
12 PM	4	117	26	0	8	0	0	1	1	0	0	0	0	157
13:00	2	94	23	0	4	1	0	0	1	0	0	0	0	125
14:00	2	115	37	0	14	0	0	3	2	0	0	0	0	173
15:00	2	115	27	1	11	0	0	4	0	0	0	0	0	160
16:00	4	117	40	0	7	0	0	0	3	0	0	0	0	171
17:00	4	82	21	0	7	1	0	0	0	0	0	0	0	115
18:00	7	64	23	0	8	0	0	0	0	0	0	0	0	102
19:00	1	86	23	0	3	0	0	0	2	0	0	0	0	115
20:00	1	69	13	0	6	0	0	0	0	0	0	0	0	89
21:00	0	63	14	0	4	0	0	1	1	0	0	0	0	83
22:00	0	41	7	0	5	1	0	1	1	0	0	0	0	56
23:00	0	24	6	0	3	0	0	1	0	0	0	0	0	34
Total	45	1461	419	1	127	8	0	21	20	0	0	0	0	2102
Percent	2.1%	69.5%	19.9%	0.0%	6.0%	0.4%	0.0%	1.0%	1.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	10:00	11:00		11:00	09:00		11:00	08:00					11:00
Vol.	8	115	35		11	2		3	2					170
PM Peak	18:00	12:00	16:00	15:00	14:00	13:00		15:00	16:00					14:00
Vol.	7	117	40	1	14	1		4	3					173

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/23/23	0	10	3	0	0	0	0	1	1	0	0	0	0	15
01:00	0	4	0	0	0	0	0	0	2	0	0	0	0	6
02:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	3	0	0	0	0	0	0	1	0	0	0	0	4
04:00	0	4	2	0	1	0	0	0	1	0	0	0	0	8
05:00	0	15	5	0	2	0	0	0	0	0	0	0	0	22
06:00	2	16	5	0	0	0	0	0	1	0	0	0	0	24
07:00	0	32	9	0	4	0	0	0	1	0	0	0	0	46
08:00	0	48	14	0	1	2	0	0	0	0	0	0	0	65
09:00	2	71	22	0	3	1	0	0	1	0	0	0	0	100
10:00	3	74	30	0	6	0	0	1	1	0	0	0	0	115
11:00	0	90	29	0	4	0	0	0	1	0	0	0	0	124
12 PM	1	92	38	0	13	1	0	3	2	0	0	0	0	150
13:00	3	101	38	0	12	0	0	0	1	0	0	0	0	155
14:00	1	97	24	0	4	0	0	0	1	0	0	0	0	127
15:00	1	111	27	0	9	0	0	1	1	0	0	0	0	150
16:00	2	91	30	0	5	0	0	1	1	0	0	0	0	130
17:00	1	70	24	0	6	0	0	1	1	0	0	0	0	103
18:00	0	97	33	0	4	1	0	0	2	0	0	0	0	137
19:00	3	86	29	0	7	0	0	2	1	0	0	0	0	128
20:00	0	70	6	0	1	0	0	0	0	0	0	0	0	77
21:00	0	49	8	0	5	0	0	0	0	0	0	0	0	62
22:00	1	29	5	0	0	1	0	0	3	0	0	0	0	39
23:00	0	15	1	1	1	1	0	0	1	0	0	0	0	20
Total	20	1279	382	1	88	7	0	10	24	0	0	0	0	1811
Percent	1.1%	70.6%	21.1%	0.1%	4.9%	0.4%	0.0%	0.6%	1.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	10:00		10:00	08:00		00:00	01:00					11:00
Vol.	3	90	30		6	2		1	2					124
PM Peak	13:00	15:00	12:00	23:00	12:00	12:00		12:00	22:00					13:00
Vol.	3	111	38	1	13	1		3	3					155

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/24/23	0	2	1	0	0	0	0	0	2	0	0	0	0	5
01:00	0	1	0	0	1	0	0	0	2	0	0	0	0	4
02:00	0	4	0	0	1	0	0	0	0	0	0	0	0	5
03:00	0	5	0	0	0	0	0	0	2	0	0	0	0	7
04:00	0	12	6	0	3	0	0	0	0	1	0	0	0	22
05:00	1	33	18	1	8	1	0	2	0	0	0	0	0	64
06:00	1	41	14	0	2	3	0	2	1	0	0	0	0	64
07:00	0	62	29	1	8	3	2	2	2	0	0	0	0	109
08:00	1	55	15	1	6	8	1	1	4	1	0	0	0	93
09:00	0	55	27	1	11	6	1	2	1	0	0	0	0	104
10:00	2	47	17	1	16	6	0	3	2	0	0	0	0	94
11:00	1	77	34	2	13	6	7	0	6	0	0	0	0	146
12 PM	0	99	33	4	17	4	7	1	2	0	0	0	0	167
13:00	0	87	31	0	15	11	12	3	0	0	0	0	0	159
14:00	0	97	41	0	18	15	3	2	3	0	0	0	0	179
15:00	2	133	55	1	29	4	1	3	2	0	0	0	0	230
16:00	1	137	56	1	24	0	0	2	5	0	0	0	0	226
17:00	1	149	37	0	15	0	0	0	0	0	0	0	0	202
18:00	1	88	40	0	11	0	1	1	2	0	0	0	0	144
19:00	0	61	11	0	8	3	0	1	0	1	0	0	0	85
20:00	1	77	20	0	7	0	0	0	1	0	0	0	0	106
21:00	0	27	9	0	5	0	0	0	2	0	0	0	0	43
22:00	0	37	8	0	3	0	0	1	1	0	0	0	0	50
23:00	0	34	4	0	3	0	0	0	2	0	0	0	0	43
Total	12	1420	506	13	224	70	35	26	42	3	0	0	0	2351
Percent	0.5%	60.4%	21.5%	0.6%	9.5%	3.0%	1.5%	1.1%	1.8%	0.1%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	11:00	11:00	10:00	08:00	11:00	10:00	11:00	04:00				11:00
Vol.	2	77	34	2	16	8	7	3	6	1				146
PM Peak	15:00	17:00	16:00	12:00	15:00	14:00	13:00	13:00	16:00	19:00				15:00
Vol.	2	149	56	4	29	15	12	3	5	1				230

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Clear Spring Rd
Location: 330 ft N of Nathan Ln
Counter: 40601

Site Code: 2
Station ID:
A to B NB
Latitude: 40° 19.6087 North
Longitude: 76° 32.4554 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/25/23	0	8	1	0	1	0	0	0	2	0	0	0	0	12
01:00	0	2	0	0	2	0	0	0	2	0	0	0	0	6
02:00	0	3	1	0	3	0	0	0	0	0	0	0	0	7
03:00	0	6	1	0	2	1	0	0	0	0	0	0	0	10
04:00	0	9	3	0	5	1	0	0	1	0	0	0	0	19
05:00	1	32	17	1	7	0	0	0	1	0	0	0	0	59
06:00	0	39	24	0	9	2	0	0	5	1	0	0	0	80
07:00	1	73	28	1	10	8	3	2	2	0	0	0	0	128
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	2	172	75	2	39	12	3	2	13	1	0	0	0	321
Percent	0.6%	53.6%	23.4%	0.6%	12.1%	3.7%	0.9%	0.6%	4.0%	0.3%	0.0%	0.0%	0.0%	
AM Peak	05:00	07:00	07:00	05:00	07:00	07:00	07:00	07:00	06:00	06:00				07:00
Vol.	1	73	28	1	10	8	3	2	5	1				128
PM Peak														
Vol.														
Grand Total	165	11826	3826	91	1444	427	172	159	294	8	0	0	1	18413
Percent	0.9%	64.2%	20.8%	0.5%	7.8%	2.3%	0.9%	0.9%	1.6%	0.0%	0.0%	0.0%	0.0%	

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
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SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/17/23	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	0	78	27	1	13	5	2	0	2	0	0	0	0	128
13:00	2	68	35	2	16	1	1	0	1	0	0	0	0	126
14:00	1	98	28	0	19	4	3	4	4	0	0	0	0	161
15:00	1	98	37	1	23	4	1	6	0	0	0	0	0	171
16:00	4	108	34	0	25	1	0	3	1	0	0	0	0	176
17:00	1	108	26	0	20	1	0	1	2	0	0	0	0	159
18:00	1	74	32	0	13	2	0	0	0	0	0	0	0	122
19:00	1	63	24	1	6	1	0	0	0	0	0	0	0	96
20:00	1	51	15	0	6	0	0	0	1	0	0	0	0	74
21:00	0	41	6	0	5	1	0	0	1	0	0	0	0	54
22:00	2	28	1	0	2	2	0	0	1	0	0	0	0	36
23:00	0	16	1	0	0	1	0	0	1	0	0	0	0	19
Total	14	831	266	5	148	23	7	14	14	0	0	0	0	1322
Percent	1.1%	62.9%	20.1%	0.4%	11.2%	1.7%	0.5%	1.1%	1.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.														
PM Peak Vol.	16:00	16:00	15:00	13:00	16:00	12:00	14:00	15:00	14:00					16:00
	4	108	37	2	25	5	3	6	4					176

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
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 Counter: 40601

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 A to B NB
 Latitude: 40° 19.6087 North
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SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/18/23	2	4	0	0	3	0	0	0	1	0	0	0	0	10
01:00	0	2	4	0	1	0	0	0	0	0	0	0	0	7
02:00	0	5	0	0	1	0	0	0	1	0	0	0	0	7
03:00	0	3	2	0	2	0	0	0	1	0	0	0	0	8
04:00	1	16	2	0	3	1	0	0	0	0	0	0	0	23
05:00	3	35	8	1	14	1	0	0	0	0	0	0	0	62
06:00	6	109	37	1	40	2	0	0	1	0	0	0	0	196
07:00	3	116	31	2	28	2	1	4	2	0	0	0	0	189
08:00	0	93	34	1	12	2	2	1	3	0	0	0	0	148
09:00	3	82	28	0	14	3	2	3	3	0	0	0	0	138
10:00	1	62	23	2	19	6	2	1	2	0	0	0	0	118
11:00	3	79	20	0	15	7	1	1	0	0	0	0	0	126
12 PM	1	78	26	0	28	6	1	2	7	0	0	0	0	149
13:00	2	85	25	3	15	2	0	2	2	0	0	0	0	136
14:00	1	103	29	0	19	3	4	2	2	0	0	0	0	163
15:00	7	118	32	3	20	2	0	1	0	0	0	0	0	183
16:00	1	106	30	2	25	1	0	1	1	0	0	0	0	167
17:00	3	121	52	0	24	4	0	3	1	0	0	0	0	208
18:00	4	82	33	0	20	3	0	0	1	0	0	0	0	143
19:00	2	77	21	0	12	2	0	0	1	0	0	0	0	115
20:00	1	64	12	0	6	0	0	0	2	0	0	0	0	85
21:00	1	36	9	0	4	1	0	0	1	0	0	0	0	52
22:00	1	20	1	0	1	0	0	0	2	0	0	0	0	25
23:00	1	15	1	0	0	1	0	0	3	0	0	0	0	21
Total	47	1511	460	15	326	49	13	21	37	0	0	0	0	2479
Percent	1.9%	61.0%	18.6%	0.6%	13.2%	2.0%	0.5%	0.8%	1.5%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	07:00	06:00	07:00	06:00	11:00	08:00	07:00	08:00					06:00
Vol.	6	116	37	2	40	7	2	4	3					196
PM Peak	15:00	17:00	17:00	13:00	12:00	12:00	14:00	17:00	12:00					17:00
Vol.	7	121	52	3	28	6	4	3	7					208

Tri-State Traffic Data, Inc.

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
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610-466-1469
 TSTData.com

Site Code: 2
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 Latitude: 40° 19.6087 North
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SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/19/23	0	2	0	0	1	0	0	0	1	0	0	0	0	4
01:00	1	0	2	0	1	2	0	0	1	0	0	0	0	7
02:00	0	6	0	0	2	0	0	0	1	0	0	0	0	9
03:00	0	2	4	0	0	0	0	0	1	0	0	0	0	7
04:00	0	12	4	0	3	0	0	0	2	0	0	0	0	21
05:00	2	30	14	1	16	1	0	0	1	0	0	0	0	65
06:00	4	105	30	0	42	4	0	3	1	0	0	0	0	189
07:00	0	104	34	2	31	5	1	5	1	0	0	0	0	183
08:00	0	80	31	3	26	3	2	2	3	1	0	0	0	151
09:00	1	79	33	0	16	8	0	1	3	0	0	0	0	141
10:00	0	83	19	2	22	5	0	2	1	0	0	0	0	134
11:00	1	81	34	2	22	5	0	2	2	0	0	0	0	149
12 PM	3	71	23	0	16	1	3	1	4	0	0	0	0	122
13:00	1	77	16	2	16	3	1	2	1	0	0	0	0	119
14:00	3	94	23	0	24	3	2	2	0	0	0	0	0	151
15:00	3	110	27	1	23	1	1	0	4	0	0	0	0	170
16:00	0	114	28	0	35	0	0	5	1	0	0	0	0	183
17:00	2	121	35	0	28	0	0	1	0	0	0	0	0	187
18:00	3	82	27	0	13	0	0	1	2	0	0	0	0	128
19:00	1	58	17	0	12	0	0	1	0	0	0	0	0	89
20:00	0	41	15	0	7	2	0	0	1	0	0	0	0	66
21:00	0	39	7	0	7	0	0	0	1	0	0	0	0	54
22:00	1	23	3	0	5	1	0	0	3	0	0	0	0	36
23:00	0	11	1	1	0	0	0	1	1	0	0	0	0	15
Total	26	1425	427	14	368	44	10	29	36	1	0	0	0	2380
Percent	1.1%	59.9%	17.9%	0.6%	15.5%	1.8%	0.4%	1.2%	1.5%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	06:00	07:00	08:00	06:00	09:00	08:00	07:00	08:00	08:00				06:00
Vol.	4	105	34	3	42	8	2	5	3	1				189
PM Peak	12:00	17:00	17:00	13:00	16:00	13:00	12:00	16:00	12:00					17:00
Vol.	3	121	35	2	35	3	3	5	4					187

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/20/23	0	3	1	0	1	1	0	0	0	0	0	0	0	6
01:00	0	2	1	0	0	0	0	0	1	0	0	0	0	4
02:00	1	4	1	0	1	1	0	0	1	0	0	0	0	9
03:00	1	1	1	0	2	1	0	1	0	0	0	0	0	7
04:00	0	12	3	0	3	0	0	0	3	0	0	0	0	21
05:00	2	31	8	0	15	3	0	1	1	0	0	0	0	61
06:00	3	110	26	1	46	6	0	0	3	0	0	0	0	195
07:00	2	102	37	0	31	3	1	3	3	0	0	0	0	182
08:00	0	75	26	3	28	3	1	3	4	0	0	0	0	143
09:00	0	101	32	1	18	1	4	1	2	0	0	0	0	160
10:00	1	83	22	1	15	1	1	2	3	0	0	0	0	129
11:00	0	64	20	2	22	0	3	1	4	0	0	0	0	116
12 PM	3	68	26	2	18	0	3	3	5	0	0	0	0	128
13:00	1	85	22	2	22	3	4	2	3	0	0	0	0	144
14:00	3	99	28	3	17	4	3	2	3	0	0	0	0	162
15:00	1	100	31	0	25	1	0	2	3	0	0	0	0	163
16:00	3	109	33	0	20	0	0	0	2	0	0	0	0	167
17:00	1	130	32	0	22	0	0	2	3	0	0	0	0	190
18:00	0	98	29	1	14	1	0	0	2	1	0	0	0	146
19:00	6	61	16	0	8	0	1	0	0	0	0	0	0	92
20:00	1	39	14	1	5	0	0	0	1	0	0	0	0	61
21:00	0	48	12	0	3	0	0	0	0	0	0	0	0	63
22:00	1	19	6	0	3	1	0	0	2	0	0	0	0	32
23:00	1	11	3	0	0	1	0	0	1	0	0	0	0	17
Total	31	1455	430	17	339	31	21	23	50	1	0	0	0	2398
Percent	1.3%	60.7%	17.9%	0.7%	14.1%	1.3%	0.9%	1.0%	2.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	06:00	07:00	08:00	06:00	06:00	09:00	07:00	08:00					06:00
Vol.	3	110	37	3	46	6	4	3	4					195
PM Peak	19:00	17:00	16:00	14:00	15:00	14:00	13:00	12:00	12:00	18:00				17:00
Vol.	6	130	33	3	25	4	4	3	5	1				190

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/21/23	0	4	1	0	1	0	0	0	0	0	0	0	0	6
01:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
02:00	0	3	2	0	2	0	0	0	1	0	0	0	0	8
03:00	1	9	2	0	0	1	0	0	1	0	0	0	0	14
04:00	0	11	2	1	6	0	0	0	0	0	0	0	0	20
05:00	0	30	6	0	17	0	0	0	1	0	0	0	0	54
06:00	1	91	17	1	35	3	1	1	5	0	0	0	0	155
07:00	1	82	27	2	26	4	3	2	4	0	0	0	0	151
08:00	0	92	28	1	20	3	5	1	5	0	0	0	0	155
09:00	1	101	26	0	27	6	2	1	2	0	0	0	0	166
10:00	1	86	28	0	21	3	2	0	3	0	0	0	0	144
11:00	2	71	36	0	24	4	1	1	5	0	0	0	0	144
12 PM	2	89	27	0	21	2	0	4	3	1	0	0	0	149
13:00	1	78	35	1	20	2	0	1	5	1	0	0	0	144
14:00	1	116	34	0	20	7	0	4	2	0	0	0	0	184
15:00	0	125	49	4	20	1	0	0	4	0	0	0	0	203
16:00	0	101	36	0	23	0	0	3	3	0	0	0	0	166
17:00	2	149	33	0	13	0	0	3	2	0	0	0	0	202
18:00	3	98	24	0	24	2	0	1	7	0	0	0	0	159
19:00	3	73	15	0	10	0	0	0	1	0	0	0	0	102
20:00	2	61	16	1	5	1	0	0	1	0	0	0	0	87
21:00	0	39	10	0	5	0	0	0	0	0	0	0	0	54
22:00	2	28	9	0	3	0	0	2	1	0	0	0	0	45
23:00	0	11	3	0	2	0	0	1	2	0	0	0	0	19
Total	23	1549	467	11	345	39	14	25	58	2	0	0	0	2533
Percent	0.9%	61.2%	18.4%	0.4%	13.6%	1.5%	0.6%	1.0%	2.3%	0.1%	0.0%	0.0%	0.0%	
AM Peak	11:00	09:00	11:00	07:00	06:00	09:00	08:00	07:00	06:00					09:00
Vol.	2	101	36	2	35	6	5	2	5					166
PM Peak	18:00	17:00	15:00	15:00	18:00	14:00		12:00	18:00	12:00				15:00
Vol.	3	149	49	4	24	7		4	7	1				203

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/22/23	0	16	2	0	1	0	0	2	0	0	0	0	0	21
01:00	0	4	0	0	0	0	0	0	1	0	0	0	0	5
02:00	0	2	0	0	1	0	0	0	1	0	0	0	0	4
03:00	0	3	1	0	0	0	0	0	1	0	0	0	0	5
04:00	1	7	1	0	2	1	0	0	0	0	0	0	0	12
05:00	0	16	4	0	6	0	0	0	2	0	0	0	0	28
06:00	2	43	14	1	15	0	0	0	1	0	0	0	0	76
07:00	5	54	18	0	12	1	0	1	2	0	0	0	0	93
08:00	0	79	22	0	16	3	0	2	2	0	0	0	0	124
09:00	4	85	20	0	13	2	0	0	2	0	0	0	0	126
10:00	7	95	35	0	9	1	0	4	2	0	0	0	0	153
11:00	6	107	31	0	17	0	0	2	4	0	0	0	0	167
12 PM	6	102	26	0	12	0	0	4	4	0	0	0	0	154
13:00	0	94	28	0	13	0	0	4	1	0	0	0	0	140
14:00	6	101	29	0	13	0	0	3	3	0	0	0	0	155
15:00	1	107	33	0	11	2	0	2	3	0	0	0	0	159
16:00	4	104	28	0	15	2	0	0	0	0	0	0	0	153
17:00	5	94	13	0	18	0	0	0	2	0	0	0	0	132
18:00	3	85	21	0	18	0	0	0	0	0	0	0	0	127
19:00	1	67	13	0	6	1	0	1	3	0	0	0	0	92
20:00	1	56	17	0	8	0	0	0	2	0	0	0	0	84
21:00	1	44	14	0	7	0	0	0	0	0	0	0	0	66
22:00	0	26	5	0	5	0	0	0	2	0	0	0	0	38
23:00	0	7	3	0	1	0	0	0	1	0	0	0	0	12
Total	53	1398	378	1	219	13	0	25	39	0	0	0	0	2126
Percent	2.5%	65.8%	17.8%	0.0%	10.3%	0.6%	0.0%	1.2%	1.8%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	10:00	06:00	11:00	08:00		10:00	11:00					11:00
Vol.	7	107	35	1	17	3		4	4					167
PM Peak	12:00	15:00	15:00		17:00	15:00		12:00	12:00					15:00
Vol.	6	107	33		18	2		4	4					159

Tri-State Traffic Data, Inc.

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

610-466-1469
 TSTData.com

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/23/23	0	14	0	0	1	0	0	0	0	0	0	0	0	15
01:00	0	3	2	0	0	0	0	0	1	0	0	0	0	6
02:00	1	2	0	0	1	0	0	0	0	0	0	0	0	4
03:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
04:00	0	6	0	0	1	0	0	0	1	0	0	0	0	8
05:00	0	12	2	0	0	0	0	0	1	0	0	0	0	15
06:00	0	22	11	0	3	0	0	0	1	0	0	0	0	37
07:00	0	37	8	0	5	1	0	0	1	0	0	0	0	52
08:00	3	59	16	0	8	0	0	0	1	0	0	0	0	87
09:00	3	59	24	0	10	1	0	0	0	0	0	0	0	97
10:00	6	83	23	0	11	2	0	0	1	0	0	0	0	126
11:00	1	89	38	0	18	0	0	0	2	0	0	0	0	148
12 PM	7	116	31	0	14	1	0	1	0	0	0	0	0	170
13:00	2	94	24	0	20	0	0	2	1	0	0	0	0	143
14:00	3	82	12	0	11	0	0	2	3	0	0	0	0	113
15:00	11	82	13	0	11	0	0	1	0	0	0	0	0	118
16:00	5	85	24	0	4	1	0	0	1	0	0	0	0	120
17:00	2	100	34	0	14	2	0	1	1	0	0	0	0	154
18:00	4	82	25	0	7	2	0	0	0	0	0	0	0	120
19:00	8	79	21	0	1	1	0	0	1	0	0	0	0	111
20:00	0	46	15	0	6	0	0	0	1	0	0	0	0	68
21:00	1	52	11	1	3	1	0	1	0	0	0	0	0	70
22:00	2	24	6	1	7	0	0	0	4	0	0	0	0	44
23:00	0	8	2	1	2	0	0	0	3	0	0	0	0	16
Total	59	1243	343	3	158	12	0	8	24	0	0	0	0	1850
Percent	3.2%	67.2%	18.5%	0.2%	8.5%	0.6%	0.0%	0.4%	1.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	11:00		11:00	10:00			11:00					11:00
Vol.	6	89	38		18	2			2					148
PM Peak	15:00	12:00	17:00	21:00	13:00	17:00		13:00	22:00					12:00
Vol.	11	116	34	1	20	2		2	4					170

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/24/23	1	3	1	0	1	1	0	1	0	0	0	0	0	8
01:00	0	2	1	0	0	0	0	0	2	0	0	0	0	5
02:00	0	5	0	0	2	0	0	0	1	0	0	0	0	8
03:00	0	3	3	0	1	0	0	0	0	0	0	0	0	7
04:00	1	17	4	0	3	1	0	0	5	0	0	0	0	31
05:00	0	26	10	0	10	0	0	0	0	0	0	0	0	46
06:00	3	104	37	1	36	4	0	3	2	0	0	0	0	190
07:00	0	97	37	1	24	1	0	4	3	1	0	0	0	168
08:00	1	83	29	2	20	1	0	3	0	0	0	0	0	139
09:00	0	59	20	0	19	1	0	3	2	0	0	0	0	104
10:00	3	77	32	1	17	3	1	2	4	0	0	0	0	140
11:00	0	77	26	2	19	0	0	2	3	0	0	0	0	129
12 PM	3	88	35	2	20	2	0	2	4	0	0	0	0	156
13:00	1	83	31	0	17	8	0	0	1	0	0	0	0	141
14:00	2	106	27	1	17	6	0	3	2	0	0	0	0	164
15:00	2	116	39	0	21	3	0	0	2	0	0	0	0	183
16:00	1	111	27	0	21	0	0	1	2	0	0	0	0	163
17:00	0	102	35	0	22	1	0	0	2	0	0	0	0	162
18:00	2	76	27	0	15	2	0	2	3	0	0	0	0	127
19:00	2	59	17	1	11	1	0	1	2	0	0	0	0	94
20:00	1	33	4	0	6	1	0	0	3	1	0	0	0	49
21:00	0	34	10	0	3	0	0	0	0	0	0	0	0	47
22:00	2	24	4	0	1	2	0	0	4	0	0	0	0	37
23:00	0	8	1	0	1	0	0	0	2	0	0	0	0	12
Total	25	1393	457	11	307	38	1	27	49	2	0	0	0	2310
Percent	1.1%	60.3%	19.8%	0.5%	13.3%	1.6%	0.0%	1.2%	2.1%	0.1%	0.0%	0.0%	0.0%	
AM Peak	06:00	06:00	06:00	08:00	06:00	06:00	10:00	07:00	04:00	07:00				06:00
Vol.	3	104	37	2	36	4	1	4	5	1				190
PM Peak	12:00	15:00	15:00	12:00	17:00	13:00		14:00	12:00	20:00				15:00
Vol.	3	116	39	2	22	8		3	4	1				183

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 330 ft N of Nathan Ln
 Counter: 40601

Site Code: 2
 Station ID:
 A to B NB
 Latitude: 40° 19.6087 North
 Longitude: 76° 32.4554 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/25/23	0	3	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	0	1	0	2	0	0	0	1	0	0	0	0	4
02:00	0	2	1	0	2	0	0	0	2	0	0	0	0	7
03:00	0	6	2	0	1	1	0	0	0	0	0	0	0	10
04:00	0	8	5	0	7	0	0	1	1	0	0	0	0	22
05:00	0	36	11	0	13	0	0	0	3	0	0	0	0	63
06:00	1	101	35	0	37	1	1	0	3	0	0	0	1	180
07:00	1	92	45	3	29	1	1	3	2	0	0	0	0	177
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	2	248	100	3	91	3	2	4	12	0	0	0	1	466
Percent	0.4%	53.2%	21.5%	0.6%	19.5%	0.6%	0.4%	0.9%	2.6%	0.0%	0.0%	0.0%	0.2%	
AM Peak	06:00	06:00	07:00	07:00	06:00	03:00	06:00	07:00	05:00				06:00	06:00
Vol.	1	101	45	3	37	1	1	3	3				1	180
PM Peak														
Vol.														
Grand Total	280	11053	3328	80	2301	252	68	176	319	6	0	0	1	17864
Percent	1.6%	61.9%	18.6%	0.4%	12.9%	1.4%	0.4%	1.0%	1.8%	0.0%	0.0%	0.0%	0.0%	

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/17/23	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	0	52	18	1	12	2	2	2	3	0	0	0	0	92
14:00	1	82	26	1	26	1	4	2	2	0	0	0	0	145
15:00	3	113	44	1	33	1	2	3	2	0	0	0	0	202
16:00	5	108	43	0	31	3	0	3	1	0	0	0	0	194
17:00	2	121	26	0	40	1	0	1	2	0	0	0	0	193
18:00	1	84	23	0	18	0	0	3	0	0	0	0	0	129
19:00	1	75	15	0	14	1	0	0	2	0	0	0	0	108
20:00	1	51	17	1	5	1	0	0	0	0	0	0	0	76
21:00	0	59	10	0	6	0	0	0	0	0	0	0	0	75
22:00	0	17	5	0	4	1	0	0	1	0	0	0	0	28
23:00	0	21	3	0	2	0	0	0	0	0	0	0	0	26
Total	14	783	230	4	191	11	8	14	13	0	0	0	0	1268
Percent	1.1%	61.8%	18.1%	0.3%	15.1%	0.9%	0.6%	1.1%	1.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.														
PM Peak Vol.	16:00	17:00	15:00	13:00	17:00	16:00	14:00	15:00	13:00					15:00
	5	121	44	1	40	3	4	3	3					202

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/18/23	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	0	0	0	1	0	0	0	1	0	0	0	0	2
02:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
03:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
04:00	0	10	3	0	2	0	0	0	0	0	0	0	0	15
05:00	0	20	6	2	7	0	0	0	0	0	0	0	0	35
06:00	0	34	12	0	9	0	3	3	0	0	0	0	0	61
07:00	1	66	10	5	14	0	0	2	3	0	0	0	0	101
08:00	0	48	14	0	19	1	0	2	2	0	0	0	0	86
09:00	0	48	19	1	8	0	2	1	1	0	0	0	0	80
10:00	1	53	17	3	6	2	2	1	3	0	0	0	0	88
11:00	0	67	25	2	15	2	0	0	4	0	0	0	0	115
12 PM	3	58	34	0	23	6	3	0	3	0	0	0	0	130
13:00	0	63	26	2	15	2	0	1	4	0	0	0	0	113
14:00	0	75	22	1	28	0	5	2	1	0	0	0	0	134
15:00	3	128	36	2	35	3	3	2	0	0	0	0	0	212
16:00	3	126	39	0	39	1	0	4	1	0	0	0	0	213
17:00	5	132	34	0	26	2	0	4	0	0	0	0	0	203
18:00	1	78	22	0	20	0	0	0	1	0	0	0	0	122
19:00	0	72	18	0	12	0	0	0	1	0	0	0	0	103
20:00	0	82	22	0	11	0	0	1	1	0	0	0	0	117
21:00	1	41	8	0	4	0	0	0	0	0	0	0	0	54
22:00	0	27	6	0	2	0	0	0	0	0	0	0	0	35
23:00	0	20	5	0	1	0	0	0	0	0	0	0	0	26
Total	18	1254	380	18	297	19	18	23	26	0	0	0	0	2053
Percent	0.9%	61.1%	18.5%	0.9%	14.5%	0.9%	0.9%	1.1%	1.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	11:00	11:00	07:00	08:00	10:00	06:00	06:00	11:00					11:00
Vol.	1	67	25	5	19	2	3	3	4					115
PM Peak	17:00	17:00	16:00	13:00	16:00	12:00	14:00	16:00	13:00					16:00
Vol.	5	132	39	2	39	6	5	4	4					213

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

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 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/19/23	0	7	0	0	1	0	0	0	2	0	0	0	0	10
01:00	0	3	0	0	1	0	0	0	0	0	0	0	0	4
02:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
03:00	0	5	2	0	4	1	0	0	0	0	0	0	0	12
04:00	0	9	2	0	3	0	0	0	1	0	0	0	0	15
05:00	0	25	8	1	2	0	0	1	0	0	0	0	0	37
06:00	0	36	10	0	13	2	1	1	0	0	0	0	0	63
07:00	0	52	9	2	11	1	3	2	0	0	0	0	0	80
08:00	0	49	21	2	14	0	3	2	2	0	0	0	0	93
09:00	0	63	21	1	15	0	3	1	4	0	0	0	0	108
10:00	0	53	20	0	13	1	2	2	3	0	0	0	0	94
11:00	0	65	35	3	15	0	2	0	1	0	0	0	0	121
12 PM	0	62	33	1	15	1	1	1	0	0	0	0	0	114
13:00	1	73	14	3	22	1	2	3	2	1	0	0	0	122
14:00	1	83	28	3	25	2	4	2	1	0	0	0	0	149
15:00	1	138	36	3	33	2	1	3	0	0	0	0	0	217
16:00	1	136	39	0	36	1	0	4	3	0	0	0	0	220
17:00	3	128	21	0	45	0	0	1	3	0	0	0	0	201
18:00	1	84	22	0	15	0	0	1	0	0	0	0	0	123
19:00	3	47	25	0	11	0	0	0	0	0	0	0	0	86
20:00	0	69	18	0	9	1	0	2	0	0	0	0	0	99
21:00	0	29	9	0	6	2	0	0	0	0	0	0	0	46
22:00	1	26	3	0	5	0	0	0	1	0	0	0	0	36
23:00	0	21	3	1	2	0	0	0	0	0	0	0	0	27
Total	12	1269	379	20	316	15	22	26	23	1	0	0	0	2083
Percent	0.6%	60.9%	18.2%	1.0%	15.2%	0.7%	1.1%	1.2%	1.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak		11:00	11:00	11:00	09:00	06:00	07:00	07:00	09:00					11:00
Vol.		65	35	3	15	2	3	2	4					121
PM Peak	17:00	15:00	16:00	13:00	17:00	14:00	14:00	16:00	16:00	13:00				16:00
Vol.	3	138	39	3	45	2	4	4	3	1				220

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
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 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/20/23	0	3	1	0	1	1	0	0	0	0	0	0	0	6
01:00	0	3	0	0	2	0	0	0	0	0	0	0	0	5
02:00	0	4	0	0	2	0	0	0	0	0	0	0	0	6
03:00	1	3	1	0	3	0	0	0	1	0	0	0	0	9
04:00	0	8	1	0	2	0	0	2	0	0	0	0	0	13
05:00	1	18	9	2	5	0	0	2	1	0	0	0	0	38
06:00	1	30	10	0	14	0	0	0	0	1	0	0	0	56
07:00	0	58	16	3	14	1	1	1	1	0	0	0	0	95
08:00	0	40	11	0	14	1	1	6	1	0	0	0	0	74
09:00	1	43	20	2	8	2	2	2	3	0	0	0	0	83
10:00	0	50	21	2	14	0	4	3	1	0	0	0	0	95
11:00	1	61	16	1	14	2	2	1	1	1	0	0	0	100
12 PM	1	56	23	2	11	4	4	3	2	0	0	0	0	106
13:00	0	76	19	3	21	2	3	2	0	0	0	0	0	126
14:00	4	97	20	3	22	3	5	3	1	0	0	0	0	158
15:00	0	106	37	1	31	3	1	2	0	0	0	0	0	181
16:00	1	144	36	0	37	2	1	2	2	0	0	0	0	225
17:00	2	118	32	0	45	3	0	2	1	0	0	0	0	203
18:00	0	85	31	0	10	1	0	1	2	0	0	0	0	130
19:00	0	63	14	0	7	0	0	0	1	0	0	0	0	85
20:00	2	66	18	0	8	0	0	0	0	0	0	0	0	94
21:00	2	51	9	1	8	0	0	0	0	0	0	0	0	71
22:00	0	29	2	1	2	0	0	0	0	0	0	0	0	34
23:00	0	23	6	0	2	0	0	0	0	0	0	0	0	31
Total	17	1235	353	21	297	25	24	32	18	2	0	0	0	2024
Percent	0.8%	61.0%	17.4%	1.0%	14.7%	1.2%	1.2%	1.6%	0.9%	0.1%	0.0%	0.0%	0.0%	
AM Peak	03:00	11:00	10:00	07:00	06:00	09:00	10:00	08:00	09:00	06:00				11:00
Vol.	1	61	21	3	14	2	4	6	3	1				100
PM Peak	14:00	16:00	15:00	13:00	17:00	12:00	14:00	12:00	12:00					16:00
Vol.	4	144	37	3	45	4	5	3	2					225

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/21/23	0	6	3	0	0	0	0	0	1	0	0	0	0	10
01:00	0	3	0	0	2	0	0	0	2	0	0	0	0	7
02:00	0	5	0	0	1	0	0	0	0	0	0	0	0	6
03:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
04:00	0	5	3	0	3	0	0	0	1	0	0	0	0	12
05:00	0	18	6	1	4	0	0	0	0	0	0	0	0	29
06:00	1	29	10	0	9	0	0	0	1	0	0	0	0	50
07:00	0	58	5	2	14	0	3	0	3	0	0	0	0	85
08:00	0	50	15	1	7	4	0	2	4	0	0	0	0	83
09:00	0	61	34	2	12	4	2	2	1	0	0	0	0	118
10:00	0	60	21	0	16	4	1	0	1	0	0	0	0	103
11:00	0	83	26	0	20	5	1	3	2	0	0	0	0	140
12 PM	1	64	28	1	21	1	3	3	3	0	0	0	0	125
13:00	0	70	28	0	14	3	1	1	5	0	0	0	0	122
14:00	1	94	34	0	28	4	0	3	3	0	0	0	0	167
15:00	1	128	43	2	39	2	1	1	3	0	0	0	0	220
16:00	1	126	48	1	45	1	0	2	1	0	0	0	0	225
17:00	2	107	29	1	25	0	0	1	1	0	0	0	0	166
18:00	0	93	25	0	9	1	0	1	1	0	0	0	0	130
19:00	1	84	21	0	14	0	0	2	1	0	0	0	0	123
20:00	0	81	28	1	11	0	0	1	0	0	0	0	0	122
21:00	0	50	11	0	11	0	0	0	0	0	0	0	0	72
22:00	0	31	11	0	3	0	0	0	1	0	0	0	0	46
23:00	0	21	8	0	3	0	0	0	0	0	0	0	0	32
Total	8	1331	438	12	311	29	12	22	35	0	0	0	0	2198
Percent	0.4%	60.6%	19.9%	0.5%	14.1%	1.3%	0.5%	1.0%	1.6%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	11:00	09:00	07:00	11:00	11:00	07:00	11:00	08:00					11:00
Vol.	1	83	34	2	20	5	3	3	4					140
PM Peak	17:00	15:00	16:00	15:00	16:00	14:00	12:00	12:00	13:00					16:00
Vol.	2	128	48	2	45	4	3	3	5					225

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/22/23	0	11	1	0	1	0	0	0	0	0	0	0	0	13
01:00	0	5	1	0	0	0	0	0	1	0	0	0	0	7
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	1	1	0	1	0	0	0	0	0	0	0	0	3
04:00	0	9	0	0	1	0	0	1	0	0	0	0	0	11
05:00	0	12	7	0	7	0	0	0	0	0	0	0	0	26
06:00	3	19	8	0	5	0	0	0	0	0	0	0	0	35
07:00	0	30	13	0	11	0	0	1	0	0	0	0	0	55
08:00	1	43	14	1	7	0	0	1	1	0	0	0	0	68
09:00	1	62	24	1	17	1	0	2	0	0	0	0	0	108
10:00	2	96	27	0	14	2	0	2	0	0	0	0	0	143
11:00	9	79	35	1	16	1	0	3	3	0	0	0	0	147
12 PM	4	87	21	0	14	1	0	1	1	0	0	0	0	129
13:00	0	79	21	0	8	0	0	0	1	0	0	0	0	109
14:00	2	89	32	0	23	0	0	3	1	0	0	0	0	150
15:00	1	84	25	1	15	0	0	3	0	0	0	0	0	129
16:00	3	92	36	0	20	0	0	1	1	0	0	0	0	153
17:00	4	68	22	0	11	1	0	0	0	0	0	0	0	106
18:00	8	54	15	0	10	0	0	0	0	0	0	0	0	87
19:00	2	65	19	0	12	0	0	0	0	0	0	0	0	98
20:00	1	50	13	0	10	0	0	0	0	0	0	0	0	74
21:00	0	45	17	0	11	0	0	1	2	0	0	0	0	76
22:00	0	31	5	0	7	0	0	0	1	0	0	0	0	44
23:00	0	21	4	0	4	0	0	0	0	0	0	0	0	29
Total	41	1134	361	4	225	6	0	19	12	0	0	0	0	1802
Percent	2.3%	62.9%	20.0%	0.2%	12.5%	0.3%	0.0%	1.1%	0.7%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	10:00	11:00	08:00	09:00	10:00		11:00	11:00					11:00
Vol.	9	96	35	1	17	2		3	3					147
PM Peak	18:00	16:00	16:00	15:00	14:00	12:00		14:00	21:00					16:00
Vol.	8	92	36	1	23	1		3	2					153

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/23/23	0	9	2	0	1	0	0	0	1	0	0	0	0	13
01:00	0	3	0	0	0	0	0	0	1	0	0	0	0	4
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	2	1	0	1	0	0	0	0	0	0	0	0	4
05:00	0	10	1	0	4	0	0	0	0	0	0	0	0	15
06:00	2	10	5	0	2	0	0	0	0	0	0	0	0	19
07:00	0	23	8	0	6	0	0	0	0	0	0	0	0	37
08:00	0	35	17	0	3	2	0	0	0	0	0	0	0	57
09:00	2	57	14	0	13	1	0	1	1	0	0	0	0	89
10:00	2	53	22	0	18	0	0	2	0	0	0	0	0	97
11:00	1	71	25	0	9	0	0	0	0	0	0	0	0	106
12 PM	2	61	30	0	18	1	0	4	2	0	0	0	0	118
13:00	3	94	27	0	19	1	0	0	0	0	0	0	0	144
14:00	1	71	26	0	10	0	0	0	0	0	0	0	0	108
15:00	1	88	31	0	15	0	0	1	1	0	0	0	0	137
16:00	2	68	25	0	10	0	0	1	0	0	0	0	0	106
17:00	0	49	22	0	14	0	0	1	0	0	0	0	0	86
18:00	0	69	30	0	9	1	0	1	1	0	0	0	0	111
19:00	3	75	26	0	13	0	0	2	0	0	0	0	0	119
20:00	0	54	6	0	1	0	0	0	0	0	0	0	0	61
21:00	0	37	7	0	7	0	0	0	0	0	0	0	0	51
22:00	1	26	3	0	5	1	0	0	1	0	0	0	0	37
23:00	0	14	0	1	0	1	0	0	1	0	0	0	0	17
Total	20	984	328	1	178	8	0	13	9	0	0	0	0	1541
Percent	1.3%	63.9%	21.3%	0.1%	11.6%	0.5%	0.0%	0.8%	0.6%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	11:00	11:00		10:00	08:00		10:00	00:00					11:00
Vol.	2	71	25		18	2		2	1					106
PM Peak	13:00	13:00	15:00	23:00	13:00	12:00		12:00	12:00					13:00
Vol.	3	94	31	1	19	1		4	2					144

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

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 Counter: 40574

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 Latitude: 40° 19.9080 North
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NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/24/23	0	3	0	0	1	0	0	0	1	0	0	0	0	5
01:00	0	1	0	0	1	0	0	0	1	0	0	0	0	3
02:00	0	3	1	0	1	0	0	0	0	0	0	0	0	5
03:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
04:00	0	8	4	0	4	0	0	0	1	0	0	0	0	17
05:00	0	22	3	1	6	1	0	0	0	0	0	0	0	33
06:00	0	29	12	0	3	1	0	1	0	0	0	0	0	46
07:00	0	54	13	2	18	0	6	4	0	0	0	0	0	97
08:00	1	41	13	1	6	2	3	1	4	0	0	0	0	72
09:00	0	48	22	1	16	0	6	1	2	0	0	0	0	96
10:00	0	41	15	1	14	0	1	3	1	0	0	0	0	76
11:00	1	62	29	2	13	1	2	0	5	0	0	0	0	115
12 PM	0	79	24	5	24	4	3	0	1	0	0	0	0	140
13:00	0	70	26	0	21	3	3	2	0	0	0	0	0	125
14:00	0	76	28	0	34	3	0	2	1	0	0	0	0	144
15:00	1	114	34	1	51	1	1	3	1	0	0	0	0	207
16:00	1	112	42	1	51	0	0	2	3	0	0	0	0	212
17:00	1	112	31	0	27	0	0	1	0	0	0	0	0	172
18:00	1	73	31	0	25	0	0	2	0	0	0	0	0	132
19:00	0	44	11	1	4	1	0	0	0	1	0	0	0	62
20:00	1	53	31	0	8	0	0	1	1	0	0	0	0	95
21:00	0	22	9	0	6	0	0	0	0	0	0	0	0	37
22:00	0	30	7	0	1	0	0	1	0	0	0	0	0	39
23:00	0	30	2	0	4	0	0	0	1	0	0	0	0	37
Total	7	1130	389	16	339	17	25	24	23	1	0	0	0	1971
Percent	0.4%	57.3%	19.7%	0.8%	17.2%	0.9%	1.3%	1.2%	1.2%	0.1%	0.0%	0.0%	0.0%	
AM Peak	08:00	11:00	11:00	07:00	07:00	08:00	07:00	07:00	11:00					11:00
Vol.	1	62	29	2	18	2	6	4	5					115
PM Peak	15:00	15:00	16:00	12:00	15:00	12:00	12:00	15:00	16:00	19:00				16:00
Vol.	1	114	42	5	51	4	3	3	3	1				212

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/25/23	0	7	0	0	2	0	0	0	2	0	0	0	0	11
01:00	0	3	0	0	2	0	0	0	1	0	0	0	0	6
02:00	0	2	1	0	2	0	0	0	0	0	0	0	0	5
03:00	0	4	2	0	0	1	0	0	0	0	0	0	0	7
04:00	0	6	4	0	5	1	0	0	0	0	0	0	0	16
05:00	0	15	4	1	7	0	0	0	0	0	0	0	0	27
06:00	0	33	8	0	17	0	0	0	2	0	0	0	0	60
07:00	0	57	14	3	14	1	5	2	1	0	0	0	0	97
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	0	127	33	4	49	3	5	2	6	0	0	0	0	229
Percent	0.0%	55.5%	14.4%	1.7%	21.4%	1.3%	2.2%	0.9%	2.6%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.		07:00	07:00	07:00	06:00	03:00	07:00	07:00	00:00					07:00
PM Peak Vol.		57	14	3	17	1	5	2	2					97
Grand Total	137	9247	2891	100	2203	133	114	175	165	4	0	0	0	15169
Percent	0.9%	61.0%	19.1%	0.7%	14.5%	0.9%	0.8%	1.2%	1.1%	0.0%	0.0%	0.0%	0.0%	

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/17/23	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	0	55	23	2	14	4	0	0	0	0	0	0	0	98
14:00	1	74	27	0	14	2	0	1	5	0	0	0	0	124
15:00	3	90	26	1	20	4	1	5	0	0	0	0	0	150
16:00	5	89	31	0	19	2	0	2	1	0	0	0	0	149
17:00	2	90	24	0	22	2	0	0	2	0	0	0	0	142
18:00	2	68	23	0	12	2	0	0	1	0	0	0	0	108
19:00	1	53	19	1	7	0	0	0	1	0	0	0	0	82
20:00	0	39	6	0	9	0	0	0	0	0	0	0	0	54
21:00	1	26	2	0	6	1	0	0	1	0	0	0	0	37
22:00	2	18	2	0	3	1	0	0	2	0	0	0	0	28
23:00	0	12	2	0	0	0	0	0	0	0	0	0	0	14
Total	17	614	185	4	126	18	1	8	13	0	0	0	0	986
Percent	1.7%	62.3%	18.8%	0.4%	12.8%	1.8%	0.1%	0.8%	1.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.														
PM Peak Vol.	16:00	15:00	16:00	13:00	17:00	13:00	15:00	15:00	14:00					15:00
	5	90	31	2	22	4	1	5	5					150

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/18/23	1	1	0	0	2	2	0	0	0	0	0	0	0	6
01:00	0	1	2	0	1	0	0	0	0	0	0	0	0	4
02:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	1	1	0	2	0	0	0	0	0	0	0	0	4
04:00	0	13	3	0	3	0	0	0	0	0	0	0	0	19
05:00	5	37	14	1	16	2	0	0	0	0	0	0	0	75
06:00	5	80	29	0	38	8	0	0	2	0	0	0	0	162
07:00	1	94	21	1	21	9	0	5	1	0	0	0	0	153
08:00	1	72	21	1	11	2	1	1	2	1	0	0	0	113
09:00	0	67	23	0	7	2	1	2	2	0	0	0	0	104
10:00	2	47	18	2	13	6	2	1	3	0	0	0	0	94
11:00	2	68	15	0	11	5	1	1	0	0	0	0	0	103
12 PM	3	56	23	0	16	5	1	1	4	0	0	0	0	109
13:00	1	62	22	3	8	2	0	3	1	0	0	0	0	102
14:00	0	86	21	0	17	1	0	2	1	0	0	0	0	128
15:00	2	104	21	1	20	1	0	1	2	0	0	0	0	152
16:00	2	100	26	2	16	3	0	0	0	0	0	0	0	149
17:00	2	108	37	0	19	2	0	0	3	0	0	0	0	171
18:00	2	75	28	0	16	3	0	1	2	0	0	0	0	127
19:00	1	64	11	0	9	1	0	0	1	0	0	0	0	87
20:00	0	53	9	0	5	0	0	0	2	0	0	0	0	69
21:00	1	31	6	0	5	1	0	0	1	0	0	0	0	45
22:00	2	18	2	0	1	1	0	0	0	0	0	0	0	24
23:00	0	11	1	0	0	0	0	0	3	0	0	0	0	15
Total	33	1253	354	11	257	56	6	18	30	1	0	0	0	2019
Percent	1.6%	62.1%	17.5%	0.5%	12.7%	2.8%	0.3%	0.9%	1.5%	0.0%	0.0%	0.0%	0.0%	
AM Peak	05:00	07:00	06:00	10:00	06:00	07:00	10:00	07:00	10:00	08:00				06:00
Vol.	5	94	29	2	38	9	2	5	3	1				162
PM Peak	12:00	17:00	17:00	13:00	15:00	12:00	12:00	13:00	12:00					17:00
Vol.	3	108	37	3	20	5	1	3	4					171

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/19/23	1	2	0	0	1	1	0	0	0	0	0	0	0	5
01:00	0	0	2	0	0	1	0	0	1	0	0	0	0	4
02:00	0	4	0	0	2	0	0	0	0	0	0	0	0	6
03:00	0	4	3	0	0	0	0	0	1	0	0	0	0	8
04:00	1	11	4	0	4	1	0	0	1	0	0	0	0	22
05:00	2	31	16	0	15	3	0	0	1	0	0	0	0	68
06:00	2	87	35	0	31	3	0	4	1	0	0	0	0	163
07:00	1	74	27	2	22	8	0	4	2	0	0	0	0	140
08:00	0	66	30	3	16	3	0	1	2	1	0	0	0	122
09:00	0	67	28	1	13	3	0	1	3	0	0	0	0	116
10:00	1	78	12	4	11	4	0	2	1	0	0	0	0	113
11:00	0	66	26	2	10	5	0	2	4	0	0	0	0	115
12 PM	4	56	26	1	7	7	0	0	1	0	0	0	0	102
13:00	0	65	14	2	9	4	1	4	3	0	0	0	0	102
14:00	2	84	22	0	16	5	0	2	1	0	0	0	0	132
15:00	3	91	22	1	13	1	1	0	2	0	0	0	0	134
16:00	0	116	23	0	16	0	0	4	0	0	0	0	0	159
17:00	1	109	34	0	18	1	0	1	0	0	0	0	0	164
18:00	0	81	25	0	8	0	0	0	1	0	0	0	0	115
19:00	0	50	18	0	5	0	0	1	0	0	0	0	0	74
20:00	0	36	12	0	5	2	0	0	2	0	0	0	0	57
21:00	0	32	3	0	7	0	0	0	0	0	0	0	0	42
22:00	1	22	6	0	3	1	0	0	1	0	0	0	0	34
23:00	0	11	0	1	0	0	0	1	0	0	0	0	0	13
Total	19	1243	388	17	232	53	2	27	28	1	0	0	0	2010
Percent	0.9%	61.8%	19.3%	0.8%	11.5%	2.6%	0.1%	1.3%	1.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak	05:00	06:00	06:00	10:00	06:00	07:00		06:00	11:00	08:00				06:00
Vol.	2	87	35	4	31	8		4	4	1				163
PM Peak	12:00	16:00	17:00	13:00	17:00	12:00	13:00	13:00	13:00					17:00
Vol.	4	116	34	2	18	7	1	4	3					164

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/20/23	0	3	1	0	1	1	0	0	0	0	0	0	0	6
01:00	1	1	1	0	0	1	0	0	0	0	0	0	0	4
02:00	0	4	1	0	1	0	0	0	1	0	0	0	0	7
03:00	0	1	1	0	2	0	0	1	1	0	0	0	0	6
04:00	0	14	4	0	1	0	0	0	3	0	0	0	0	22
05:00	3	32	16	0	10	2	0	0	1	0	0	0	0	64
06:00	3	96	37	1	31	6	0	0	2	0	0	0	0	176
07:00	2	87	30	0	22	3	0	0	0	0	0	0	0	144
08:00	1	57	25	3	15	6	0	3	2	0	0	0	0	112
09:00	0	84	22	0	11	7	0	0	3	0	0	0	0	127
10:00	1	73	17	1	11	6	0	2	1	0	0	0	0	112
11:00	1	57	19	0	12	6	0	1	1	0	0	0	0	97
12 PM	3	51	22	1	9	5	1	3	4	0	0	0	0	99
13:00	2	72	21	2	13	4	1	0	2	0	0	0	0	117
14:00	2	85	28	1	9	2	1	1	1	0	0	0	0	130
15:00	0	88	21	0	14	0	0	2	3	0	0	0	0	128
16:00	2	100	27	0	18	0	0	0	2	0	0	0	0	149
17:00	2	115	27	0	15	1	0	1	2	0	0	0	0	163
18:00	1	92	22	2	9	1	0	0	1	1	0	0	0	129
19:00	0	55	11	0	8	0	0	0	0	0	0	0	0	74
20:00	1	32	10	1	1	0	0	0	0	0	0	0	0	45
21:00	0	42	9	0	2	0	0	0	0	0	0	0	0	53
22:00	0	18	7	0	3	0	0	0	0	0	0	0	0	28
23:00	0	9	1	0	0	0	0	0	1	0	0	0	0	11
Total	25	1268	380	12	218	51	3	14	31	1	0	0	0	2003
Percent	1.2%	63.3%	19.0%	0.6%	10.9%	2.5%	0.1%	0.7%	1.5%	0.0%	0.0%	0.0%	0.0%	
AM Peak	05:00	06:00	06:00	08:00	06:00	09:00		08:00	04:00					06:00
Vol.	3	96	37	3	31	7		3	3					176
PM Peak	12:00	17:00	14:00	13:00	16:00	12:00	12:00	12:00	12:00	18:00				17:00
Vol.	3	115	28	2	18	5	1	3	4	1				163

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/21/23	0	4	1	0	1	0	0	0	0	0	0	0	0	6
01:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
02:00	1	4	1	0	2	1	0	0	0	0	0	0	0	9
03:00	0	8	2	0	0	0	0	0	1	0	0	0	0	11
04:00	1	11	1	1	5	1	0	0	0	0	0	0	0	20
05:00	0	27	14	0	17	0	0	0	0	0	0	0	0	58
06:00	3	74	22	1	25	5	1	0	4	0	0	0	0	135
07:00	2	70	25	2	16	8	1	2	2	0	0	0	0	128
08:00	1	82	25	1	9	5	3	2	2	0	0	0	0	130
09:00	1	90	24	0	13	7	1	0	2	0	0	0	0	138
10:00	1	74	25	0	9	3	1	0	2	0	0	0	0	115
11:00	2	66	32	0	14	10	0	0	2	0	0	0	0	126
12 PM	1	81	28	0	15	3	0	3	3	1	0	0	0	135
13:00	0	69	27	1	13	2	0	1	3	0	0	0	0	116
14:00	0	97	26	0	13	3	0	2	2	1	0	0	0	144
15:00	1	109	46	4	16	1	0	0	1	0	0	0	0	178
16:00	0	96	37	0	17	0	0	2	1	0	0	0	0	153
17:00	1	121	33	0	11	1	0	3	1	0	0	0	0	171
18:00	1	84	19	0	18	1	0	1	5	0	0	0	0	129
19:00	3	63	16	0	6	0	0	0	1	0	0	0	0	89
20:00	1	53	16	1	6	0	0	0	1	0	0	0	0	78
21:00	0	35	9	0	3	0	0	0	0	0	0	0	0	47
22:00	3	24	9	0	3	1	0	2	1	0	0	0	0	43
23:00	0	13	1	0	1	0	0	1	1	0	0	0	0	17
Total	23	1356	440	11	233	52	7	19	35	2	0	0	0	2178
Percent	1.1%	62.3%	20.2%	0.5%	10.7%	2.4%	0.3%	0.9%	1.6%	0.1%	0.0%	0.0%	0.0%	
AM Peak	06:00	09:00	11:00	07:00	06:00	11:00	08:00	07:00	06:00					09:00
Vol.	3	90	32	2	25	10	3	2	4					138
PM Peak	19:00	17:00	15:00	15:00	18:00	12:00		12:00	18:00	12:00				15:00
Vol.	3	121	46	4	18	3		3	5	1				178

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Clear Spring Rd
 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/22/23	0	13	3	0	1	0	0	1	0	0	0	0	0	18
01:00	2	4	0	0	0	2	0	0	0	0	0	0	0	8
02:00	0	2	0	0	1	0	0	0	0	0	0	0	0	3
03:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
04:00	2	5	0	0	1	1	0	0	0	0	0	0	0	9
05:00	1	13	6	0	4	1	0	0	0	0	0	0	0	25
06:00	2	39	15	1	10	0	0	0	1	0	0	0	0	68
07:00	3	49	14	0	6	0	0	0	1	0	0	0	0	73
08:00	0	67	21	0	11	2	0	2	2	0	0	0	0	105
09:00	4	76	17	0	9	1	0	0	1	0	0	0	0	108
10:00	8	82	30	0	8	3	0	3	1	0	0	0	0	135
11:00	6	85	22	0	13	3	0	1	1	0	0	0	0	131
12 PM	4	82	22	0	11	0	0	1	3	0	0	0	0	123
13:00	0	86	22	0	10	0	0	3	1	0	0	0	0	122
14:00	5	79	28	0	11	1	0	1	1	0	0	0	0	126
15:00	1	93	28	0	12	2	0	2	2	0	0	0	0	140
16:00	2	92	28	0	14	0	0	0	1	0	0	0	0	137
17:00	3	67	13	0	12	0	0	0	0	0	0	0	0	95
18:00	3	72	16	0	14	0	0	0	0	0	0	0	0	105
19:00	0	59	12	0	6	0	0	1	2	0	0	0	0	80
20:00	1	52	15	0	9	0	0	0	2	0	0	0	0	79
21:00	1	39	14	0	6	0	0	0	0	0	0	0	0	60
22:00	0	26	6	0	4	0	0	0	0	0	0	0	0	36
23:00	0	6	2	0	2	0	0	0	1	0	0	0	0	11
Total	48	1191	335	1	175	16	0	15	20	0	0	0	0	1801
Percent	2.7%	66.1%	18.6%	0.1%	9.7%	0.9%	0.0%	0.8%	1.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	10:00	06:00	11:00	10:00		10:00	08:00					10:00
Vol.	8	85	30	1	13	3		3	2					135
PM Peak	14:00	15:00	14:00		16:00	15:00		13:00	12:00					15:00
Vol.	5	93	28		14	2		3	3					140

Tri-State Traffic Data, Inc.

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610-466-1469
 TSTData.com

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/23/23	0	12	1	0	1	0	0	0	0	0	0	0	0	14
01:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1
03:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
04:00	0	5	0	0	1	0	0	0	0	0	0	0	0	6
05:00	0	10	1	0	1	0	0	0	0	0	0	0	0	12
06:00	0	21	8	0	4	0	0	0	0	0	0	0	0	33
07:00	0	34	8	0	4	1	0	0	1	0	0	0	0	48
08:00	3	47	10	0	9	0	0	0	0	0	0	0	0	69
09:00	2	50	20	0	11	0	0	1	1	0	0	0	0	85
10:00	2	76	20	0	7	2	0	0	0	0	0	0	0	107
11:00	2	79	33	0	16	1	0	1	0	0	0	0	0	132
12 PM	5	103	26	0	14	0	0	2	0	0	0	0	0	150
13:00	2	75	20	0	18	0	0	2	1	0	0	0	0	118
14:00	3	68	11	0	9	0	0	2	1	0	0	0	0	94
15:00	10	69	11	0	10	0	0	1	0	0	0	0	0	101
16:00	3	79	16	0	10	0	0	0	1	0	0	0	0	109
17:00	1	87	29	0	11	1	0	0	1	0	0	0	0	130
18:00	2	70	17	0	6	0	0	2	2	0	0	0	0	99
19:00	8	76	15	0	2	1	0	0	0	0	0	0	0	102
20:00	0	39	12	0	8	0	0	0	0	0	0	0	0	59
21:00	0	37	8	1	3	1	0	1	0	0	0	0	0	51
22:00	4	22	7	1	7	1	0	0	1	0	0	0	0	43
23:00	0	10	1	0	1	0	0	0	1	0	0	0	0	13
Total	47	1077	277	2	154	8	0	12	10	0	0	0	0	1587
Percent	3.0%	67.9%	17.5%	0.1%	9.7%	0.5%	0.0%	0.8%	0.6%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	11:00	11:00		11:00	10:00		09:00	07:00					11:00
Vol.	3	79	33		16	2		1	1					132
PM Peak	15:00	12:00	17:00	21:00	13:00	17:00		12:00	18:00					12:00
Vol.	10	103	29	1	18	1		2	2					150

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

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 Location: 200 ft N of Syner Rd
 Counter: 40574

Site Code: 1
 Station ID:
 A to B NB
 Latitude: 40° 19.9080 North
 Longitude: 76° 32.4744 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/24/23	0	3	1	0	1	0	0	1	1	0	0	0	0	7
01:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
02:00	0	3	0	0	2	0	0	0	1	0	0	0	0	6
03:00	2	3	3	0	0	2	0	0	1	0	0	0	0	11
04:00	0	15	6	0	3	0	0	0	1	0	0	0	0	25
05:00	0	32	13	0	14	0	0	0	0	0	0	0	0	59
06:00	4	87	36	1	35	6	0	3	1	0	0	0	0	173
07:00	1	79	30	2	20	7	0	4	1	1	0	0	1	146
08:00	2	59	24	1	17	7	0	2	1	1	0	0	0	114
09:00	0	52	18	0	13	7	0	1	0	0	0	0	0	91
10:00	1	68	21	2	12	4	0	2	4	0	0	0	0	114
11:00	1	67	18	1	18	4	0	2	1	0	0	0	0	112
12 PM	2	73	27	4	16	5	0	2	2	0	0	0	0	131
13:00	0	65	22	1	11	6	0	0	0	0	0	0	0	105
14:00	2	83	21	1	9	4	0	3	0	0	0	0	0	123
15:00	0	97	32	0	12	2	0	1	3	0	0	0	0	147
16:00	1	93	28	0	15	0	0	0	1	0	0	0	0	138
17:00	0	95	30	0	17	1	0	0	1	0	0	0	0	144
18:00	2	69	17	0	15	2	0	1	2	0	0	0	0	108
19:00	1	46	17	1	9	0	0	1	2	0	0	0	0	77
20:00	1	25	3	0	6	1	0	0	2	1	0	0	0	39
21:00	0	25	6	0	3	0	0	0	0	0	0	0	0	34
22:00	2	20	5	0	1	2	0	0	1	0	0	0	0	31
23:00	1	8	0	0	1	1	0	0	0	0	0	0	0	11
Total	23	1169	379	14	250	61	0	23	26	3	0	0	1	1949
Percent	1.2%	60.0%	19.4%	0.7%	12.8%	3.1%	0.0%	1.2%	1.3%	0.2%	0.0%	0.0%	0.1%	
AM Peak	06:00	06:00	06:00	07:00	06:00	07:00		07:00	10:00	07:00			07:00	06:00
Vol.	4	87	36	2	35	7		4	4	1			1	173
PM Peak	12:00	15:00	15:00	12:00	17:00	13:00		14:00	15:00	20:00				15:00
Vol.	2	97	32	4	17	6		3	3	1				147

Tri-State Traffic Data, Inc.

610-466-1469

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 Latitude: 40° 19.9080 North
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SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/25/23	0	2	0	0	1	0	0	0	0	0	0	0	0	3
01:00	0	1	1	0	2	0	0	0	0	0	0	0	0	4
02:00	0	2	1	0	2	0	0	0	0	0	0	0	0	5
03:00	0	6	3	0	1	1	0	0	0	0	0	0	0	11
04:00	1	8	7	0	4	1	0	1	0	0	0	0	0	22
05:00	1	35	13	0	16	1	0	0	1	0	0	0	0	67
06:00	3	86	39	0	33	3	1	0	2	0	0	0	1	168
07:00	3	79	28	2	28	10	1	2	1	1	0	0	0	155
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	8	219	92	2	87	16	2	3	4	1	0	0	1	435
Percent	1.8%	50.3%	21.1%	0.5%	20.0%	3.7%	0.5%	0.7%	0.9%	0.2%	0.0%	0.0%	0.2%	
AM Peak	06:00	06:00	06:00	07:00	06:00	07:00	06:00	07:00	06:00	07:00			06:00	06:00
Vol.	3	86	39	2	33	10	1	2	2	1			1	168
PM Peak														
Vol.														
Grand Total	243	9390	2830	74	1732	331	21	139	197	9	0	0	2	14968
Percent	1.6%	62.7%	18.9%	0.5%	11.6%	2.2%	0.1%	0.9%	1.3%	0.1%	0.0%	0.0%	0.0%	

APPENDIX D – TRAFFIC VOLUME PROJECTIONS

Current Year	2023	
Build Year	2027	1.025031595
Design Year	2042	1.124610015
Annual Growth Rate	0.62%	

	North of Nathan			North of Syner		
	Total ADT	Truck ADT	Truck %	Total ADT	Truck ADT	Truck %
Current ADT	4638	241	5.2%	3888	167	4.3
Build Year Base ADT	4754	247		3985	171	
Design Year Base ADT	5216	271		4372	188	
DHL Warehouses	1413	509		1413	509	
Northpoint Warehouse	394	86		394	86	
Hershey Foods Expansion	109	51		109	51	
Other Development						
Build Year Total ADT	6670	893	13.4%	5901	817	13.8%
Design Year Total ADT	7132	917	12.9%	6288	834	13.3%

TABLE 4
 ITE TRIP GENERATION DATA

Land Use	ITE #	Time Period	Average Equation	Directional Splits	
				Enter %	Exit %
Warehousing	150	Average Weekday	$T = 1.58*(X) + 45.54$	50%	50%
		A.M. Peak Hour	$T = 0.12*(X) + 25.32$	77%	23%
		P.M. Peak Hour	$T = 0.12*(X) + 27.82$	27%	73%

T = number of site-generated vehicular trips

X = independent variable (1000 s.f. of gross floor area)

Truck Trips

The truck trip generation for the proposed warehouse development was calculated utilizing Land Use Code 150 from ITE's *Trip Manual 10th Ed. Supplement*. The truck traffic volumes will be deducted from the total warehouse trip generation to yield the passenger car traffic volumes. The proposed truck trip generation rates for this analysis are summarized in **Table 5**.

TABLE 5
 ITE TRUCK TRIP GENERATION RATES: WAREHOUSING

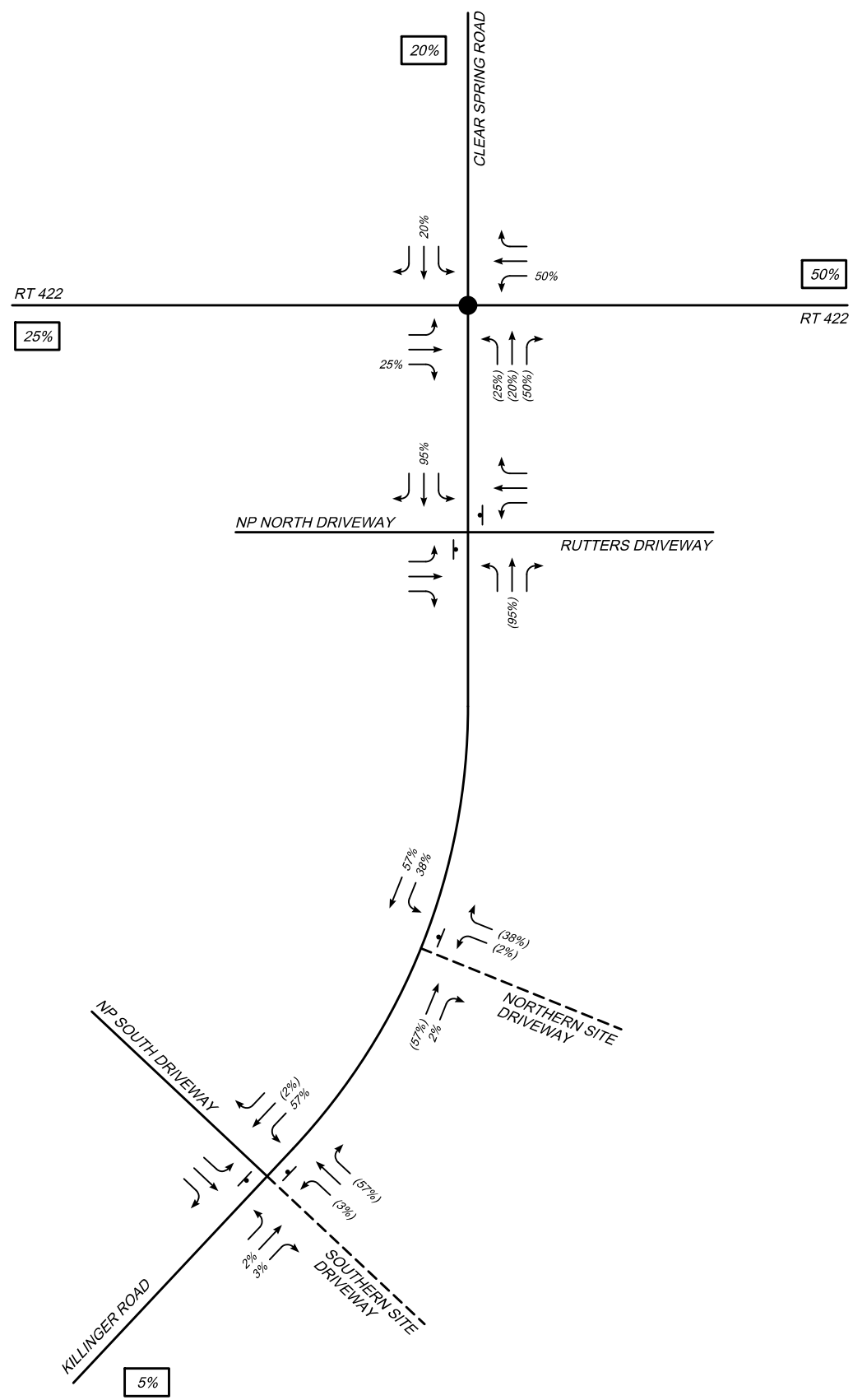
Land Use	ITE #	Time Period	Equations/ Rates	Directional Splits	
				Enter %	Exit %
Warehousing	150	Average Weekday	$T = 0.60*(X)$	50%	50%
		A.M. Peak Hour	$T = 0.02*(X)$	52%	48%
		P.M. Peak Hour	$T = 0.03*(X)$	52%	48%

The calculated trip generation for the proposed development is shown in **Table 6**. Trip generation data and calculations are provided in **Appendix C**.

TABLE 6
 TRIP GENERATION SUMMARY

Time Period	Total Trips			Truck Trips			Vehicle Trips		
	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Average Weekday	4518	2259	2259	1698	849	849	2820	1410	1410
Weekday A.M. Peak Hour	365	281	84	57	30	27	308	251	57
Weekday P.M. Peak Hour	367	99	268	85	44	41	282	55	227

As shown in **Table 6**, the proposed Clear Springs Logistics Park development is anticipated to result in 365 new trips during the weekday A.M. peak hour and 367 new trips during the weekday P.M. peak hour.



KEY:

- STOP CONTROLLED
- SIGNALIZED INTERSECTION
- - - - PROPOSED DRIVEWAY
- X (Y) = ENTER (EXIT)



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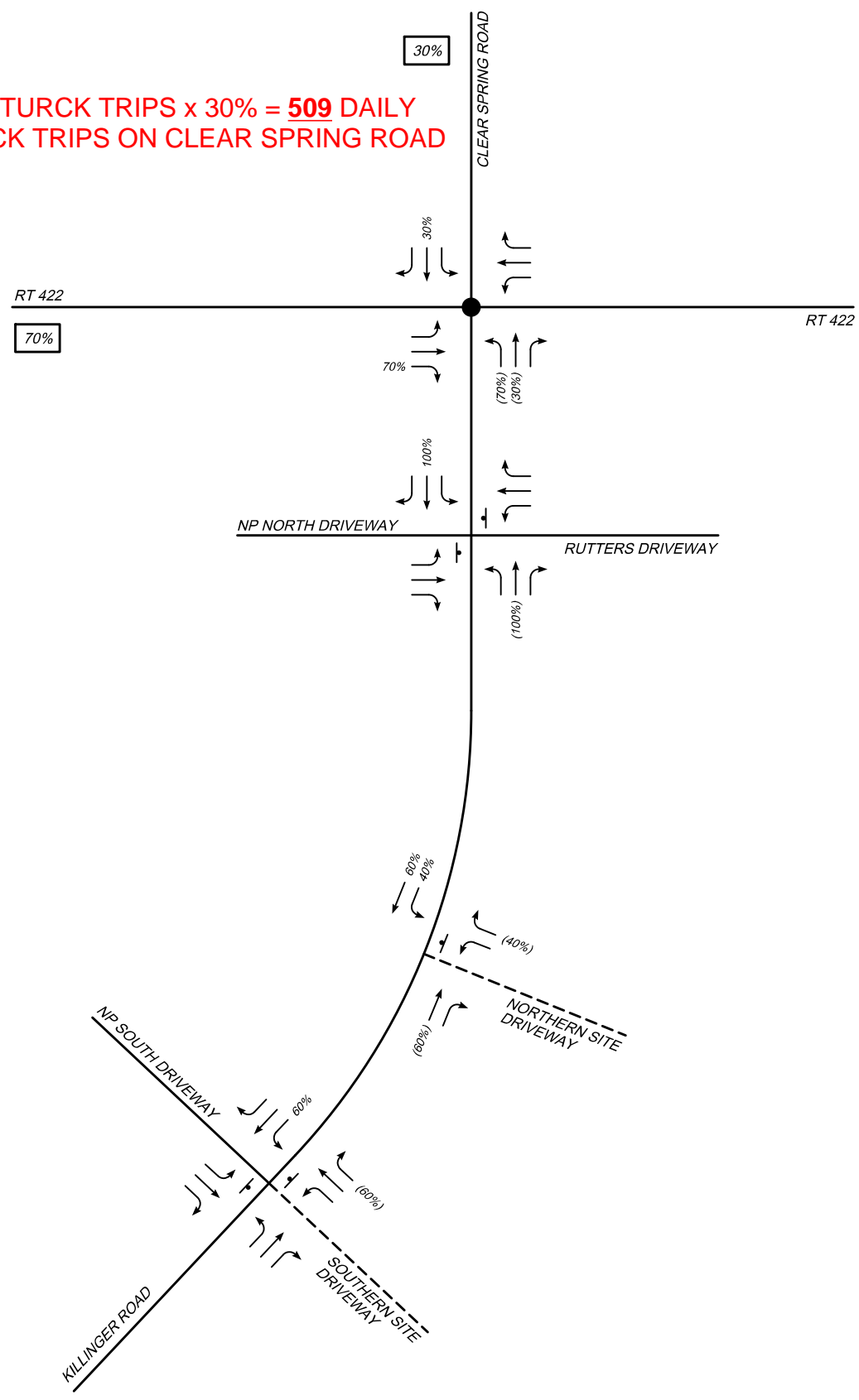
FIGURE 4A

TRIP DISTRIBUTION PERCENTAGES PASSENGER CARS

c:\pwork\img\proj\sect\w\se\p\arose\va\149377\Figures.dgn 3/10/05 4:30 PM



1698 TURCK TRIPS x 30% = **509 DAILY TRUCK TRIPS ON CLEAR SPRING ROAD**



KEY:

- +— STOP CONTROLLED
- SIGNALIZED INTERSECTION
- - - - PROPOSED DRIVEWAY
- X (Y) = ENTER (EXIT)



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FIGURE 4B

TRIP DISTRIBUTION PERCENTAGES TRUCKS

ct:\pwork\img\proj\sect\w\se\p\arose\va\149377\Figures.dgn 3/31/12 2:41:33 PM 3/30/12

Background Development Trip Generation - Hershey Warehouse

25% REMAINING TO BE BUILT

ITE 10th Ed.: LU 150 - Warehousing

						Trips: All Vehicles		
Condition	Equation	X (ksf)	a	b	% enter	Total	Enter	Exit
<i>Average Weekday</i>	$T = a*(X) + b$	1138	1.58	45.54	50%	1844	922	922
<i>Weekday AM Peak Hour of Adjacent Street Traffic</i>	$T = a*(X) + b$		0.12	25.32	77%	162	125	37
<i>Weekday PM Peak Hour of Adjacent Street Traffic</i>	$T = a*(X) + b$		0.12	27.82	27%	164	44	120

ITE 10th Ed. Supplement: LU 150 - Warehousing

						Trips: Trucks		
Condition	Rate	X (ksf)	a	b	% enter	Total	Enter	Exit
<i>Average Weekday</i>	$T = a*(X)$	1138	0.60	--	50%	684	342	342
<i>Weekday AM Peak Hour of Adjacent Street Traffic</i>	$T = a*(X)$		0.02	--	52%	23	12	11
<i>Weekday PM Peak Hour of Adjacent Street Traffic</i>	$T = a*(X)$		0.03	--	52%	34	18	16

25% REMAINING TO BE BUILT x 684 TRUCK TRIPS x 30% ON CSR = 51 TRUCK TRIPS ADDED TO CSR

Condition	Trips: All Vehicles			Trips: Trucks			Trips: Cars		
	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
<i>Average Weekday</i>	1844	922	922	684	342	342	1160	580	580
<i>Weekday AM Peak Hour of Adjacent Street Traffic</i>	162	125	37	23	12	11	139	113	26
<i>Weekday PM Peak Hour of Adjacent Street Traffic</i>	164	44	120	34	18	16	130	26	104

NORTHPOINT WAREHOUSE
Site Warehouse Development

ITE 10th Ed.: LU 154 - High Cube Warehousing

Condition	Rate	X (ksf)	a	b	% enter	Trips: All Vehicles		
						Total	Enter	Exit
Average Weekday	$T = a*(X)$	1305.7	1.40	--	50%	1828	914	914
Weekday AM Peak Hour of Adjacent Street Traffic	$T = a*(X)$		0.08	--	77%	104	80	24
Weekday PM Peak Hour of Adjacent Street Traffic	$T = a*(X)$		0.10	--	28%	131	37	94

ITE 10th Ed. Supplement: LU 154 - High Cube Warehousing

Condition	Rate	X (ksf)	a	b	% enter	Trips: Trucks		
						Total	Enter	Exit
Average Weekday	$T = a*(X)$	1305.7	0.22	--	50%	288	144	144
Weekday AM Peak Hour of Adjacent Street Traffic	$T = a*(X)$		0.02	--	49%	26	13	13
Weekday PM Peak Hour of Adjacent Street Traffic	$T = a*(X)$		0.01	--	47%	13	6	7

288 TRUCK TRIPS x 30% ON CSR = 86 TRUCK TRIPS ADDED TO CLEAR SPRING ROAD

Condition	Trips: All Vehicles			Trips: Trucks			Trips: Passenger Cars		
	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Average Weekday	1828	914	914	288	144	144	1540	770	770
Weekday AM Peak Hour of Adjacent Street Traffic	104	80	24	26	13	13	78	67	11
Weekday PM Peak Hour of Adjacent Street Traffic	131	37	94	13	6	7	118	31	87

APPENDIX E – PENNDOT 3R CRITERIA

E. Design Criteria for Resurfacing, Restoration and Rehabilitation (3R) Projects.

1. Refer to [Section 1.2.A](#) to determine if 3R criteria is applicable to a project. Design criteria for 3R projects are provided in [Table 1.10](#), [Table 1.11](#) and associated notes. Shoulder criteria notes are found in [Section 1.2.E.2](#).

**TABLE 1.10
RESURFACING, RESTORATION AND REHABILITATION (3R)
DESIGN CRITERIA***

	RURAL AREA SYSTEM	URBAN AREA SYSTEM
DESIGN SPEED (km/h or mph)	SEE NOTE ①	SEE NOTE ②
PAVEMENT WIDTHS ③ ④	SEE TABLE 1.11	3.6 m (12 ft) LANES (DESIRABLE) ⑤ 3.0 m (10 ft) LANES (MINIMUM) ⑥
SHOULDER WIDTHS ③ ⑦	SEE TABLE 1.11	EXISTING ⑧
MEDIAN WIDTHS	EXISTING	EXISTING
CROSS SLOPES ⑨	TANGENT: 2.0% (DESIRABLE) 1.0% (MINIMUM) WHERE GRADES ARE ≥ 1% SUPERELEVATION: SEE NOTE ⑩	EXISTING ⑪
VERTICAL CURVATURE AND GRADES	EXISTING ⑫	EXISTING ⑫
HORIZONTAL CURVATURE	EXISTING ⑫	EXISTING ⑫
SIGHT DISTANCES	EXISTING ⑫	EXISTING ⑫
GUIDE RAIL AND MEDIAN BARRIER	SEE CHAPTER 12	SEE CHAPTER 12
CLEAR ZONE WIDTHS	SEE CHAPTER 12	SEE CHAPTER 12
BRIDGE WIDTHS	SEE SECTION 1.2.C	SEE SECTION 1.2.C
PARKING LANES	NONE	SEE CHAPTER 1, TABLE 1.3 THROUGH TABLE 1.7
VERTICAL CLEARANCE	SEE CHAPTER 2, SECTION 2.20	SEE CHAPTER 2, SECTION 2.20

① SEE 3R DESIGN CRITERIA NOTES ON [PAGES 1 - 32](#) AND [1 - 33](#).

*3R criteria is not applicable for freeways. For freeways, use New Construction and Reconstruction criteria or Pavement Preservation criteria, as applicable.

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**TABLE 1.11
MINIMUM WIDTH CRITERIA FOR RESURFACING,
RESTORATION AND REHABILITATION (3R) RURAL PROJECTS (a)**

OPEN TO TRAFFIC ADT	NUMBER OF HEAVY VEHICLES (b)	DESIGN SPEED (mph)	MINIMUM WIDTHS (c)
≤ 400	40 OR LESS	< 50	18'-0" PAVEMENT PLUS 2'-0" SHOULDERS EACH SIDE
		≥ 50	20'-0" PAVEMENT PLUS 2'-0" SHOULDERS EACH SIDE
401 TO 1000	100 OR LESS	< 50	20'-0" PAVEMENT PLUS 2'-0" SHOULDERS EACH SIDE
		≥ 50	22'-0" PAVEMENT PLUS 2'-0" SHOULDERS EACH SIDE
1001 TO 2000	200 OR LESS	< 50	22'-0" PAVEMENT PLUS 2'-0" SHOULDERS EACH SIDE
		≥ 50	22'-0" PAVEMENT PLUS 3'-0" SHOULDERS EACH SIDE
2001 TO 4000	400 OR LESS	< 50	22'-0" PAVEMENT PLUS 3'-0" SHOULDERS EACH SIDE
		≥ 50	22'-0" PAVEMENT PLUS 4'-0" SHOULDERS EACH SIDE
4001 TO 10000	1000 OR LESS	< 50	22'-0" PAVEMENT PLUS 4'-0" SHOULDERS EACH SIDE
		≥ 50	22'-0" PAVEMENT PLUS 5'-0" SHOULDERS EACH SIDE
10001 TO 20000	2000 OR LESS	ALL	22'-0" PAVEMENT PLUS 5'-0" SHOULDERS EACH SIDE
> 20000	2000 OR LESS (d)	ALL	22'-0" PAVEMENT PLUS 5'-0" SHOULDERS EACH SIDE

SEE NOTES ON [PAGE 1 - 31](#).

**RESURFACING, RESTORATION AND REHABILITATION
(3R) DESIGN CRITERIA NOTES**NOTES

- (a) For Current Traffic ADT, where the number of Heavy Vehicles falls within the range indicated, use the corresponding minimum widths. Where the number of Heavy Vehicles exceeds the range indicated for the corresponding ADT, use the minimum width values for the appropriate range of Heavy Vehicles (see examples presented on this page).
- (b) Number of Heavy Vehicles = Current Traffic ADT × % of Trucks, Buses and Recreational Vehicles.
- (c) Curve widening shall be applied to pavement widths as presented in [Chapter 2](#). Consideration should be given to maintaining curve widened pavements over the entire project limits when a significant proportion of the project requires curve widening due to multiple curves.
- (d) Over 10% Heavy Vehicles, increase shoulder width to 6'-0" each side.

EXAMPLE 1

GIVEN: 4000 ADT
9% Heavy Vehicles
Design Speed = 50 mph

FIND: Minimum Width Required.

SOLUTION: $4000 \text{ ADT} \times 9\% \text{ Heavy Vehicles} = 360 \text{ Heavy Vehicles}$. Since the 4000 ADT falls between 2001 to 4000 and the number of Heavy Vehicles is 400 or less, the minimum width provided should be a 22'-0" pavement plus 4'-0" shoulders each side.

EXAMPLE 2

GIVEN: 5850 ADT
18% Heavy Vehicles
Design Speed < 50 mph

FIND: Minimum Width Required.

SOLUTION: $5850 \text{ ADT} \times 18\% \text{ Heavy Vehicles} = 1053 \text{ Heavy Vehicles}$. Although the 5850 ADT falls between 4001 to 10000, the number of Heavy Vehicles (1053) exceeds the 1000 or less criteria. Therefore, the appropriate range of Heavy Vehicles would be 2000 or less and the minimum width provided should be 22'-0" pavement plus 5'-0" shoulders each side.

RESURFACING, RESTORATION AND REHABILITATION (3R) DESIGN CRITERIA NOTES

- | | |
|--|--|
| <p>① When the project scope does not include an overlay or a roadway geometry improvement (e.g., drainage, guide rail, shoulder structural upgrading, etc.), a design speed is not applicable to the project. If an overlay or a roadway geometry improvement (e.g., pavement or shoulder widening, increase in superelevation, etc.) is included in the project scope, a design speed shall be used. The minimum design speed selected shall be equal to the average running speed plus any anticipated increase in the average running speed due to the overlay or roadway geometry improvement, rounded upward to the nearest 10 km/h (5 mph) increment (the average running speed, which represents the length of the highway segment divided by the average running time, i.e., the time the vehicle is in motion along the segment, shall be determined as set forth in Publication 212, <i>Official Traffic Control Devices</i>. The maximum design speed selected shall be based on the applicable functional classification systems indicated in Chapter 1, Table 1.3 through Table 1.8. The design speed selected may be a range of speeds based upon the governing speed in each subsection of the project.</p> <p>② Major urban arterial streets and highways with some access control and fairly long distances between intersections should have a design speed determined according to Note ①. However, those major arterials that have obvious "street-like" characteristics, operationally and physically, and most urban, local and collector streets do not require a design speed determination.</p> <p>③ Where the existing widths are greater than those indicated in the criteria, maintain the existing widths.</p> <p>④ Railroad grade crossing paving shall extend 0.6 m (2 ft) beyond the extreme rails for the full graded width of the highway.</p> <p>⑤ Lanes 2.7 m (9 ft) wide may be used on one-way streets or for divided roadways if at least a 0.3 m (1 ft) curb offset is used or if trucks and buses are prohibited.</p> | <p>⑥ Curb Offset:
60 km/h (40 mph) and Less - None
Greater Than 60 km/h (40 mph) - 0.3 m (1 ft) desirable</p> <p>⑦ In cut sections, on widening or reconstruction projects, where the width available from the edge of pavement to the toe of the cut slope is 2.4 m (8 ft) or less, the shoulder paving should be extended to the toe of the cut slope. Where this width is variable, the shoulder paving may also be variable. If erosion is a problem in this area, consideration should be given to extending the paving 250 mm to 300 mm (10 in to 12 in) up the slope.</p> <p>⑧ Use Rural 3R Design Criteria if uncurbed section is used in urban areas.</p> <p>⑨ In order to increase the amount of drainage capacity or to include reconstruction of the shoulder, the shoulder cross slopes may be increased.</p> <p>⑩ When the actual rate of superelevation is within 3.0% of the design superelevation rate, it is not necessary to increase the superelevation rate. When the actual rate of superelevation differs by more than 3.0% from the design superelevation rate, the highest achievable rate should be provided. When the curve superelevation provided does not equal the design superelevation rate, warning signs with advisory speed plates shall be provided. A reduction of the required superelevation rate is acceptable when short tangents between reverse curves do not afford sufficient runout length after consideration to partial runout within the curves. Rates of superelevation and the design speed shall be considered jointly. See Note ⑫ for additional information relative to design speed.</p> <p>⑪ Since superelevation is not always possible, more attention should be paid to other items such as friction overlays and signing and pavement marking. For additional information, see Notes ⑩ and ⑫.</p> |
|--|--|

**RESURFACING, RESTORATION AND REHABILITATION
(3R) DESIGN CRITERIA NOTES**

⑫ GENERAL: Existing horizontal curvature, vertical curvature and grades and sight distance shall be evaluated against minimum criteria for the design speed. For sites with accident experience, an economic analysis shall be made to determine feasibility for reconstruction. If reconstruction is not feasible, or reconstruction is less than new construction standards, a design exception request shall be prepared. In addition, appropriate safety and other mitigation measures shall be applied to enhance and upgrade these geometric features for extended service life and safer operations. See [Chapter 1, Table 1.1](#) for a list of low cost safety improvement measures as alternates to reconstruction.

HORIZONTAL CURVATURE: When the design speed of a horizontal curve is 25 km/h (15 mph) or less below the design speed of the proposed project and no accident problem is prevalent, warning signs with advisory speed plates shall be provided. Also, the list of low cost safety improvement measures in [Chapter 1, Table 1.1](#) shall be considered. When the difference is greater than 25 km/h (15 mph) and the current average daily traffic (ADT) is 750 or greater, or an accident problem exists, or the design speed of the horizontal curve is less than 30 km/h (20 mph), achievement of the design speed curvature criteria shall be considered through an economic analysis to determine feasibility for reconstruction. If reconstruction to current standards is not feasible, a design exception request shall be prepared. The design speed and rates of superelevation shall be considered jointly. See Note ⑩ for additional information relative to superelevation rates.

VERTICAL CURVATURE AND GRADES: When the design speed of a vertical curve is 30 km/h (20 mph) or less below the design speed of the proposed project, and no accident problem is prevalent, consider the list of low cost safety improvement measures in [Chapter 1, Table 1.1](#). When the difference is greater than 30 km/h (20 mph) and the current average daily traffic (ADT) is 1500 or greater, or an accident problem exists, or the design speed of the vertical curve is less than 30 km/h (20 mph), consider achievement of the design speed curvature criteria and grades through an economic analysis to determine feasibility for reconstruction. Prepare a request for a design exception if reconstruction to current standards is not feasible.

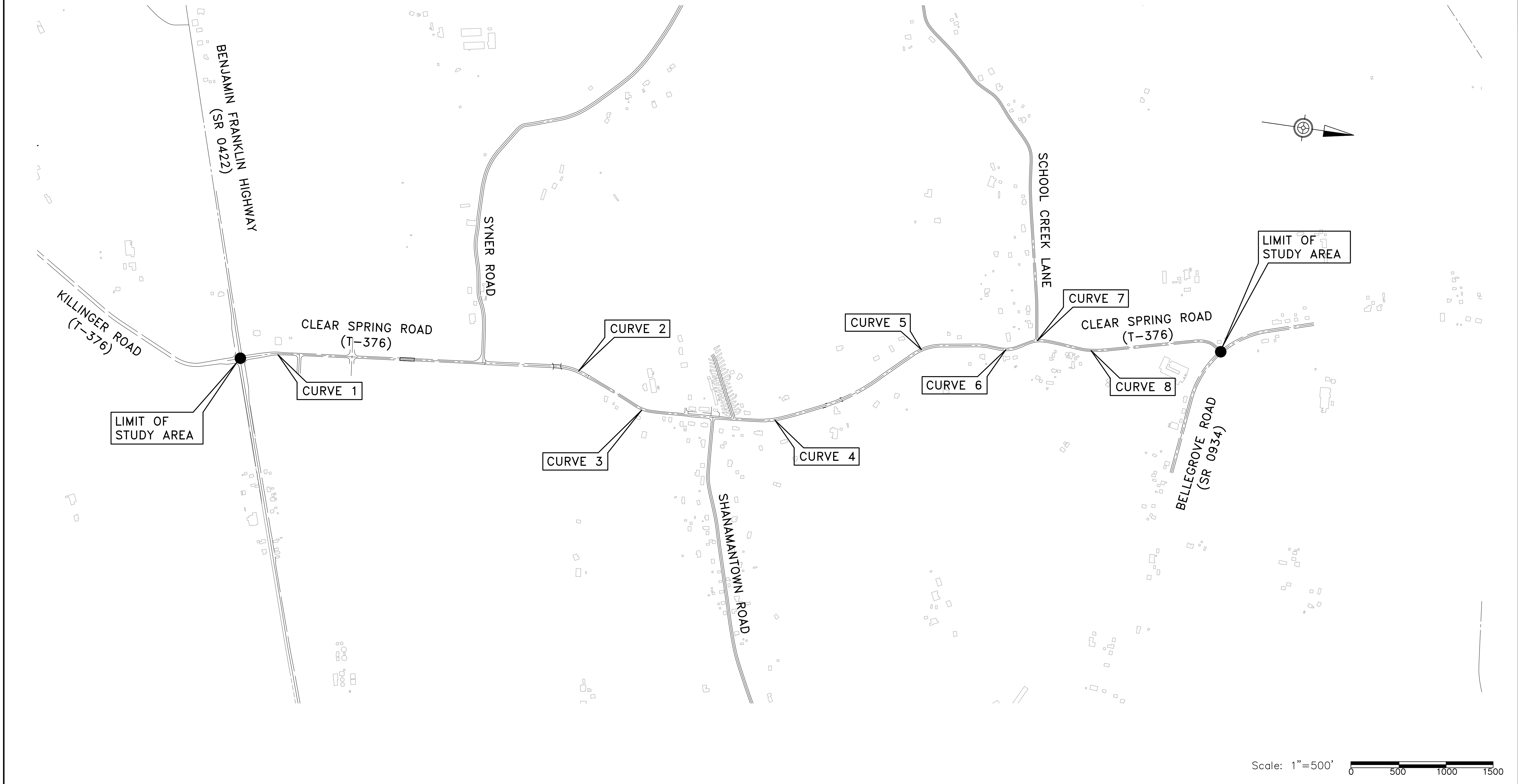
SIGHT DISTANCE: When evaluating sight distance parameters, consider the preceding criteria on horizontal and vertical curvature together.

APPENDIX F – TRACTOR TRAILER OFF-TRACKING ANALYSIS

PLAN NOTES:

THIS DRAWING HAS BEEN PREPARED USING AVAILABLE GIS DATA AND FIELD MEASUREMENTS. THIS DRAWING IS FOR GRAPHICAL PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.

CLEAR SPRING ROAD STUDY AREA: BENJAMIN FRANKLIN HIGHWAY (SR 0422) TO BELLEGROVE ROAD (SR 0934) – APPROX. 10,755 LF (2.04 MI.)



NO.	REVISION	DATE	BY	APP.
1	UPDATED PLAN SET TO INCLUDE WB-50 MOVEMENTS	10/31/23	DHS	MLH

SEAL	SEAL
------	------

MANAGER
M. HENISE
DESIGN
D. SHINDLER
DRAFT
D. SHINDLER
CHKD. BY
M. MADZELAN
NOTES

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ANNVILLE, PA 17003
717-867-1814

SUBJECT
OVERALL CURVE LAYOUT PLAN
FOR
**ROADWAY IMPROVEMENTS ALONG
CLEAR SPRING ROAD**

NORTH ANNVILLE TOWNSHIP
LEBANON COUNTY, PA

DATE
OCTOBER 2023
SCALE
1"=500'
PROJECT NO.
1273-001
SHEET NO.
1 OF 5

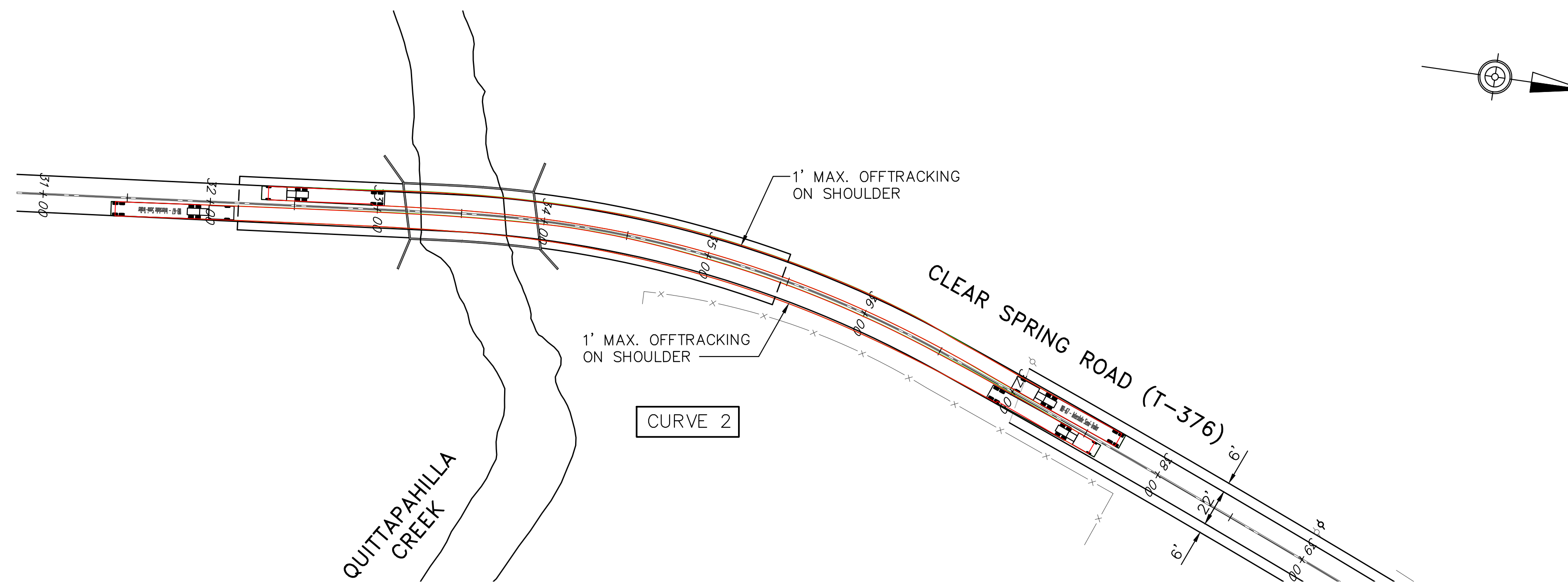
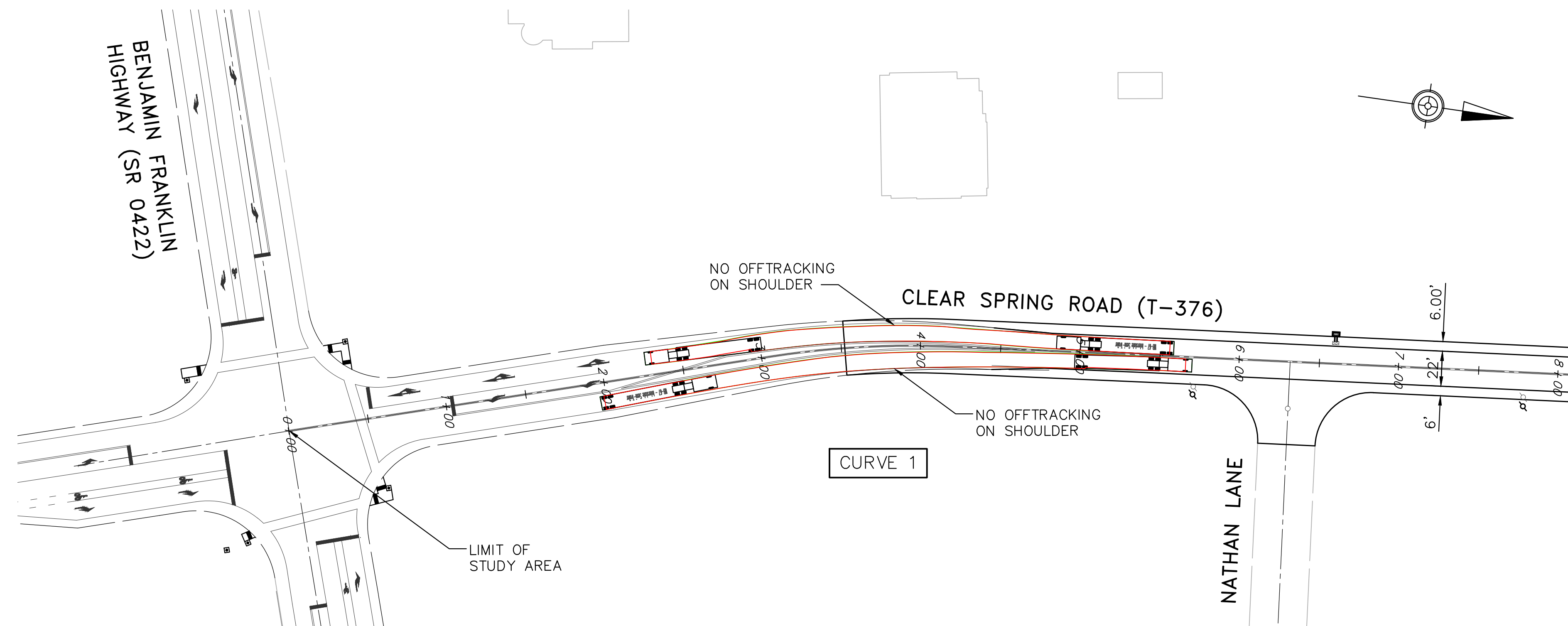
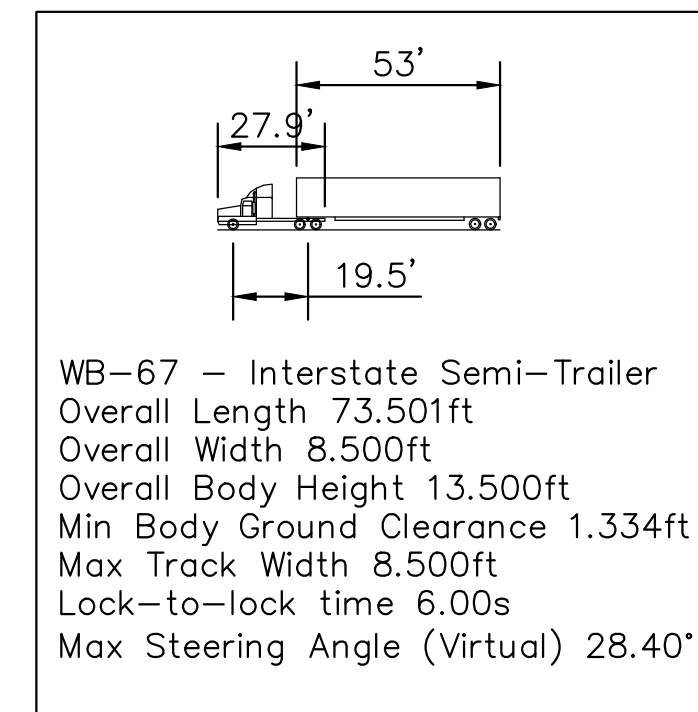
DRAWING: C:\Users\shindler\Documents\1273-001 Clear Spring Rd Traffic Study\Project Files\CAD Data\Traffic\CURVES LAYOUT.dwg - PLOTTED: Nov 02, 2023 10:39 am

PLAN NOTES:

ALL TRUCK TURNING MOVEMENTS HAVE BEEN ESTABLISHED UTILIZING A 1-FOOT BUFFER FROM DOUBLE-YELLOW PAVEMENT MARKINGS.

PLAN LEGEND:

- FRONT WHEEL PATH (TRACTOR)
- REAR WHEEL PATH (TRAILER)



Scale: 1"=50'

NO.	REVISION	DATE	BY	APP.
1	UPDATED PLAN SET TO INCLUDE WB-50 MOVEMENTS	10/31/23	DHS	MLH

SEAL	SEAL
------	------

MANAGER
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D. SHINDLER
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D. SHINDLER
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SUBJECT
CURVE LAYOUT PLAN WB-67 TRACTOR TRAILER FOR
ROADWAY IMPROVEMENTS ALONG CLEAR SPRING ROAD
NORTH ANNVILLE TOWNSHIP
LEBANON COUNTY, PA

DATE
OCTOBER 2023
SCALE
1"=50'
PROJECT NO.
1273-001
SHEET NO.
2 OF 5

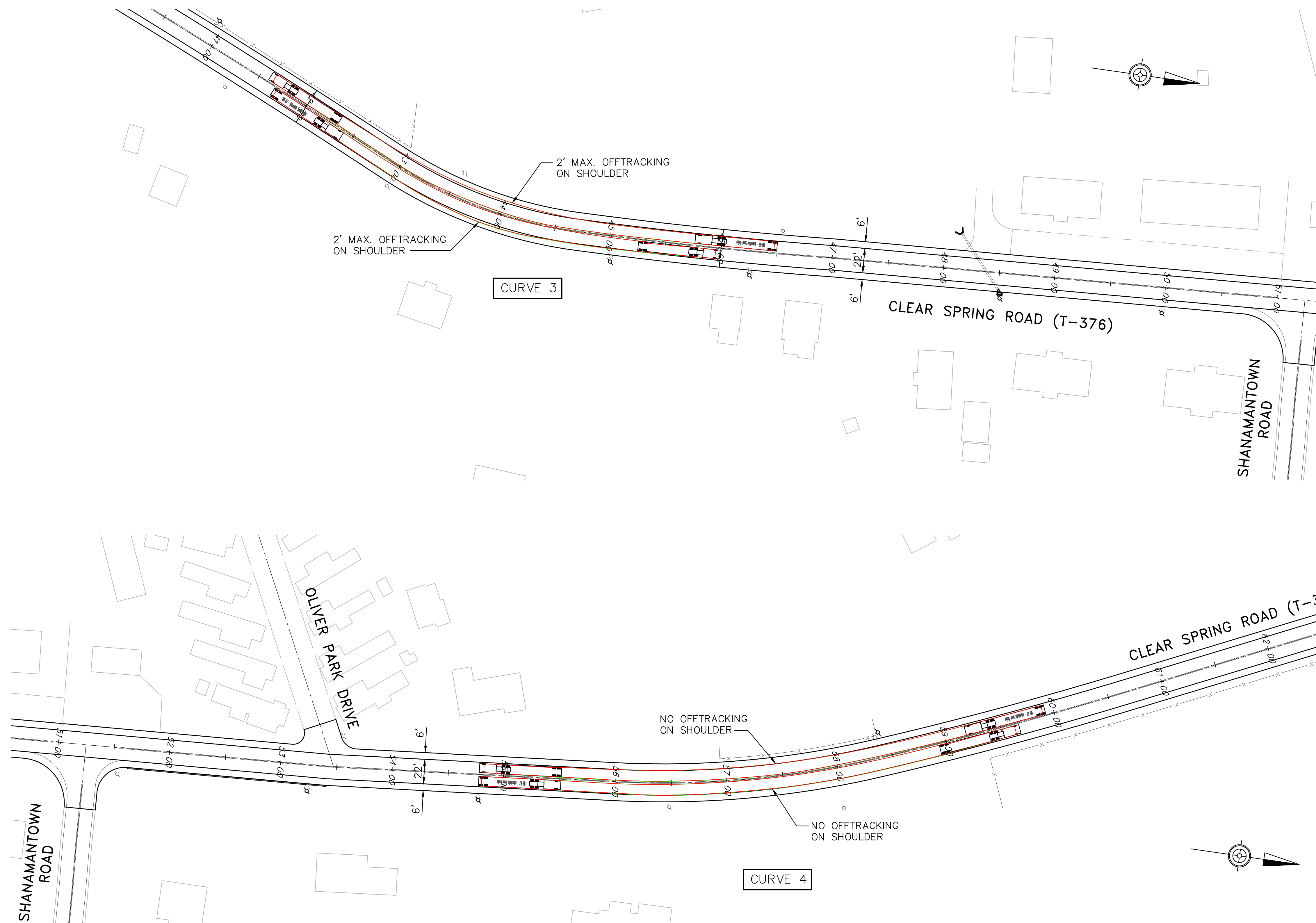
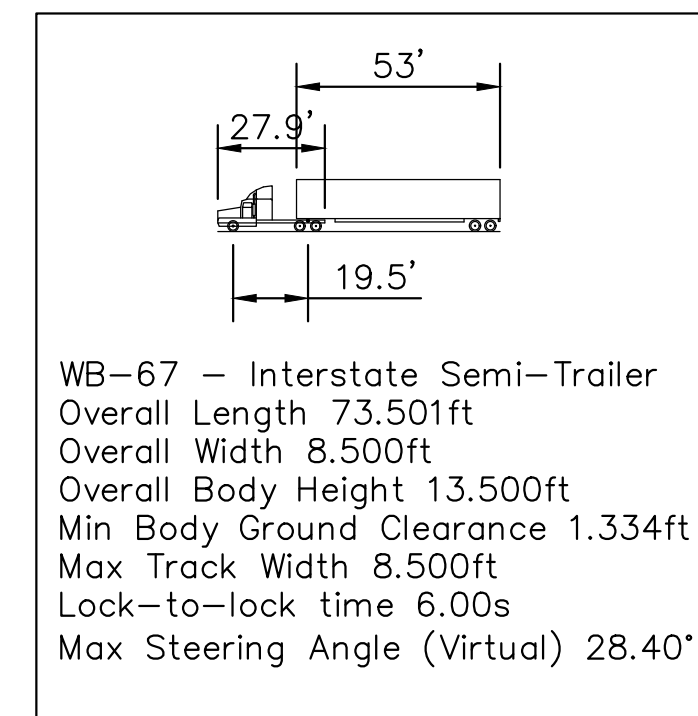
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PLAN NOTES:

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PLAN LEGEND:

- FRONT WHEEL PATH (TRACTOR)
- REAR WHEEL PATH (TRAILER)



Scale: 1"=50'

NO.	REVISION	DATE	BY	APP.
1	UPDATED PLAN SET TO INCLUDE WB-50 MOVEMENTS	10/31/23	DHS	MLH

SEAL	SEAL
------	------

MANAGER
M. HENISE
DESIGN
D. SHINDLER
DRAFT
D. SHINDLER
CHKD. BY
M. MADZELAN
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ROADWAY IMPROVEMENTS ALONG CLEAR SPRING ROAD

NORTH ANNVILLE TOWNSHIP
LEBANON COUNTY, PA

DATE
OCTOBER 2023
SCALE
1"=50'
PROJECT NO.
1273-001
SHEET NO.
3 OF 5

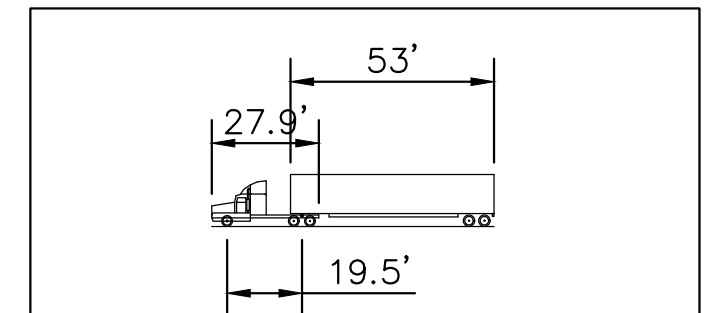
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PLAN NOTES:

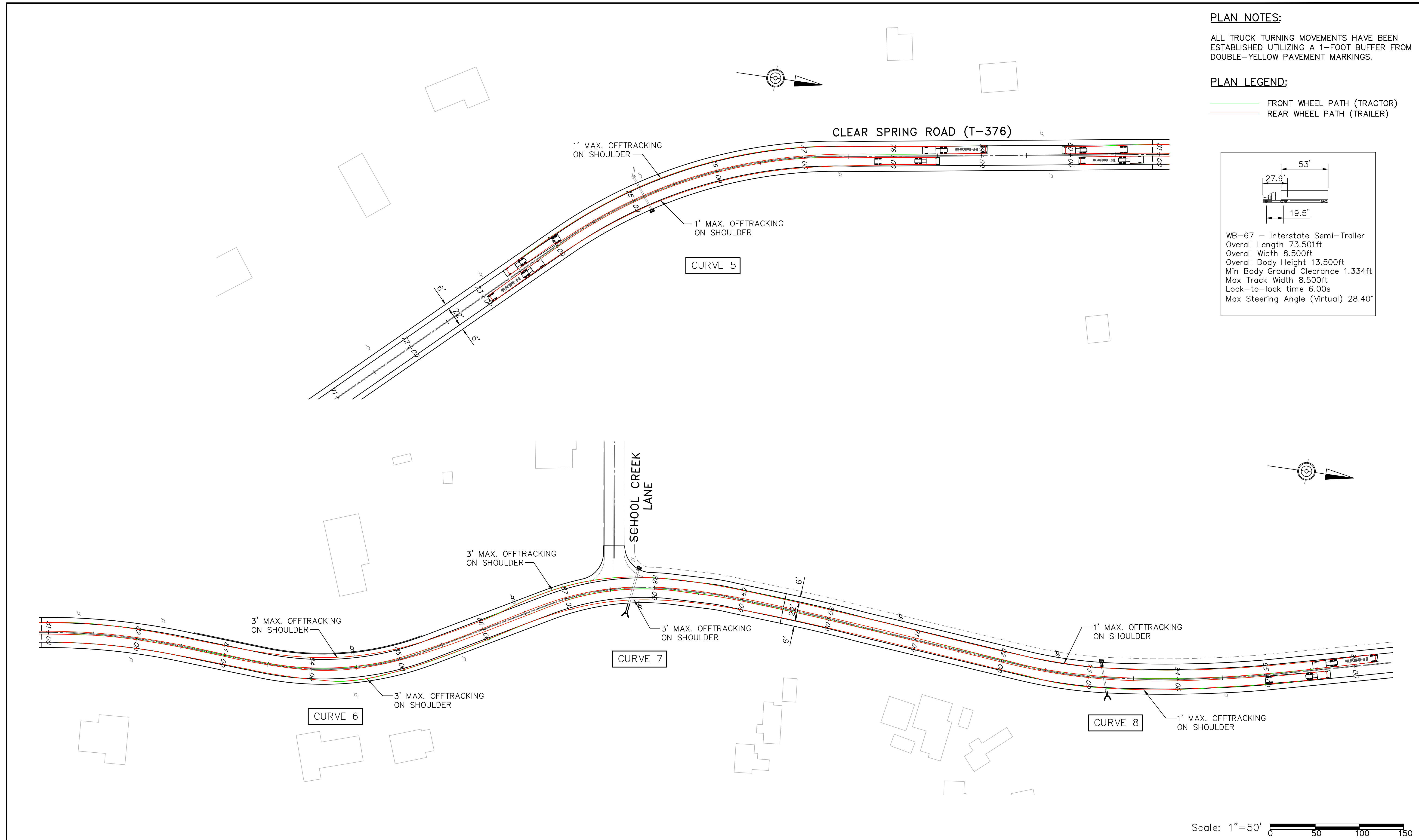
ALL TRUCK TURNING MOVEMENTS HAVE BEEN ESTABLISHED UTILIZING A 1-FOOT BUFFER FROM DOUBLE-YELLOW PAVEMENT MARKINGS.

PLAN LEGEND:

- FRONT WHEEL PATH (TRACTOR)
- REAR WHEEL PATH (TRAILER)



WB-67 - Interstate Semi-Trailer
 Overall Length 73.501ft
 Overall Width 8.500ft
 Overall Body Height 13.500ft
 Min Body Ground Clearance 1.334ft
 Max Track Width 8.500ft
 Lock-to-lock time 6.00s
 Max Steering Angle (Virtual) 28.40°



Scale: 1"=50'

NO.	REVISION	DATE	BY	APP.
1	UPDATED PLAN SET TO INCLUDE WB-50 MOVEMENTS	10/31/23	DHS	MLH

SEAL	SEAL
------	------

MANAGER
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 DRAFT
D. SHINDLER
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M. MADZELAN
 NOTES

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SUBJECT
 CURVE LAYOUT PLAN WB-67 TRACTOR TRAILER
 FOR
**ROADWAY IMPROVEMENTS ALONG
 CLEAR SPRING ROAD**

NORTH ANNVILLE TOWNSHIP
 LEBANON COUNTY, PA

DATE
 OCTOBER 2023
 SCALE
 1"=50'
 PROJECT NO.
 1273-001
 SHEET NO.
 4 OF 5

DRAWING: C:\Users\shindler\Documents\1273-001 Clear Spring Rd Traffic Study\Project Files\CAD Data\Traffic\CURVES LAYOUT.dwg - PLOTTED: Nov 02, 2023 10:39 am

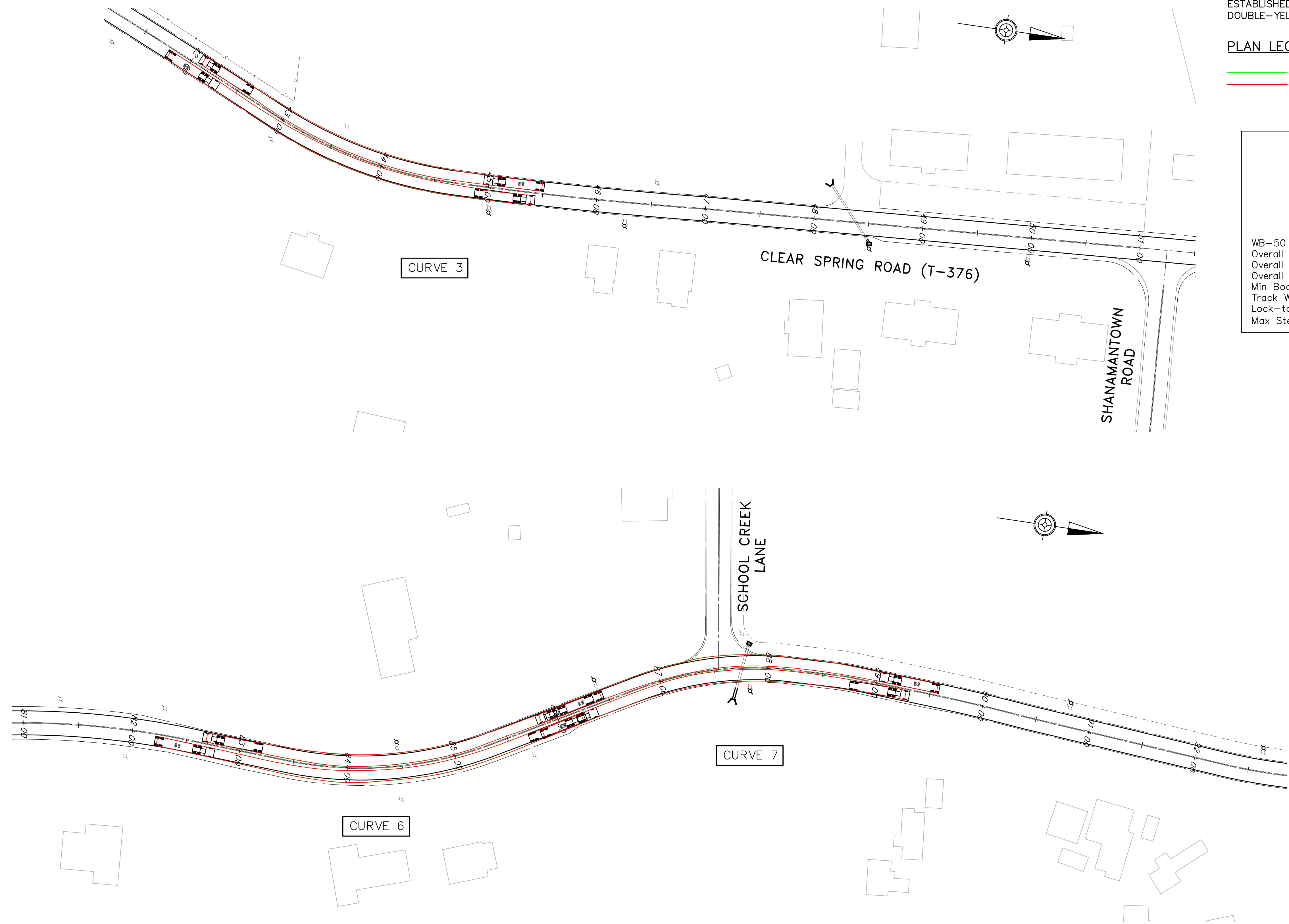
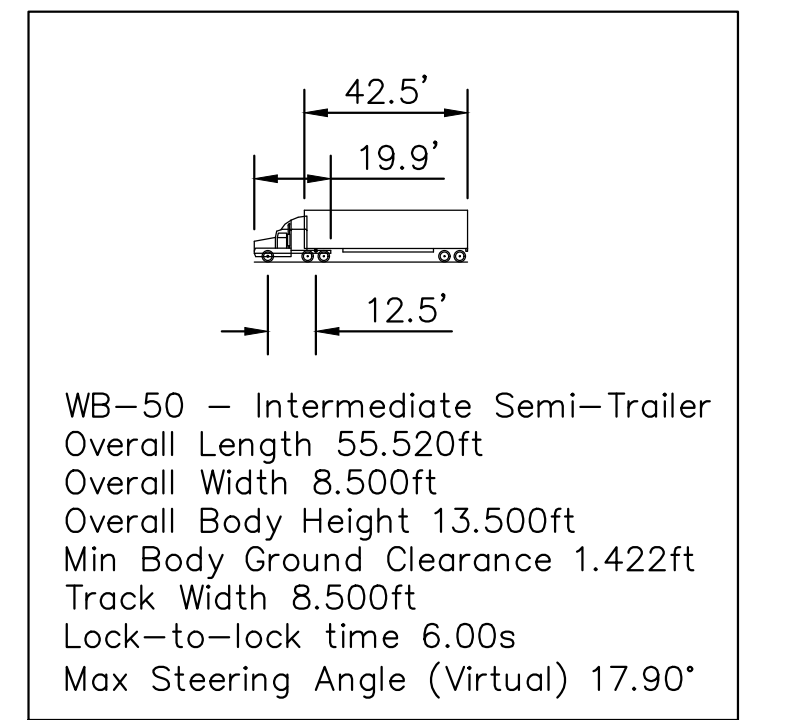
DRAWING: C:\Users\shindler\Documents\1273-001 Clear Spring Rd Traffic Study\Project Files\CAD Data\Traffic\CURVES LAYOUT.dwg - PLOTTED: Nov 02, 2023 10:39 am

PLAN NOTES:

ALL TRUCK TURNING MOVEMENTS HAVE BEEN ESTABLISHED UTILIZING A 1-FOOT BUFFER FROM DOUBLE-YELLOW PAVEMENT MARKINGS.

PLAN LEGEND:

- FRONT WHEEL PATH (TRACTOR)
- REAR WHEEL PATH (TRAILER)



NO.	REVISION	DATE	BY	APP.
1	UPDATED PLAN SET TO INCLUDE WB-50 MOVEMENTS	10/31/23	DHS	MLH

SEAL	SEAL
------	------

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ROADWAY IMPROVEMENTS ALONG CLEAR SPRING ROAD
 NORTH ANNVILLE TOWNSHIP
 LEBANON COUNTY, PA

DATE
OCTOBER 2023
 SCALE
1"=50'
 PROJECT NO.
1273-001
 SHEET NO.
5 OF 5

APPENDIX G – PAVEMENT ANALYSIS

CLEAR SPRING ROAD VEHICLE CLASSIFICATION CALCS - COUNT LOCATION NORTH OF NATHAN LANE




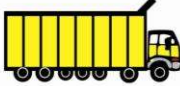












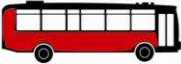













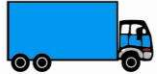



	FHWA VEHICLE CLASSIFICATION													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	
NB														
18-Jul AM TOTAL	6	474	159	14	69	36	14	5	29	0	0	0	0	
PM TOTAL	17	1171	355	5	135	29	19	12	15	0	0	0	0	
19-Jul AM TOTAL	1	473	190	6	77	52	18	10	24	0	0	0	0	
PM TOTAL	17	1106	346	9	130	24	9	18	15	1	0	0	0	
20-Jul AM TOTAL	9	412	164	13	82	40	11	10	22	2	0	0	1	
PM TOTAL	12	1116	331	10	131	34	24	9	17	0	0	0	0	
21-Jul AM TOTAL	3	468	166	6	75	52	11	10	27	0	0	0	0	
PM TOTAL	9	1168	377	6	127	31	10	13	26	0	0	0	0	
22-Jul AM TOTAL	18	474	159	0	47	5	0	10	9	0	0	0	0	
PM TOTAL	27	987	260	1	80	3	0	11	11	0	0	0	0	
23-Jul AM TOTAL	7	371	119	0	21	3	0	2	10	0	0	0	0	
PM TOTAL	13	908	263	1	67	4	0	8	14	0	0	0	0	
24-Jul AM TOTAL	6	394	161	7	69	33	11	12	22	2	0	0	0	
PM TOTAL	6	1026	345	6	155	37	24	14	20	1	0	0	0	
TOTAL	151	10548	3395	84	1265	383	151	144	261	6	0	0	1	16389
AVERAGE	22	1507	485	12	181	55	22	21	37	1	0	0	0	2341
SB														
18-Jul AM TOTAL	22	606	189	7	152	24	8	10	14	0	0	0	0	
PM TOTAL	25	905	271	8	174	25	5	11	23	0	0	0	0	
19-Jul AM TOTAL	9	584	205	10	182	33	3	15	18	1	0	0	0	
PM TOTAL	17	841	222	4	186	11	7	14	18	0	0	0	0	
20-Jul AM TOTAL	10	588	178	8	182	20	10	12	25	0	0	0	0	
PM TOTAL	21	867	252	9	157	11	11	11	25	1	0	0	0	
21-Jul AM TOTAL	7	581	176	5	179	24	14	6	27	0	0	0	0	
PM TOTAL	16	968	291	6	166	15	0	19	31	2	0	0	0	
22-Jul AM TOTAL	25	511	148	1	92	8	0	11	18	0	0	0	0	
PM TOTAL	28	887	230	0	127	5	0	14	21	0	0	0	0	
23-Jul AM TOTAL	14	393	125	0	58	4	0	0	9	0	0	0	0	
PM TOTAL	45	850	218	3	100	8	0	8	15	0	0	0	0	
24-Jul AM TOTAL	9	553	200	7	152	12	1	18	22	1	0	0	0	
PM TOTAL	16	840	257	4	155	26	0	9	27	1	0	0	0	
TOTAL	264	9974	2962	72	2062	226	59	158	293	6	0	0	0	16076
AVERAGE	38	1425	423	10	295	32	8	23	42	1	0	0	0	2297
TWO-WAY ADT AVG.	59	2932	908	22	475	87	30	43	79	2	0	0	0	4638
ONE-WAY ADT AVG.	30	1466	454	11	238	44	15	22	40	1	0	0	0	2319

EXISTING YEAR	2023	
BUILD YEAR	2027	1.025031595
DESIGN YEAR	2042	1.124610015
GROWTH RATE	0.62%	

FHWA CLASS	VEHICLE DESCRIPTION	ESALs	EXISTING YEAR		BUILD YEAR		DESIGN YEAR		NEW DEVEL. ADT	AVERAGE TOTAL ADT*	ANNUAL
			ADT*	BASE ADT*	BASE ADT*	ADT*	ADT	TOTAL ESALs			
1	Motorcycle	0	30	31	34	32	0	32	0.0		
2	Passenger Car	0	1465	1502	1648	1575	635	2210	0.0		
3	SUV/Pick-up	0	453	464	509	487	0	487	0.0		
4	Bus	0.24	11	11	12	12	0	12	2.8		
5	2-axle, 6-tire	0.24	238	244	268	256	0	256	61.4		
6	3-axle, single unit	0.82	44	45	49	47	0	47	38.8		
7	4-axle, single unit	4.50	15	15	17	16	0	16	72.6		
8	3-axle, single trailer	0.44	22	23	25	24	0	24	10.4		
9	3-axle, multiple axle trailer	1.00	40	41	45	43	323	366	366.0		
10	6-axle, single trailer	0.75	1	1	1	1	0	1	0.8		
11	5-axle, multiple trailer	2.33	0	0	0	0	0	0	0.0		
12	6-axle, multiple trailer	1.28	0	0	0	0	0	0	0.0		
13	7-axle, multiple trailer	1.28	0	0	0	0	0	0	0.0		
TOTAL			2319	2377	2608	2493			553		

* ONE-WAY ADT EQUAL TO HALF OF TOTAL ADT BECAUSE DIRECTIONAL SPLIT (NB VS. SB) NEARLY EQUAL

FHWA's 13 Vehicle Category Classification

Class 1 Motorcycles		Class 7 Four or more axle, single unit	
Class 2 Passenger cars			
			
			
			
Class 3 Four tire, single unit			
			
			
Class 4 Buses			
			
			
Class 5 Two axle, six tire, single unit			
			
			
Class 6 Three axle, single unit			
			
			

Source: Federal Highway Administration (TMG 2013).

**July 27, 2023 Testing of
Clear Spring Road Study
for Ela Group**

Project No. 4302.8.05.00 **Client No.** None **CSD Project Manager**
Logan P Swartz

Technician Jacob A Eshelman **ACI No.** 01402519 **ACI Expiration**
10/05/2027

Temperature 75 to 95 °F **Weather Conditions**
Sunny

Time Log		Travel Time
		2.25 Hrs.
Arrival	Departure	Total Time
8:30 AM	3:30 PM	9.25Hrs.

CONSTRUCTION SITE

General Contractor N/A **Project Manager** N/A **Subcontractors** N/A

Contractor Activities

On this day, a C.S. Davidson representative arrived on site to core drill on Clear Spring Road. Three cores (12 Total) were taken at four separate locations. See the attached Core Drill Report for more information.

Discrepancies Noted

None were observed.

Photo No. 1
20230727_105141.jpg



Photo No. 2
20230727_110730.jpg



Photo No. 3
20230727_110736.jpg



SITE PLAN

File

Pavement Core Locations (2).pdf

Description

Pavement Core Locations (2).pdf

Edited and Approved by Courtney A Harlacher on 07/31/2023

Testing & Inspection Office
135-B North Street
York, PA 17401
(717)845-7096

York Office
38 North Duke Street
York, PA 17401
(717)846-4805

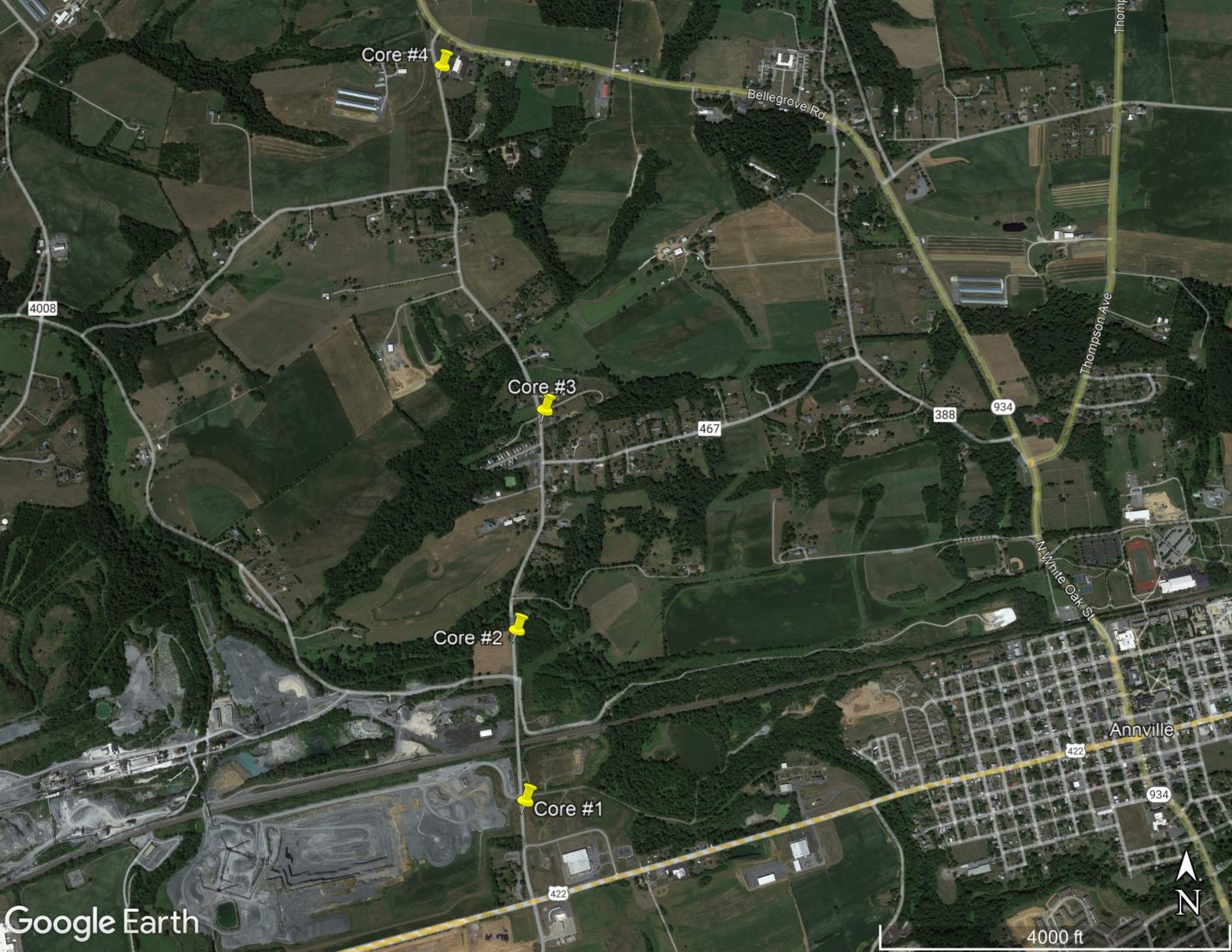
Gettysburg Office
50 West Middle Street
Gettysburg, PA 17325
(717)337-3021

Lancaster Office
315 West James Street
Lancaster, PA 17603
(717)481-2991

CORE DRILLING REPORT

Core No.	Diameter (in.)	Location	Wearing Thickness (in.)	Binder Thickness (in.)	Base Thickness (in.)	Subbase Thickness (in.)	Concrete Thickness (in.)	Other Material	Other Thickness (in.)
1	4	1 North	1.5	-	3.5	13	-	2A Modified	-
2	4	1 Center	-	-	8	8	-	2A Modified	-
3	4	1 South	-	-	4.5	9.5	-	2A Modified	-
4	4	2 North	1.5	-	5.5	3	-	2A Modified	-
5	4	2 Center	2	-	5	3	-	2A Modified	-
6	4	2 South	1.5	-	7	7.5	-	2A Modified	-
7	4	3 North	-	-	5	11.5	-	2A Modified	-
8	4	3 Center	-	-	6.5	9	-	2A Modified	-
9	4	3 South	-	-	5	6	-	2A Modified	-
10	4	4 North	-	-	5	8	-	2A Modified	-
11	4	4 Center	-	-	6.5	7.5	-	2A Modified	-
12	4	4 South	-	-	5.5	10.5	-	2A Modified	-

Notes



Core #4

Core #3

Core #2

Core #1

Bellegrove Rd

Thompson Ave

White Oak St

Annville

4008

467

388

934

422

934

Google Earth

4000 ft



CORE DRILLING REPORT

AVG. BASE + SUBBASE

Core No.	Diameter (in.)	Location	Wearing Thickness (in.)	Binder Thickness (in.)	Base Thickness (in.)	Subbase Thickness (in.)	Concrete Thickness (in.)	Other Thickness (in.)
1	4	1 North	1.5	-	3.5	13	16.5	2A Modified
2	4	1 Center	-	-	8	8	16.0	2A Modified
3	4	1 South	-	-	4.5	9.5	14.0	2A Modified
4	4	2 North	1.5	-	5.5	3	8.5	2A Modified
5	4	2 Center	2	-	5	3	8.0	2A Modified
6	4	2 South	1.5	-	7	7.5	14.5	2A Modified
7	4	3 North	-	-	5	11.5	16.5	2A Modified
8	4	3 Center	-	-	6.5	9	15.5	2A Modified
9	4	3 South	-	-	5	6	11.0	2A Modified
10	4	4 North	-	-	5	8	13.0	2A Modified
11	4	4 Center	-	-	6.5	7.5	14.0	2A Modified
12	4	4 South	-	-	5.5	10.5	16.0	2A Modified

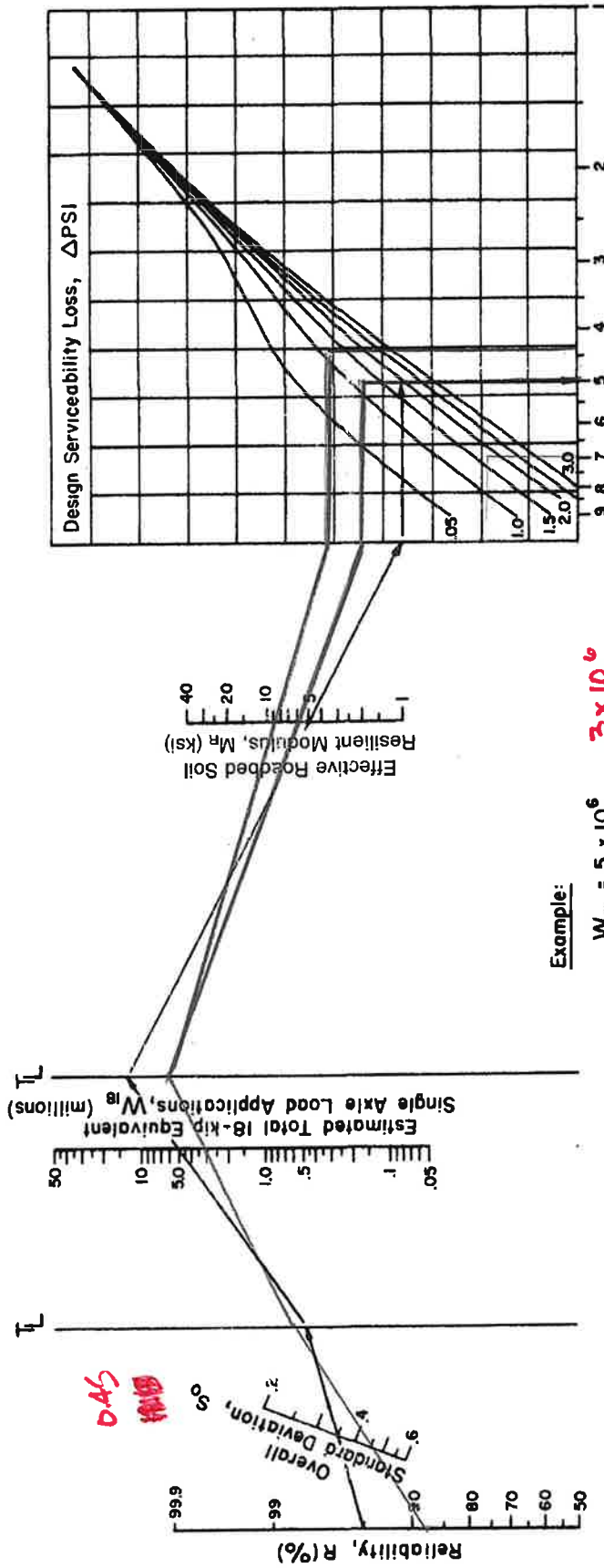
Notes

15.0" AVG (5.5" BASE, 9.5" SUBBASE)

LOCATION	WEARING	BINDER	SUBBASE	Other
1	1.5" (0.44)	5.5" (0.40)	9.5" (0.11)	2.2 + 1.0 = 3.2
2	-	6.0" (0.40)	4.0" (0.11)	0.66 + 2.4 + 0.94 = 3.5
3	-	5.5" (0.40)	9.5" (0.11)	-
4	-	5.5" (0.40)	9.5" (0.11)	-

NOMOGRAPH SOLVES:

$$\log_{10} W_{18} = Z_R \cdot S_0 + 9.36 \cdot \log_{10} (SN+1) - 0.20 + \frac{\log_{10} \left[\frac{\Delta \text{PSI}}{4.2 - 1.5} \right]}{0.40 + \frac{1094}{(SN+1)^{5.19}}} + 2.32 \cdot \log_{10} M_R - 8.07$$



Example:

- $W_{18} = 5 \times 10^6$
- $R = 95\%$
- $S_0 = 0.35$
- $M_R = 5000 \text{ psi}$
- $\Delta \text{PSI} = 1.9$
- Solution: $SN = 5.0$

COLLECTORS 85-90
TABLE 6-5

Figure 3.1. Design Chart for Flexible Pavements Based on Using Mean Values for Each Input

Publication 242 Pavement Design
Quick Reference Guide

DESCRIPTION	RIGID	FLEXIBLE		COMPOSITE		PUB. 242	NOTES
		AC/AC	AC/Fractured PCC	AC/PCC	AC/AC/PCC		
Initial Serviceability	4.5	4.2	4.5	Table 6.4, page 6-16			
Terminal Serviceability	MFC A,B	3.0*	3.0	3.0		Table 6.4, page 6-16	*flexible - check frost heave Section 9.3
	MFC C,D	2.5	2.5*	2.5			
	MFC E	2.0	2.0*	2.0			
Reliability	Interstates and Expressways	95				Table 6.5, page 6-17	
	Arterials	90 - 95					
	Collectors	85 - 90					
	Locals	70 - 85					
Overall Standard Deviation	0.35	0.45	0.4	Section 6.5, page 6-17			
SRL	> 20,000 ADT		E			Table 5.4, page 5-7	E&M, etc. = blends
	5,001-20,000		H;E&M;E&G				
	3,001-5,000		G;H&M;E&L				
	1,001-3,000		M;H&L;G&L;E&L				
	0-1,000		L				
Load Transfer	Tied PCC	2.7-3.1	n/a	2.7-3.1		Table 8.2, page 8-4	
	Curb	3.2	n/a	3.2			
Frost Heave Probability	n/a	25-75%	n/a	n/a		Section 9.3, page 9-1	

**TABLE 9.3
STRUCTURAL COEFFICIENTS FOR MATERIALS
IN FLEXIBLE PAVEMENTS**

PAVEMENT COMPONENT	STRUCTURAL COEFFICIENT
Surface Course; New Construction, Reconstruction, or Overlay:	
Superpave 6.3 mm, 9.5 mm, 12.5 mm, 19.0 mm, 25.0 mm (Wearing and Binder Courses)	0.44
FB-1, FB-2 (Wearing and Binder Courses)	0.20
FJ-1, FJ-1C, FJ-4, Superpave 4.75 mm (Wearing Courses)	0.35
Base Course; New Construction, or Reconstruction:	
Plain Cement Concrete (PCBC)	0.50
Lean Cement Concrete (LCBC)	0.40
Superpave 25.0 mm Base Course	0.40
Superpave 37.5 mm Base Course	0.40
Crushed Aggregate (CABC)	0.14
Crushed Aggregate, Type DG (CABCDG)	0.18
Aggregate - Bituminous (ABBC)	0.30
Aggregate - Cement (ACBC)	0.40
Aggregate - Lime - Pozzolan (ALPBC)	0.40
Existing Materials to be Overlaid:	
Cement Concrete (Good condition, < 5% patching)	0.40
Cement Concrete (Fair condition, < 10% patching)	0.30
Cement Concrete (Failed - no patching or > 10% patching)	0.25
Cracked/Break and Seated Cement Concrete	0.25
Bituminous Concrete	0.30
Cold Recycled Bituminous Concrete	0.30
Full Depth Reclamation	
Pulverization	0.11
Calcium Chloride and similar additives	0.14
Asphalt Stabilization	0.25 - 0.30
Chemical Stabilization	0.32 - 0.35
Scarified Bituminous Concrete	0.14
Brick with Rigid Base	0.40
Brick with Flexible Base	0.20
Crushed Aggregate Base Course	0.14
Crushed Aggregate Base Course, Type DG	0.18
Miscellaneous Existing Materials (CP-2, AT-1, HEs, Oil Bond Stone, Bit. Road Mixes)	0.20
Subbase; New Construction, Reconstruction, or Existing to be Overlaid*:	
Open Graded Subbase	0.11
No. 2A Subbase	0.11
Asphalt Treated Permeable Base Course (ATPBC)	0.20
Cement Treated Permeable Base Course (CTPBC)	0.20
Rubblized Cement Concrete	0.20

* See Section 10.2 for guidance regarding subbase inclusion in overlay designs.

SN = 5.5 (M_R = 5,000)

2" WEARING (0.88)
8" BASE (3.2)
10" SUBBASE (1.1)

5.2

SN = 5.0

1.5" WEARING (0.66)
8.5" BASE (3.40)
9.5" SUBBASE (1.05)

9-7

SN = 5.0

1.5" WEARING (0.66)
10" BASE (4.00)
4" SUBBASE (0.44)

SN = 4.3

8" BASE (3.2)

SN = 4.3

1.5" WEARING (0.66)
6.5" BASE (2.60)
9.5" SUBBASE (1.05)

FROST HEAVE WORKSHEET

To determine the Change in Serviceability Loss Due to Frost Heave, ΔPSI_{FH} , you will need 1993 AASHTO Guide for Design of Pavement Structures.

The effects of Frost Heave must be accounted for in all **full-depth flexible** pavement designs and asphalt over rubblized concrete designs. To do this, follow the given steps below.

STEP #1: Determine the Frost Heave Rate, ϕ (mm/day)

1. Obtain the soil classification of the future subgrade at the project site.
2. Using the soil classification, determine the Average Rate of Heave from Table 9.1 or 9.2.

(Soil Classification: CL)
FROST HEAVE RATE: 8 mm/day

STEP #2: Select the Frost Heave Probability, P_F

1. Estimate the percent area of the project that is subject to frost heave. Consider the extent of frost-susceptible subgrade material, moisture availability, drainage quality, number of freeze-thaw cycles per year, depth of frost penetration, and past experience. (Recommended Range: 25% - 75%)

FROST HEAVE PROBABILITY: 50 %

STEP #3: Determine the Maximum Potential Serviceability Loss, ΔPSI_{MAX}

1. Use Appendix D to find the Design Freezing Index for the project site.
Design Freezing Index 839
2. Use Figure 9.1 to determine the Frost Penetration from the design freezing index.
Frost Penetration 40 inches = 3.33 feet
3. Use Figure G.7 (pg. G-10) of the 1993 AASHTO Guide to determine the Max. Serviceability Loss Due to Frost Heave. Use a Drainage Quality of FAIR.

MAXIMUM POTENTIAL SERVICEABILITY LOSS: 0.9 ~~1.0~~

STEP #4: Determine the Change in Serviceability Loss Due to Frost Heave, ΔPSI_{FH}

1. Use the results obtained in the first three steps to navigate through Figure G.8 (pg. G-11) of the 1993 AASHTO Guide.

CHANGE IN SERVICEABILITY LOSS DUE TO FROST HEAVE: 0.5

Once the Change in Serviceability Loss due to Frost Heave is determined (Step #4), add it to the appropriate Terminal Serviceability Index listed in Table 6.2. Use the result as the terminal serviceability input required in DARWin for full-depth flexible pavement designs.

DISTRICT 8			
Location	Elevation	Index	Winter
Adams County			
Arendtsville	710	736	62-63
Gettysburg	540	631*	62-63
Cumberland County			
Bloserville 1 mi. N	640	691	62-63
Carlisle	465	644*	60-61
Shippensburg	709	543	62-63
Dauphin County			
Harrisburg Airport WB	355	558	60-61
Tower City	835	1014	62-63
Franklin County			
Chambersburg	640	681*	60-61
Mercersburg	615	667	62-63
Lancaster County			
Ephrata	465	523	62-63
Holtwood	187	383	62-63
Lancaster 2 mi. NE	255	644*	60-61
Landisville 2 mi. NW	360	819	62-63
Mt. Gretna 2 mi. SE	670	707	62-63
Lebanon County			
Lebanon 4 mi. WNW	590	839	60-61
Perry County			
Newport	400	790*	60-61
York County			
Hanover	600	561	62-63
York 3 mi. SSW	390	620	60-61

DISTRICT 9			
Location	Elevation	Index	Winter
Bedford County			
Everett 1 mi. SW	1029	808*	62-63
Kegg	1280	774	60-61
Blair County			
Altoona HC (PRR)	1500	840	62-63
Martinsburg	1463	746	62-63
Cambria County			
Ebensburg	2090	983	62-63
Johnstown	1214	755*	62-63
Fulton County			
Huntington County			
Huntington	640	755*	62-63
Somerset County			
Confluence 1 SW Dam	1490	919	62-63
Stoystown	1800	1074	62-63

swelling probability, there is no clear-cut method for approximating frost heave probability

Once values for the three frost heave factors are defined, the equation for serviceability loss (presented in Figure G 8) should be used to generate a frost heave serviceability loss curve similar to that presented in Figure 2 2 (Part II) The time, t, used with Figure G 8 should be equal to the analysis period For stage con-

struction and rehabilitation strategies, the performance period is used The frost heave serviceability loss curve should then be combined with the swelling serviceability loss curve (if applicable) to produce a total serviceability loss versus time curve This curve will then be used as a component of the design procedure discussed in Chapter 3, Part II

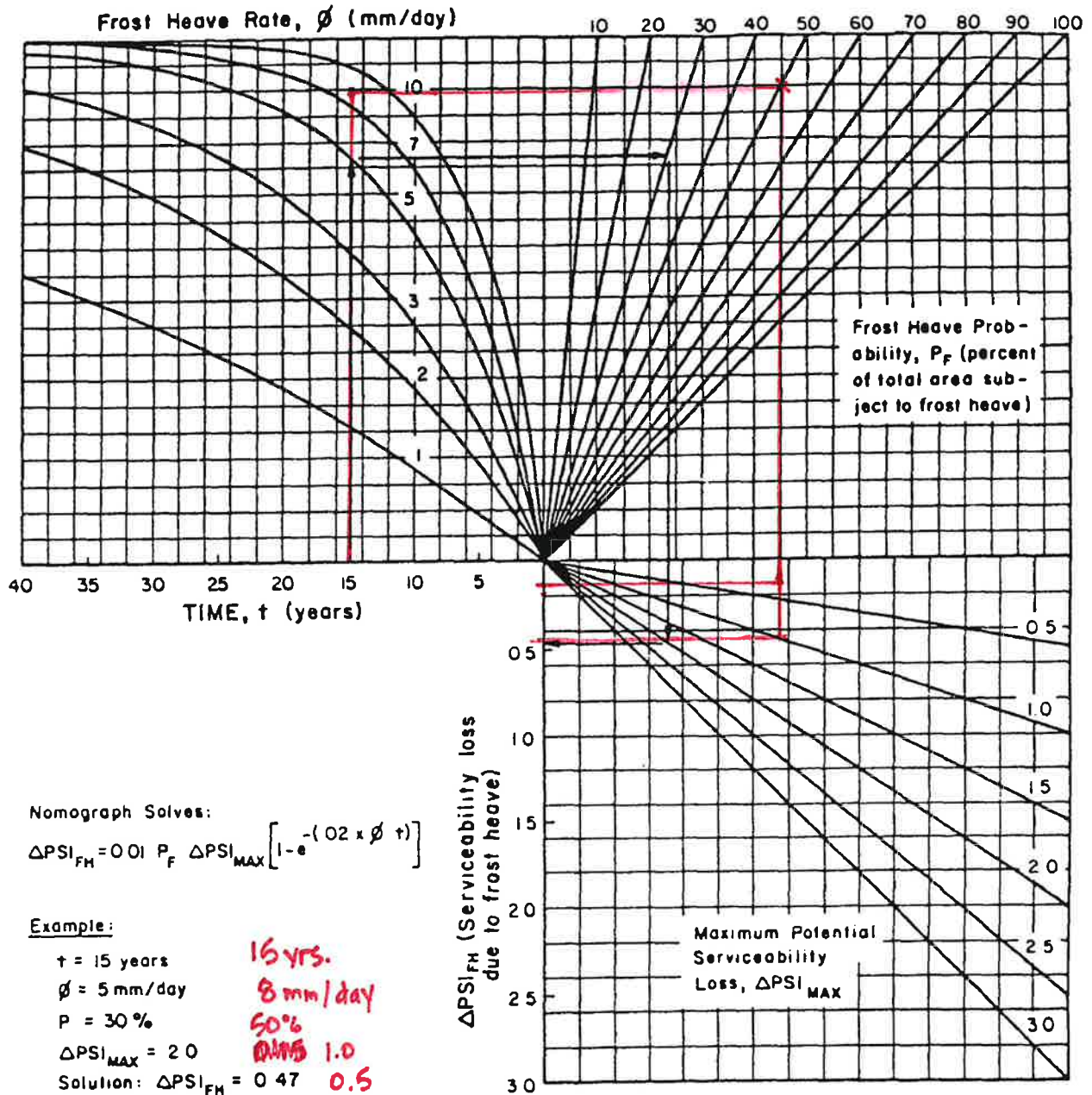


Figure G.8. Chart for Estimating Serviceability Loss Due to Frost Heave

APPENDIX H – STRUCTURAL ANALYSIS

CULVERT INSPECTION

North Bridge - Clear Spring Road over Unknown Tributary to Quittapahilla River

North Annville Township, Lebanon County

**Engineer Project No.
4302.8.05.00**

Existing Conditions

The structure is a single cell, concrete pipe culvert with concrete headwalls and wingwalls (Photo Nos. 1 and 2). The culvert is approximately 37' long and carries Clear Spring Road over an unknown tributary to Quittapahilla River.

Approach Roadway – Good condition (7)

1. The approach roadways are in good condition with a longitudinal patch in the center of the south approach (Photo Nos. 3 and 4). Drainage from the roadway is natural off the shoulders.

Deck – Not rated for culverts

1. The bituminous wearing surface was in good condition with a longitudinal patch in the center (Photo No. 5).
2. Guide rail was present on either side of the roadway measuring 2'-7" and 2' in height on the east and west, respectively (Photo Nos. 6 and 7).
3. No significant defects were noted in the headwalls.

Culvert – Satisfactory condition (6)

1. Based on the concrete headwall heights, there is an estimated 10' of fill over the culvert. The distance between the headwalls perpendicular to the roadway is 35'.
2. The culvert is in satisfactory condition with a minor to 1" misalignment between segments 1 and 2. Minor spalling was noted at the joints of segments 3 and 4 as well as 8 and 9. Two hairline to 1/8" longitudinal cracks were noted to run the full length of the top of the concrete pipe (Photo No. 8). Minor sediment was present in the downstream 3/4 of the barrel.
3. No deficiencies were noted in the headwalls and wingwalls except a 1/8" crack with efflorescence that extends the full height of the seam between the downstream headwall and the northwest wingwall (Photo No. 9). A mixture of fill, rock, and vegetation was also noted behind each of the wingwalls.

Channel – Good condition (7)

1. The channel has good alignment and is well vegetated (Photo Nos. 10 and 11). The upstream has rock with vegetation near the inlet of the culvert.
2. On the upstream side, a fence on the adjacent property runs across the stream.

Conclusions

The structure is in satisfactory structural condition due to the minor to 1” misalignment of segment 1 and 2 as well as longitudinal cracks that run the full length of the concrete pipe. The current condition of the bridge is sufficient for the current roadway loadings. If the road were to be widened significant work would need to be done to rebuild both headwalls and extend the culvert.

Inspection Date: July 27th, 2023

Inspectors: Jared R. Perricone, E.I.T.
PA Certified Bridge Safety Inspector
Noah B. Ling, Engineering Intern

Prepared By: C.S. Davidson, Inc.



Photo No. 1 - Upstream elevation



Photo No. 2 - Downstream elevation



Photo No. 3 - North approach



Photo No. 4 - South approach



Photo No. 5 - Typical deck



Photo No. 6 - East guide rail



Photo No. 7 - West guide rail



Photo No. 8 - Typical hairline crack



Photo No. 9 - Vertical crack in corner of northwest wingwall and headwall

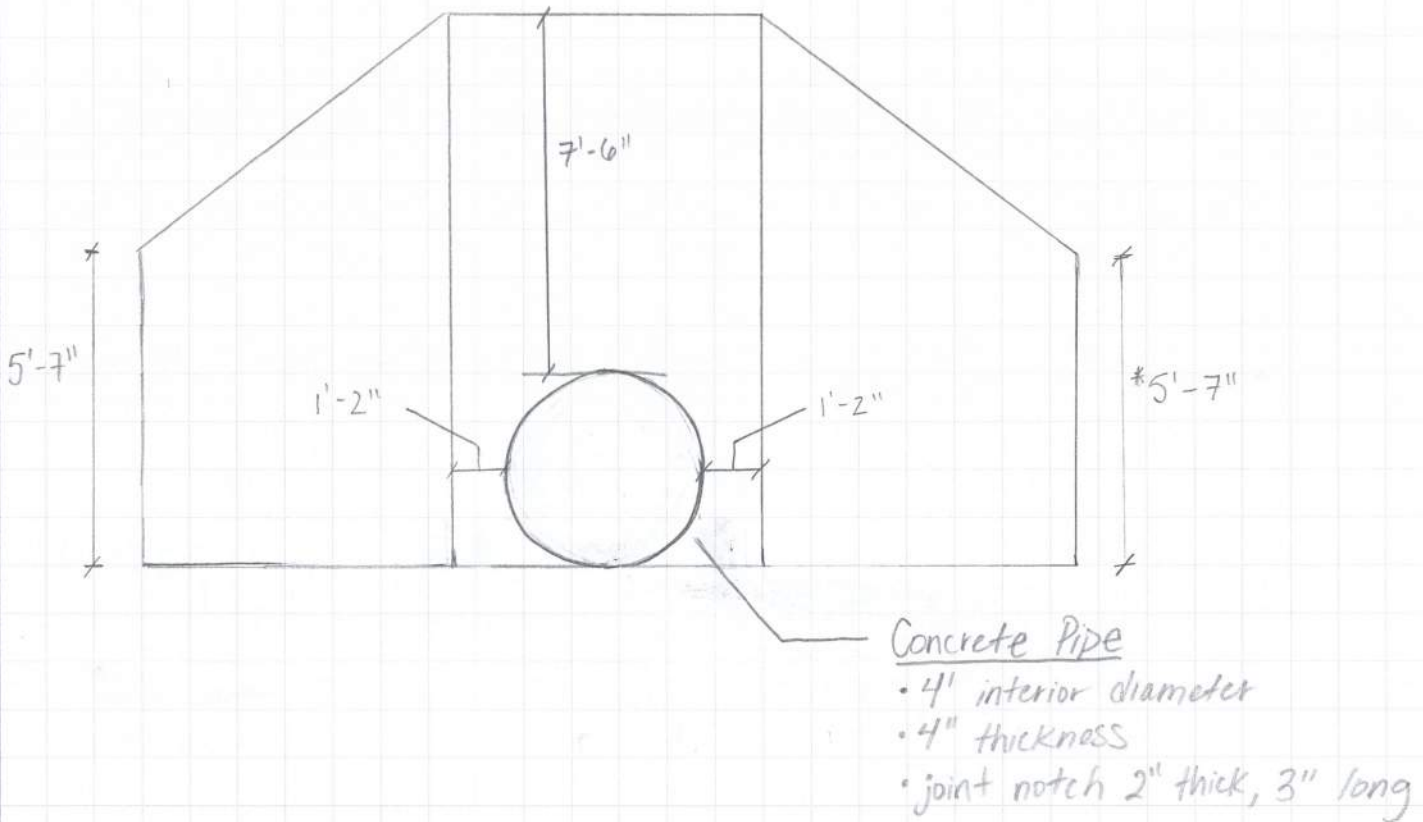


Photo No. 10 - Upstream channel



Photo No. 11 - Downstream channel

EAST AND WEST HEADWALL



* Could not gather dimension due to debris. Dimension was compared to other wingwall and both seemed similar, hence 5'-7" was used.

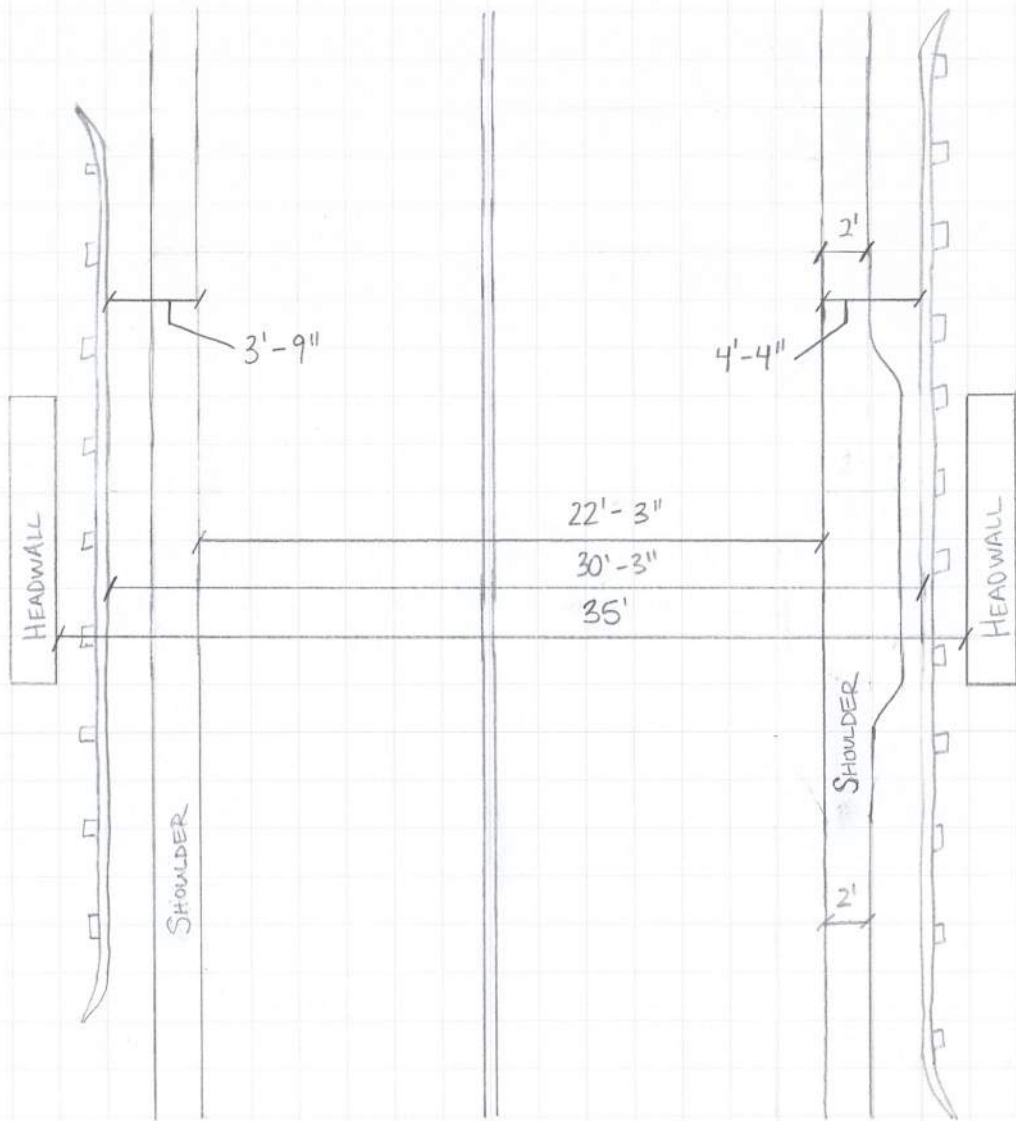


C.S. Davidson, Inc.

Excellence in Civil Engineering

Client North Annville Township Sheet 2 of 2
 Project _____ No. 4302.8.05.00
 Subject Roadway Plan View
 Prepared By NBL Date 7/26/23
 Reviewed By _____ Date _____
 Approved By _____ Date _____
 Reviewed By _____ Date _____

ROADWAY PLAN VIEW



CULVERT INSPECTION

South Bridge - Clear Spring Road over Unknown Tributary to Quittapahilla River

North Annville Township, Lebanon County

Engineer Project No.
4302.8.05.00

Existing Conditions

The structure is a 5-segment concrete pipe culvert with two SLCPP sections, one each at the upstream and downstream end. The culvert carries Clear Spring Road over an unknown tributary to Quittapahilla River (Photo Nos. 1 and 2). The structure has a span of 2'-11" and is approximately 42'-9" long.

Approach Roadway – Good condition (7)

1. The approach roadways are in good condition with minor cracking observed (Photo Nos. 3 and 4).

Deck – Not rated for culverts

1. The bituminous wearing surface is in good condition with minor cracking (Photo No. 5).
2. 65' of guide rail measuring 2' in height is present on both sides of the roadway (Photo Nos. 6 and 7).

Culvert – Fair condition (5)

1. Based on the height of the concrete headwalls, there is an estimated 7'-3" to 8'-2" of fill over the culvert. The distance between the headwalls perpendicular to the roadway is 39'-7".
2. Each of the headwalls and wingwalls measured to be 12" and 11" thick, respectively (Photo No. 8). Minor cracking with efflorescence was noted in the downstream headwall. Rock and asphalt were present behind each of the wingwalls. No undermining or rotation of either the headwalls or wingwalls were noted.
3. The inlet is comprised of a 27" wide, 24" tall SLCPP for the first 5' length. The pipe then transitions to a 24" inner diameter concrete pipe (Photo No. 9). There is a 2" to 3" offset between the SLCPP and concrete pipe.
4. The outlet is comprised of a 35" wide, 31" tall SLCPP for the first 5' length. The pipe then transitions to a 24" inner diameter concrete pipe (Photo No. 10). There is a 2" to a 3" offset between the SLCPP and concrete pipe. Undermining of the concrete pipe may be occurring at the interface of these two pipes on the downstream end.
5. Some separation between segments could be seen although there was not any loss of fill observed. Misalignment of segments was also noted throughout the length of the pipe.

Channel – Satisfactory condition (6)

1. The channel is in satisfactory condition with flow being directed along the northwest wingwall (Photo Nos. 11 and 12). Upstream flows are sourced by an old concrete pipe, a small creek from privately owned property, and runoff from the southeast end of the road collected by plastic pipes (Photo Nos. 13 through 15).
2. The downstream is heavily vegetated with vegetated sediment. The upstream is well vegetated.

Conclusions

The bridge is in fair structural condition due to undermining of the concrete pipe and the separation and misalignment of segments. Although the culvert is sufficient to carry the current roadway loading, a widened road would require both headwalls to be rebuilt and the culvert extended. If the road were to be widened it is recommended that the structure be replaced due to the structure having already been extended once and the condition of the pipe.

Inspection Date: July 27th, 2023
Inspectors: Jared R. Perricone, E.I.T.
PA Certified Bridge Safety Inspector
Noah B. Ling, Engineering Intern
Prepared By: C.S. Davidson, Inc.



Photo No. 1 - Upstream elevation



Photo No. 2 - Downstream elevation



Photo No. 3 - North approach



Photo No. 4 - South approach



Photo No. 5 - Typical deck



Photo No. 6 - East guide rail



Photo No. 7 - West guide rail



Photo No. 8 - Typical wingwall



Photo No. 9 - Upstream typical pipe



Photo No. 10 - Downstream pipe transition



Photo No. 11 - Upstream channel



Photo No. 12 - Downstream channel



Photo No. 13 - Upstream channel (concrete pipe)

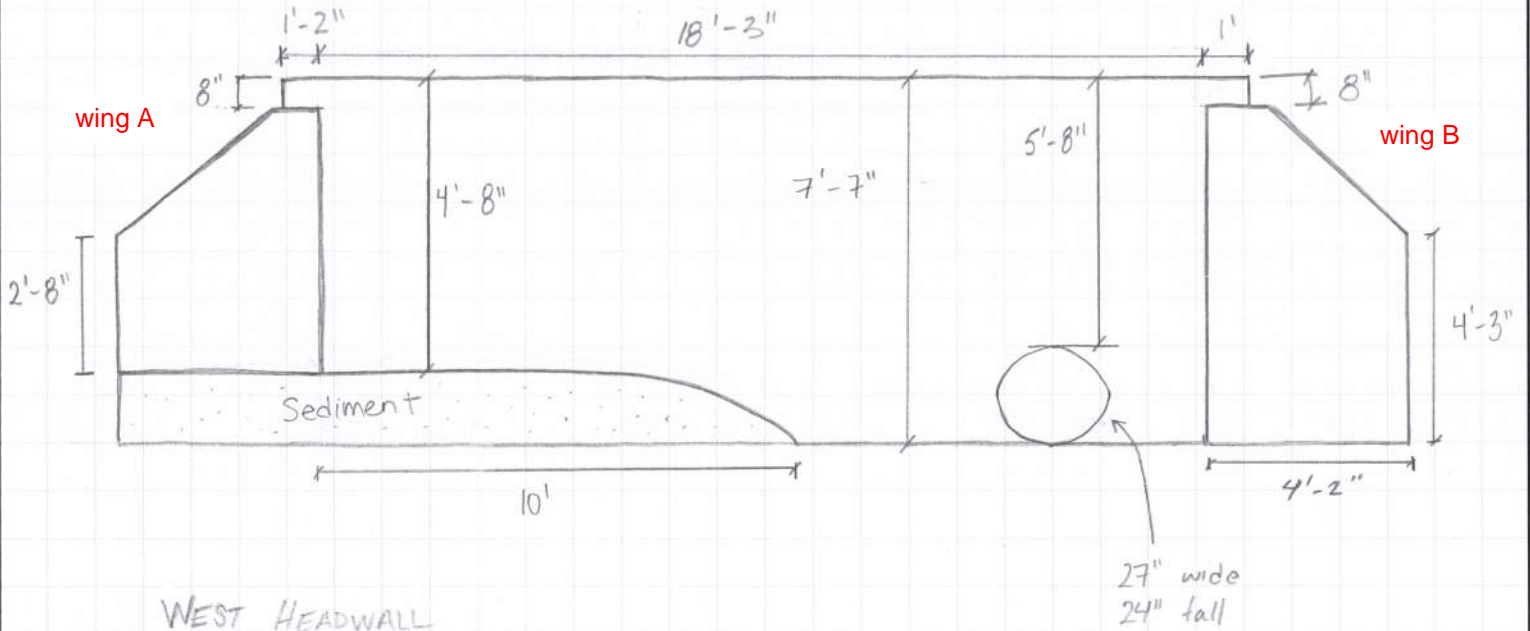


Photo No. 14 - Upstream channel (creek)

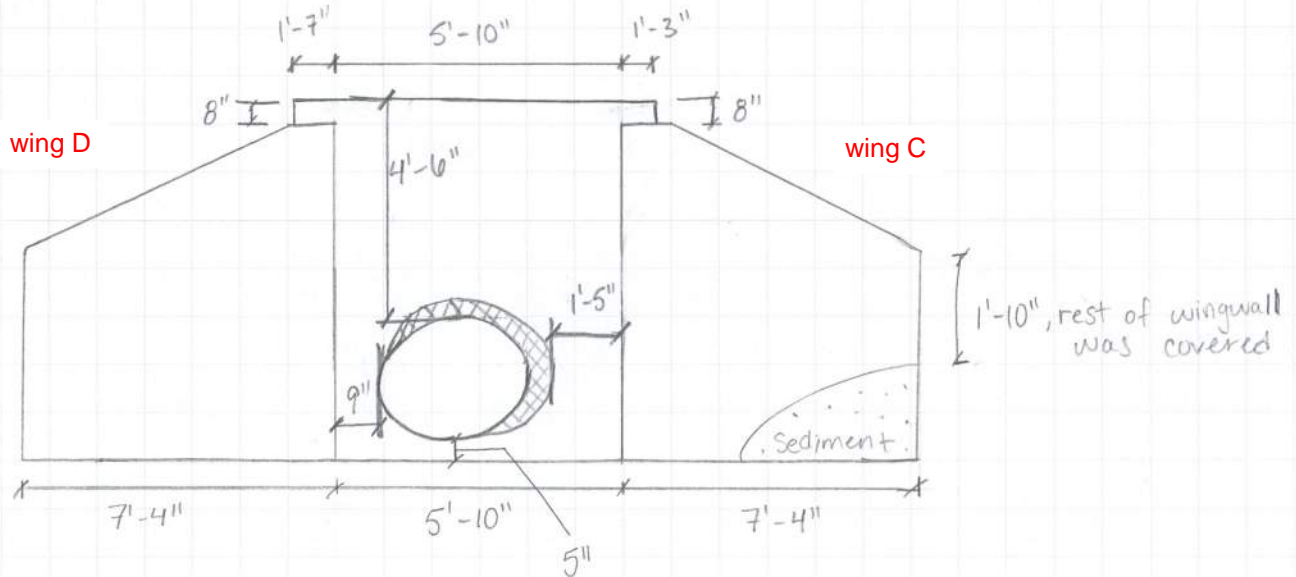



Photo No. 15 - Upstream channel (roadway drainage)

EAST HEADWALL

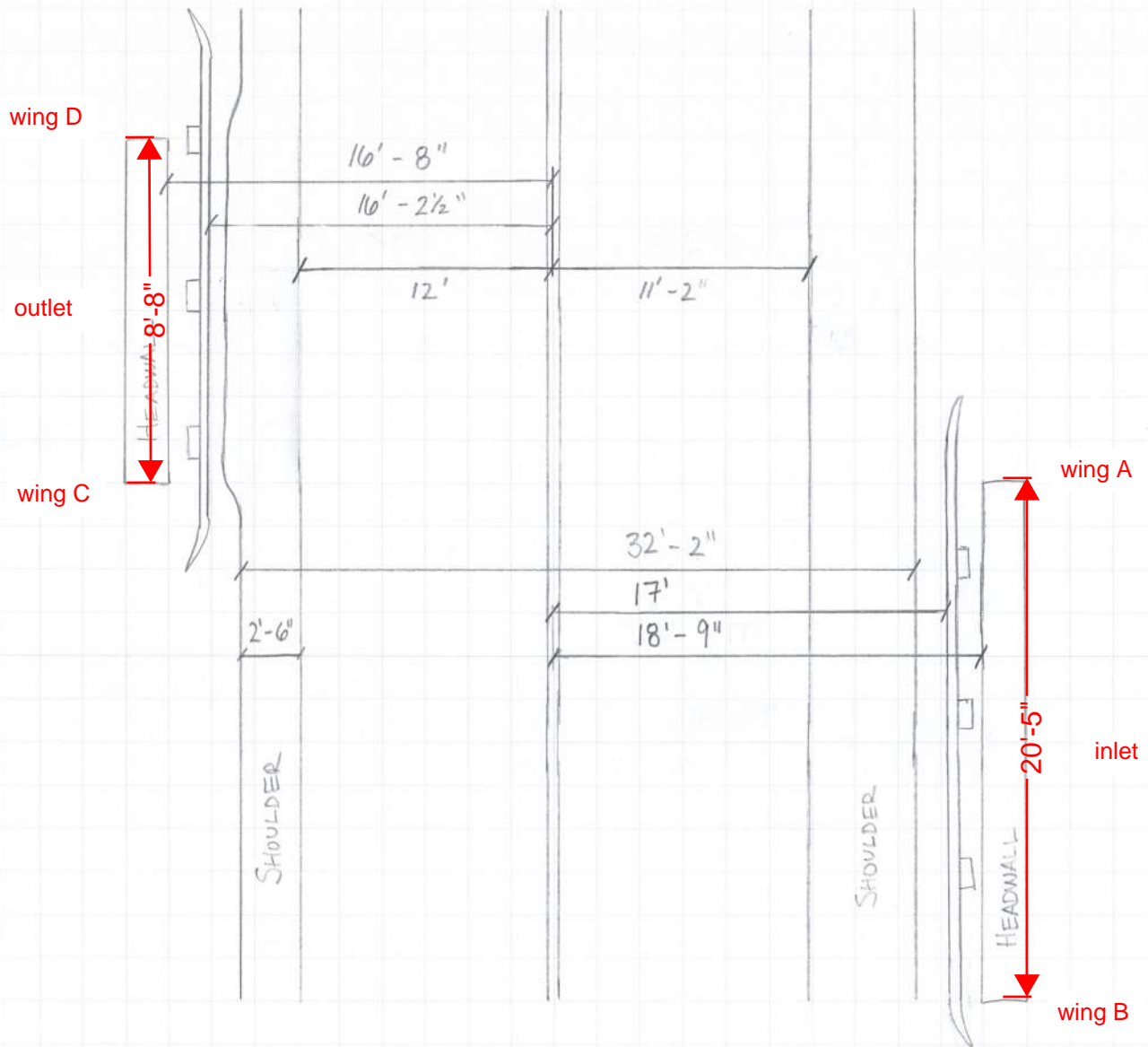


WEST HEADWALL



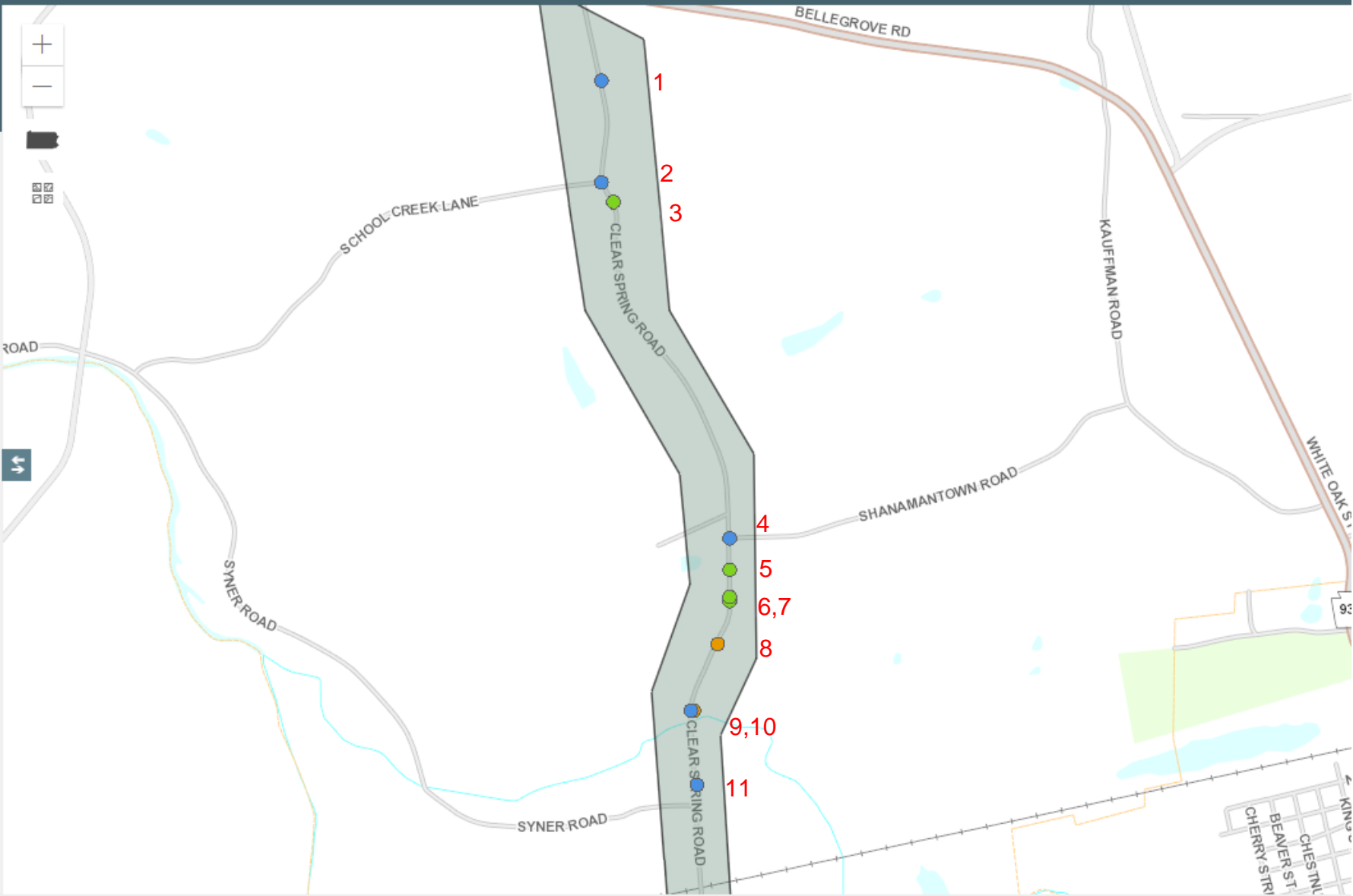
 = Section of concrete infill (measures 41" tall and 45" wide)

ROADWAY PLAN VIEW



APPENDIX I – CRASH DATA ANALYSIS

REPORTABLE CRASH LOCATIONS



APPENDIX J – REFERENCES

Level of Service Information

Capacity analysis, as defined by the *Highway Capacity Manual*, is a set of procedures used to estimate the traffic-carrying ability of a facility over a range of defined operational conditions. The capacity analysis uses levels of service (LOS) to describe the operational conditions. Level of service is a measure of the quality of operational conditions of a facility. A brief description of the various levels of service is presented below. Levels of service are assigned letter designations “A” to “F”, with “A” being the most desirable operating conditions. A level of service “D” is generally acceptable according to the Institute of Transportation Engineers standards.

Level of Service Characteristics

Level of Service (LOS)	Unsignalized Intersection		Signalized Intersection	
	Control Delay, sec/veh	Expected Delay to Minor Street Traffic	Control Delay, sec/veh	Expected Problems to Intersection
A	≤ 10	little or no delay	≤ 10	very low delay
B	> 10 and ≤ 15	short traffic delays	> 10 and ≤ 20	stable flow of traffic with minimal delay
C	> 15 and ≤ 25	average traffic delays	> 20 and ≤ 35	number of vehicles stopping is significant
D	> 25 and ≤ 35	long traffic delays	> 35 and ≤ 55	influence of congestion becomes more noticeable
E	> 35 and ≤ 50	very long traffic delays	> 55 and ≤ 80	limit of acceptable delay
F	> 50	extreme delays - usually warrants improvement to the intersection	> 80	over-saturated and unacceptable

Level of Service A: A condition of free flow with low traffic density and high maneuverability within the traffic stream. No vehicle waits longer than one signal indication.

Level of Service B: Stable flow of traffic with negligible impact from other vehicles in the traffic stream. On a rare occasion, drivers wait through more than one signal indication.

Level of Service C: Still in the zone of stable flow but ability to select operating speed and maneuverability is restricted. Intermittently drivers must wait through more than one signal indication and backups may develop behind left turning vehicles.

Level of Service D: Approaching instability; drivers are restricted in their freedom to change lanes. Delay of approaching vehicles may be substantial during peak hours.

Level of Service E: Traffic volumes are near or at capacity on the arterial. Long queues of vehicles may create lengthy delays, especially for left turning vehicles.

Level of Service F: Congested conditions of forced traffic flow where travel is slowed by stop and go conditions. Queued backups from locations downstream restrict or prevent movement of vehicles out of the approach, creating a storage area during part or all of the peak hour.

At an unsignalized intersection, capacity analysis is a study of the interaction between drivers on the minor street (the stop-controlled street) and the drivers on the major street. To describe this interaction, both gap acceptance and empirical models have been developed. For each minor movement, the control delay is determined, and a level of service is assigned. The control delay is the total elapsed time from a vehicle joining the queue until its departure from its stopped position at the head of the queue. It includes the time to decelerate to a stop and accelerate to the free-flow speed.

For signalized intersections, capacity is evaluated in terms of the ratio of demand flow rate to the capacity of the intersection. The level of service is based on the control delay in seconds per vehicle. Control delay is defined as the portion of total delay attributed to traffic signal operation, and includes initial acceleration delay, queue move-up time, stopped delay, and final acceleration delay.