



Prepared for:
Erie County Department of Planning and
Community Development
150 East Front Street, Suite 300
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Loomis Street At-Grade Crossing Study Report

North East Borough/North East Township, Erie County

June 2024



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1.0 PROJECT STUDY DESCRIPTION

Loomis Street is located in North East Borough and North East Township, Erie County. The purpose of this study is to evaluate the existing at-grade railroad crossing of Loomis Street and to determine potential safety improvements. North East Borough and North East Township own and maintain Loomis Street in the vicinity of the crossing and rail tracks currently owned by both CSX and Norfolk Southern.

The study evaluated the existing conditions at the crossing and examined both short-term and long-term improvements. The study considered safety upgrades and aspects for all modes of transportation to meet the needs of all the stakeholders in the vicinity of the study area.

2.0 BACKGROUND INFORMATION

Whitman, Requardt and Associates, LLP (WRA) was tasked with studying the at-grade railroad crossing across Loomis Street. Loomis Street is approximately 3/4 of mile in length providing a north/south route between SR 0020 (US 20) and SR 0426. The land use is primarily industrial with four large industrial land uses adjacent to the railroad crossing. The Parkway Drive intersection is less than one hundred (100) feet south of the railroad crossing providing access to Bay Valley Foods and approximately forty-five (45) residential units with additional room for expansion. Signa Plastics is another industrial land use and is approximately two hundred (200) feet north of the railroad crossing. Loomis Street is currently posted at 25 mph north of Parkway Dr and 35 mph south of Parkway Dr.

The crossing currently consists of three (3) active railroad lines, two (2) on the North side of the crossing owned by CSX Transportation (CSX) and one (1) on the South side of the crossing owned by Norfolk Southern. The tracks owned by CSX and Norfolk Southern share the same at-grade crossing of Loomis Street and are separated by approximately seventy-five (75) feet at the crossing. The crossing has a crash history involving tractor trailers being stuck in the middle of the crossing, having the back of their trailers struck by trains. The crossing currently has an automatic gate on each approach near side. The gates include the standard R15-1 “Crossbuck” and supplemental R15-2P plaque “3 Tracks” and two horizontal flashing light signals back-to-back (visible to both side of traffic). The gate arms also have the required three flashing red lights.



In June of 2021, North East Borough and North East Township hired a contractor to add approximately seventy-five (75) feet of bituminous pavement to the section of Loomis Street that is located between the CSX and Norfolk Southern tracks. This measure was done to reduce the nearly two (2) feet of grade change between the two sets of tracks and improve the overall travel speeds along Loomis Street. In May of 2023, North East Borough and North East Township installed interim low-cost safety measures by installing “Dynamic Envelope Pavement Markings and Do Not Stop On Tracks Signage”. The R8-8

“Do Not Stop On Track” signs were installed on the near side and far side for both directions (total of four signs). In addition to the Borough and Township improvements, CSX and Norfolk Southern cleared debris and growth from the area between the tracks to improve sight distance and are slated to provide improvements to the railroad tracks at the crossings which will also improve overall travel speeds along Loomis Street.

3.0 DATA COLLECTION

As part of the study, WRA conducted traffic volume counts on Thursday, May 4th, 2023, between 7 AM through 9 PM totaling around 1,500 vehicles. Trucks contribute to over 15% of the traffic volume that was observed and counted. The highest peak hour in traffic based on the counts is between 4:15 PM and 5:15 PM. There were 190 vehicles counted during this peak hour. The highest peak hour volume of truck traffic is between 1:15 PM and 2:15 PM with a total of twenty-nine (29) trucks counted. WRA estimates that over 2,000 vehicles and over three hundred (300) trucks traverse the Loomis Street railroad crossing every day based on the 14-hour count. During that 14-hour count, there were a total of twenty-six (26) trains observed at the crossing. During a subsequent field view, WRA utilized a radar speed gun to capture the traveling speed of trains on each track. The recorded speeds were 34 MPH and 37 MPH along each of the CSX tracks, and 51 MPH along the Norfolk Southern track. Timings between the light/gate assembly activating and a train reaching the crossing was also field measured. Those recorded timings were 20 to 22 seconds along the Norfolk Southern track and 40 to 50 seconds along the CSX tracks. Vehicle, specifically truck, times to traverse the crossing were field measured as well. Trucks approaching the crossing took between 14 and 19 seconds to fully traverse the crossing. However, a truck turning left from Parkway Drive onto Loomis Street took approximately 35 seconds to complete the crossing.

In addition to the counts and field measurements noted above, WRA requested information from both CSX and Norfolk Southern regarding their existing services and use of the tracks at the crossing. Each company, CSX and Norfolk Southern, is currently responsible for maintaining the train detection circuitry on its own track(s) and the light/gate assembly nearest to its respective track(s). The following table summarizes the information received from both CSX and Norfolk Southern.

Table 1. Existing Railroad Information

	CSX	Norfolk Southern
Estimated Number of Daily Train Movements	30	40
Crossing Type	Shared (Asphalt and Timber)	Shared (Asphalt)
Number of Tracks	2	1

Type of Train	Freight, Intercity Passenger, Shared Use Transit	Not Provided
Typical Speed over the Crossing	60 MPH to 79 MPH	60 MPH
Train Detection Type	Motion Detection	CWT (Constant Warning Time)
Approximate Length of Advanced Train Detection	N/A	25 – 30 Seconds

The Highway-Rail Crossing Handbook, 3rd Edition, developed by USDOT Federal Railroad Administration and Federal Highway Administration states that the minimum requirement for warning of a railroad crossing is 20 seconds. The handbook further recommends extending the warning time one (1) second for each additional ten (10) feet (when exceeding 35 feet) between gates, especially if the crossing is regularly used by tractor trailers. The current gate to gate crossing distance is approximately 130 feet. Based on the handbook, the minimum warning length shall be 30 seconds. The guidebook also notes that studies show that drivers being to ignore/drive around gates when warning time begins to exceed 40-50 seconds. In addition, the MUTCD requires the gate shall not start to descend until at least 3 seconds of warning has passed. The gate shall be fully lowered at a minimum of 5 seconds prior to the arrival of the train.

4.0 ALTERNATIVES

4.1 Alternative 1 – At-Grade Modifications

Alternative 1 utilizes the existing at-grade railroad crossing and provides minimal highway reconstruction. This alternative recommends upgrading the signage and pavement marking to current MUTCD, PennDOT, and USDOT/FHWA guidance.

Currently, Loomis Street has no existing longitudinal pavement markings, however, PennDOT TC-8600 requires at least three hundred (300) feet of approaching double yellow barrier line for speeds of 35 mph or less. This would improve lane delineation as well as align the lanes appropriately with the railroad gates to deter driving around the automatic gates. Without any lane delineation, drivers are more likely to drive around the gates. In addition to the double yellow barrier lines, the installation of white edge lines is recommended as this would help eliminate wrongful turns into the tracks at nighttime or poor visibility conditions.

The stakeholders should also consider the installation of raised medians or non-mountable curb islands to further deter vehicles bypassing the automatic gates. Adding medians may require longer gate arms, which also impacts the required counterweight supports.

In addition to the longitudinal signage, PennDOT TC-8600 requires installing 24-inch white stop bars typically eight (8) feet before the railroad gate and at least fifteen (15) feet from railroad line. Northbound

Loomis Street currently does not have a stop bar, the existing is almost entirely faded away, and southbound is double the recommended length away from the railroad crossing.

PennDOT TC-8600 also requires installing the W10-1 “Grade Crossing Advance Warning Sign” and center the RR Crossing Marking at one hundred (100) feet beyond the railroad crossing stop bar (115-120 feet from the railroad crossing). Northbound is currently at 440 feet. It is recommended to move the northbound signage and pavement marking to 230 feet south of railroad crossing. The Parkway Drive intersection is located within the required distance. This distance is the closest to the railroad without being within the intersection footprint. Southbound signage and pavement markings do not meet current standards. It is recommended to relocate the railroad crossing pavement marking 115 feet north of the railroad crossings and relocate the W10-1 signage to the middle of the pavement markings.

With the new stop bars, install R8-10A “Stop Here When Flashing” in lieu of the newly added nearside R8-8 “Do Not Stop On Tracks” sign. The near side signs could be relocated to between the crossing adjacent to the dynamic envelope and then leave the far side R8-8 signs installed. This new signage placement will stop vehicles earlier at the stop bar when the railroad gate and the flashing-light signals are active and while still informing the driver not to stop on the tracks once passing the railroad gate.

Since Parkway Drive intersection is within one hundred (100) feet of the railroad crossing, it is recommended to install a W10-4 “Railroad Crossing on Stem of T intersection” sign on Parkway Drive 100 feet prior to the Loomis Street intersection.

Given the measured crossing times and current preemption warning times, it is also recommended that these times are increased to a minimum of 40 seconds. This is based on the field measured time it takes a truck turning left from Parkway Drive onto Loomis Street to safely traverse the crossing.

These recommendations further enhance the messaging, the guidance, and delineation of the crossing. Increasing the visibility to the flashing-light signals and providing the messaging of stopping on activation should deter vehicles to “race” the gate. Providing pavement markings or a physical median barrier will deter vehicles from bypassing/driving around the gate. While the low-cost safety improvement of the Dynamic Envelope Pavement Markings and Do Not Stop On Tracks Signage should continue to inform the drivers that did not stop at the flashing-light signal to continue to progress through the crossing.

It should be noted that the railroad is responsible for the maintenance of any passive warning devices at the crossing and any signs attached to the flashing-light support mast/cantilevers. The road owner is responsible for the maintenance of the pavement markings and advance warning signs.

4.2 Alternative 1B – At-Grade Crossing Signal Upgrades

Alternative 1B also utilizes the existing at-grade railroad crossing and provides minimal highway reconstruction. This alternative recommends performing all the upgrades/modifications noted in Alternative 1, but also adding large, overhead cantilever style crossing and warning flashers to each approach. These overhead cantilevers provide 12-inch flashing-light signals mounted seventeen (17) feet minimum above the roadway to overemphasize and provide additional visibility of the flashing-light signals. The standards require the gate/side mounted flashing-light signals at a maximum of 9.5 feet above the roadway, which is below the average height of a tractor trailer of approximately 13.5 feet. Having flashing-light signals at this height also increases the visibility at further distances and angles, such as from Parkway Drive. The overhead cantilever arm would also allow for the opportunity for an additional R15-1 “Crossbuck” over the railroad crossing.

4.3 Alternative 2 – Traffic Signal Beacon

Alternative 2 also utilizes the existing at-grade railroad crossing and provides minimal highway reconstruction. Like Alternative 1B, Alternative 2 also recommends performing all the upgrades/modifications noted in Alternative 1, but also installing a new traffic signal beacon to work in conjunction with the existing crossing flashers and gates. The proposed traffic signal beacon would provide redundancy to the existing preemption system and operate independently from the flashers and gate with its own dedicated detection system not tied to the railroads. The beacon would look and operate like a standard traffic signal, however, only be actuated when a train is detected. The signal heads would be mounted a minimum of seventeen (17) feet above the roadway. Similarly to the Alternative 1B cantilever style crossing and warning flashers, this will provide improved visibility for drivers as they approach the crossing while still maintaining usage of the crossing arms.

4.4 Alternative 3 – Grade Separated Structure

Unlike the previously studied alternatives, Alternative 3 will eliminate the existing at-grade crossing. This will be accomplished by constructing a new grade separated, multi-span structure over the existing railroad tracks. This would be accomplished by realigning Loomis Street and constructing a new grade separated structure to the North of the existing crossing. The new structure would be approximately 275' in length and span across Parkway Drive. The total length of realignment and reconstruction of Loomis Street would be approximately 1,800 feet and Parkway Drive would need to be extended approximately eight hundred (800) feet from the current intersection point.

Realigning Loomis Street and constructing the grade separated structure would also require multiple retaining walls to be constructed. These retaining walls would be required to protect the existing homes and residential properties around the Parkway Drive intersection. The retaining walls are also needed to extend Parkway Drive to a new tie-in point to Loomis Street, south of the existing intersection. Right-Of-Way takes would be required from approximately five (5) residential and approximately four (4) commercial properties in the vicinity.

This option would also require major commercial driveway realignments to Silgan Plastics and Ridg-U-Rak Distribution Warehouse and minor driveway adjustments to EPC Powder Manufacturing. The Silgan Plastics existing driveway would be completely removed, and a new commercial driveway connection would be installed farther North, near the existing East Street intersection. This new commercial driveway would be approximately 670 feet in length. The Ridg-U-Rak Distribution Warehouse existing driveway would only be partially removed, and a new connection made to the Parkway Drive extension piece prior to the new intersection with Loomis Street.

5.0 CLOSURE IMPACTS

The closure of the Loomis Street railroad crossing would be deeply impactful to the local economy as multiple multi-million-dollar industries rely on Loomis Street and the crossing to jointly manufacture products for the food, plastics, and metal working industries. A closure would also have damaging impacts to the existing three (3) residential neighborhoods that utilize Loomis Street to get to and from schools and local businesses.

A closure of the crossing and subsequent cul-de-sac of Loomis Street at the railroad crossing will shift traffic to adjacent roadways and intersections within North East Borough and North East Township. Additional

signage preventing truck traffic from using adjacent and similar railroad crossings at South Washington Street and Smedly Street would be needed to prevent truck usage of small, residential streets. In addition, truck traffic would need to be limited along Smedly Street to only serve Better Baked Foods. It is anticipated that truck traffic will utilize SR 0436 (Grahamville Street), SR 0089 (South Lake Street), and SR 0020 (US 20). It is expected that passenger cars will utilize the South Washington Street parallel road as the permanent reroute. North East Borough currently posts South Washington Street at 25 mph and has residential and industrial land uses.

As part of the study, WRA developed a re-route assessment of the proposed routes. The following table shows the additional distances required for each specific origin-destination pairs with the cul-de-sac of Loomis Street.

Table 1. Origin-Destination Rerouting Distances

Origin-Destination	Car	Truck
Northbound Loomis Street - Eastbound US 20	0.4 mi	1.5 mi
Southbound Loomis Street - Eastbound SR 426	0.4 mi	1.5 mi
Silgan Plastics - Eastbound SR 426	0.9 mi	1.9 mi
Parkway Drive - Eastbound US 20	1.2 mi	2.3 mi
Parkway Drive - US 20 and SR 89	1.1 mi	1.4 mi

Assuming no intersection delay and vehicles driving the speed limit, the following table shows the running time in seconds for each origin-destination and the overall difference by mode when rerouted.

It is foreseeable that lighter highlighted cells (Silgan Plastics - Eastbound SR 426) will experience at least 30 seconds of intersection delay since this traffic will go through three stop-controlled intersections instead of one. The darker highlighted cells could potentially see upwards of 60 to 90 seconds of delay as the rerouting goes through the downtown North East Borough signals as well as the stop-controlled intersection of Grahamville Street and South Lake Street.

Table 2. Origin-Destination Rerouting Running Time

Origin-Destination	Existing	Car Reroute	Truck Reroute	Car Difference	Truck Difference
Northbound Loomis Street - Eastbound US 20	86 s	127 s	213 s	41 s	127 s
Southbound Loomis Street - Eastbound SR 426	86 s	127 s	213 s	41 s	127 s
Silgan Plastics - Eastbound SR 426	53 s	159 s	246 s	106 s	193 s
Parkway Drive - Eastbound US 20	45 s	168 s	255 s	123 s	210 s
Parkway Drive - US 20 and SR 89	90 s	197 s	209 s	107 s	119 s

The rerouting of Loomis Street traffic could also incur increases in delay to existing intersections, particularly the directly impacted intersections of US 20 and South Washington Street, Grahamville Street and South Washington Street, Loomis Street at Grahamville Street, Loomis Street at US 40, Grahamville Street at South Lake Street, and the signalized intersections of US 20 at South Lake Street and US 20 at Vine Street.

Large and/or oversize trucks (encroaching 13'-6" in height) will require longer diversions as SR 89 just north of SR 426 has a height restriction of 13'-7". These larger trucks will have to instead divert towards I-90 and use the adjacent interchanges.

Table 3. Large Truck Rerouting Running Time

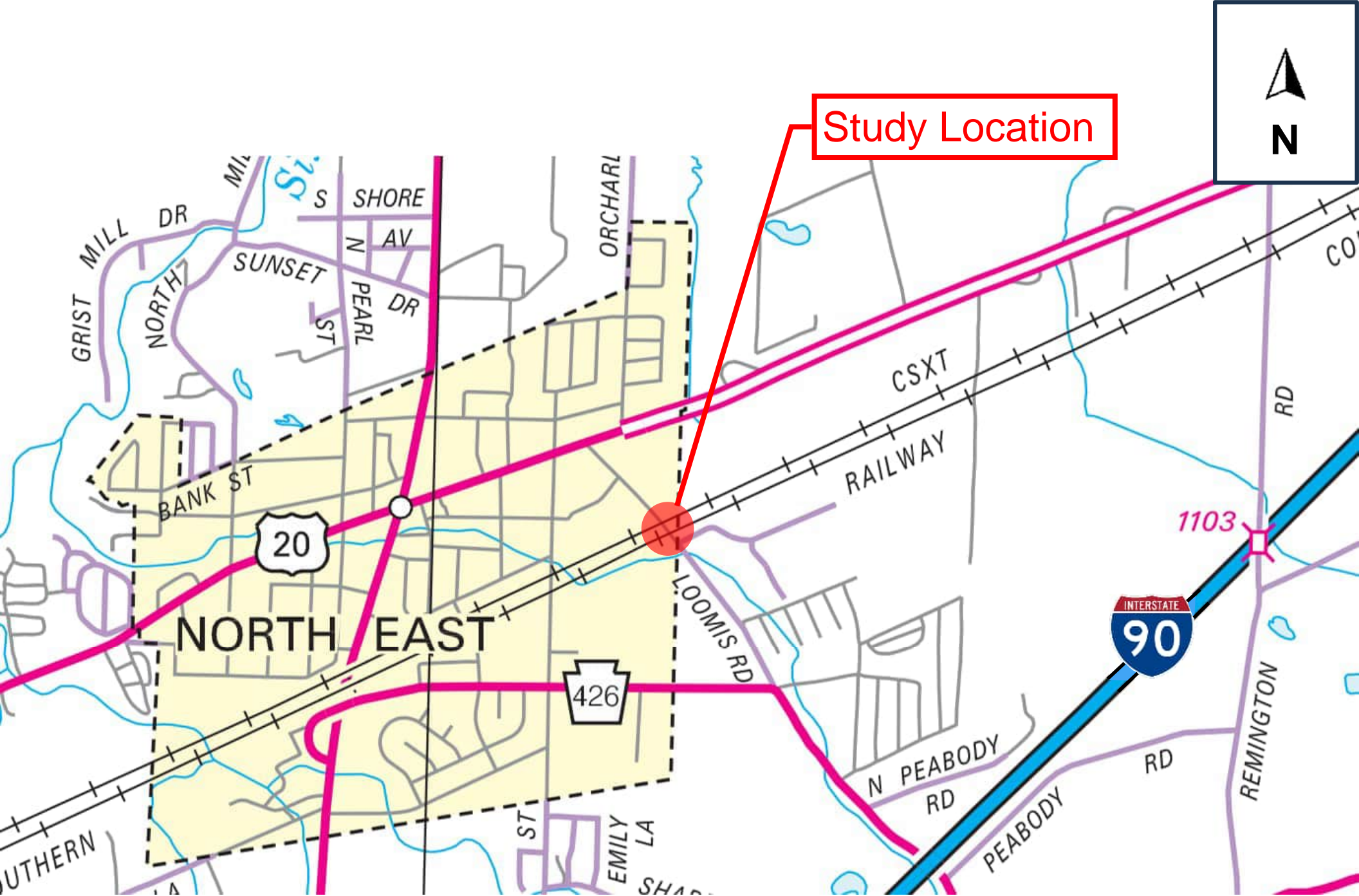
Origin-Destination	Existing	Truck Reroute	Truck Difference
Silgan Plastics - I-90 & SR 89	328 s	493 s	166 s
Parkway Drive - Eastbound US 20 & I-90	297 s	551 s	254 s
Parkway Drive - US 20 & SR 531	693 s	936 s	243 s

For trucks not able to utilize SR 89 for the connection between I-90 / SR 89 and US 20 (Downtown North East), trucks may have used SR 426 and Loomis St to connect to US 20. With the Loomis Street closure, the only viable truck route to go from I-90 to US 20 (via SR 89), trucks would have to divert to the US 20 and I-90 interchange towards the I-90 and SR 89 interchange due to truck restrictions on adjacent routes.

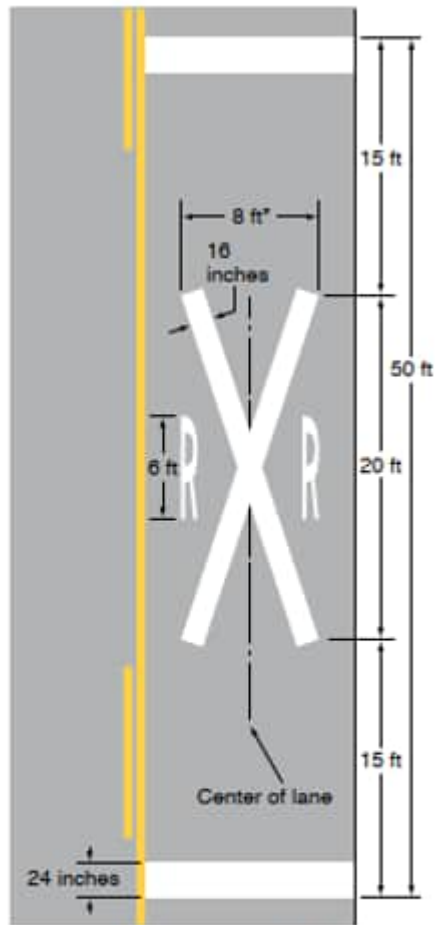
Table 4. US 20 to I-90 / SR 89 Large Truck Rerouting Running Time

Origin-Destination	Existing	Truck Reroute	Truck Difference
US 20 - I-90 / SR 89 Interchange	385 s	506 s	121 s

Appendix A: Study Location Map



Appendix B: Alternative 1 At-Grade Modifications and Cost Estimate



*Width may vary according to lane width

Example of Railroad Crossing Pavement Markings



Railroad Warning Sign – for Approaches



Railroad Crossing at "T" Intersection – for Parkway Dr.



Stop Here When Flashing – for Stop Bars



Alternative 1 - At-Grade Modifications
 Cost Estimate

Item Description		Quantity	Unit	Unit Cost	Item Cost	
Major Construction Item Quantities						
WHITE HOT THERMOPLASTIC LEGEND "RR CROSSING"		2	EACH	\$1,300.00	\$2,600	
24" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS		28	LF	\$25.00	\$700	
4" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS		182	LF	\$9.00	\$1,638	
12" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS		422	LF	\$25.00	\$10,550	
4" WHITE WATERBORNE PAVEMENT MARKINGS		2160	LF	\$0.50	\$1,080	
4" YELLOW WATERBORN PAVEMENT MARKINGS		1228	LF	\$0.50	\$614	
POST MOUNTED SIGNS, TYPE B		33	SF	\$65.00	\$2,145	
RAILROAD PREEMPTION UPDATES AND COORDINATION		1	LS	\$20,000.00	\$20,000	
Construction Item Sub-Total					\$39,327	
Allowances						
				Percentage	Cost	
Erosion & Sediment Control				0%	\$0	
Drainage & Stormwater management				0%	\$0	
Maintenance & Protection of Traffic				7%	\$2,753	
Mobilization				7%	\$2,753	
Incidental Construction Items				7%	\$2,753	
Signing				0%	\$0	
Construction Allowances Item Sub-Total					\$8,259	
Construction & Allowance Items Total					\$47,586	
- Total Escalation Through 2027					\$4,412	
Construction Subtotal					\$51,998	
Contingency @ 30%					\$15,599	
Total Construction Cost					\$67,598	
Other Project Costs						
				Engineering Costs @ 25%	\$16,899	
				Construction Oversight @ 15%	\$10,140	
Right-of-Way Acquisition	0.00 ac	ROW cost/acre	\$0	Right-of-Way Cost	\$0	
Utility Impact Percentage				0%	Utility Cost	\$0
Note: Value rounded up to nearest \$5000					Estimated Project Total Cost	\$95,000

Escalation		
Current year	Rate	Escalation duration
2024	3% / year	3 years

Notes:

- Construction Item Cost were derived from PennDOT's ECMS Items Price History using an average cost within a similar quantity range.
- Contingency Ranges vary from 10% to 40% per PennDOT's Publication 352 Cost Estimating Guide.
- Allowance item costs are a percentage of the known major construction Items cost. A percentage is assigned to the pertinent items that are expected to be part of the project but can not yet be quantified. The percentage is based on the expected project size and the complexity level based on judgment from previous projects.
- Incidental Construction = Field office, Construction Surveying, CPM Schedule, Equipment Package, etc.
- Utility Impact Percentage is a percentage of the total construction cost to account for utility impacts. This value is based on the estimated impact to the utilities.

Appendix C:

Alternative 1B At-Grade Crossing Signal Upgrades and Cost Estimate





Alternative 1B - At-Grade Crossing Signal Upgrades
 Cost Estimate

Item Description		Quantity	Unit	Unit Cost	Item Cost
Major Construction Item Quantities					
	WHITE HOT THERMOPLASTIC LEGEND "RR CROSSING"	2	EACH	\$1,300.00	\$2,600
	24" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	28	LF	\$25.00	\$700
	4" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	182	LF	\$9.00	\$1,638
	12" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	422	LF	\$25.00	\$10,550
	4" WHITE WATERBORNE PAVEMENT MARKINGS	2160	LF	\$0.50	\$1,080
	4" YELLOW WATERBORN PAVEMENT MARKINGS	1228	LF	\$0.50	\$614
	POST MOUNTED SIGNS, TYPE B	33	SF	\$65.00	\$2,145
	RAILROAD PREEMPTION UPDATES AND COORDINATION	1	LS	\$20,000.00	\$20,000
	CANTILEVER GRADE CROSSING SIGNAL STRUCTURE	2	EACH	\$80,000.00	\$160,000
Construction Item Sub-Total					\$199,327
Allowances					
				Percentage	Cost
Erosion & Sediment Control				2%	\$3,987
Drainage & Stormwater management				0%	\$0
Maintenance & Protection of Traffic				7%	\$13,953
Mobilization				7%	\$13,953
Incidental Construction Items				7%	\$13,953
Signing				0%	\$0
Construction Allowances Item Sub-Total					\$45,845
Construction & Allowance Items Total					\$245,172
					- Total Escalation Through 2027
					\$22,734
Construction Subtotal					\$267,906
Contingency @ 30%					\$80,372
Total Construction Cost					\$348,278
Other Project Costs					
				Engineering Costs @ 25%	\$87,070
				Construction Oversight @ 15%	\$52,242
Right-of-Way Acquisition	0.00 ac	ROW cost/acre	\$0	Right-of-Way Cost	\$0
Utility Impact Percentage				5%	Utility Cost
					\$17,414
Note: Value rounded up to nearest \$5000					Estimated Project Total Cost
					\$510,000

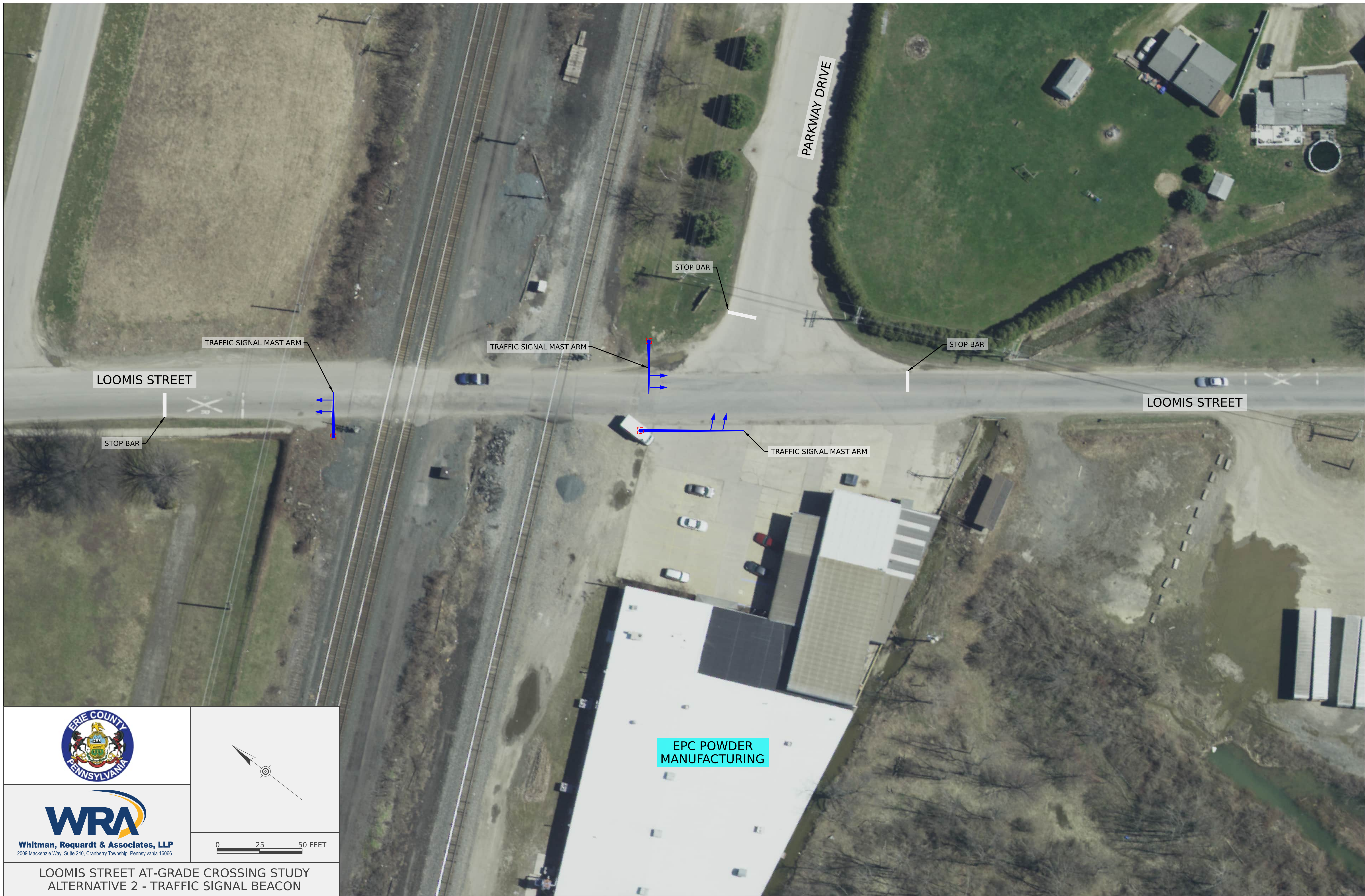
Escalation		
Current year	Rate	Escalation duration
2024	3% / year	3 years

Notes:

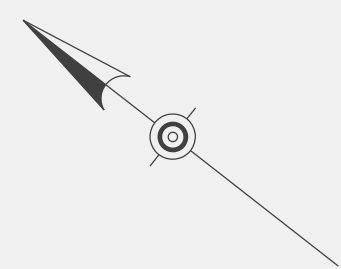
- Construction Item Cost were derived from PennDOT's ECMS Items Price History using an average cost within a similar quantity range.
- Contingency Ranges vary from 10% to 40% per PennDOT's Publication 352 Cost Estimating Guide.
- Allowance item costs are a percentage of the known major construction Items cost. A percentage is assigned to the pertinent items that are expected to be part of the project but can not yet be quantified. The percentage is based on the expected project size and the complexity level based on judgment from previous projects.
- Incidental Construction = Field office, Construction Surveying, CPM Schedule, Equipment Package, etc.
- Utility Impact Percentage is a percentage of the total construction cost to account for utility impacts. This value is based on the estimated impact to the utilities.

Appendix D:

Alternative 2 Traffic Signal Beacon and Cost Estimate



Whitman, Requardt & Associates, LLP
2009 Mackenzie Way, Suite 240, Cranberry Township, Pennsylvania 16066



0 25 50 FEET

LOOMIS STREET AT-GRADE CROSSING STUDY
ALTERNATIVE 2 - TRAFFIC SIGNAL BEACON





Alternative 2 - Traffic Signal Beacon
 Construction Cost Estimate

Item Description		Quantity	Unit	Unit Cost	Item Cost
Major Construction Item Quantities					
	WHITE HOT THERMOPLASTIC LEGEND "RR CROSSING"	2	EACH	\$1,300.00	\$2,600
	24" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	28	LF	\$25.00	\$700
	4" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	182	LF	\$9.00	\$1,638
	12" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS	422	LF	\$25.00	\$10,550
	4" WHITE WATERBORNE PAVEMENT MARKINGS	2160	LF	\$0.50	\$1,080
	4" YELLOW WATERBORN PAVEMENT MARKINGS	1228	LF	\$0.50	\$614
	POST MOUNTED SIGNS, TYPE B	33	SF	\$65.00	\$2,145
	RAILROAD PREEMPTION UPDATES AND COORDINATION	1	LS	\$20,000.00	\$20,000
	TRAFFIC SIGNAL BEACON	1	LS	\$250,000.00	\$250,000
Construction Item Sub-Total					\$289,327
Allowances					
				Percentage	Cost
Erosion & Sediment Control				2%	\$5,787
Drainage & Stormwater management				0%	\$0
Maintenance & Protection of Traffic				7%	\$20,253
Mobilization				7%	\$20,253
Incidental Construction Items				7%	\$20,253
Signing				0%	\$0
Construction Allowances Item Sub-Total					\$66,545
Construction & Allowance Items Total					\$355,872
					- Total Escalation Through 2027
					\$32,999
Construction Subtotal					\$388,871
Contingency @ 30%					\$116,661
Total Construction Cost					\$505,533
Other Project Costs					
				Engineering Costs @ 25%	\$126,383
				Construction Oversight @ 15%	\$75,830
Right-of-Way Acquisition	0.00 ac	ROW cost/acre	\$0	Right-of-Way Cost	\$0
Utility Impact Percentage				5%	Utility Cost
					\$25,277
Note: Value rounded up to nearest \$5000					Estimated Project Total Cost
					\$735,000

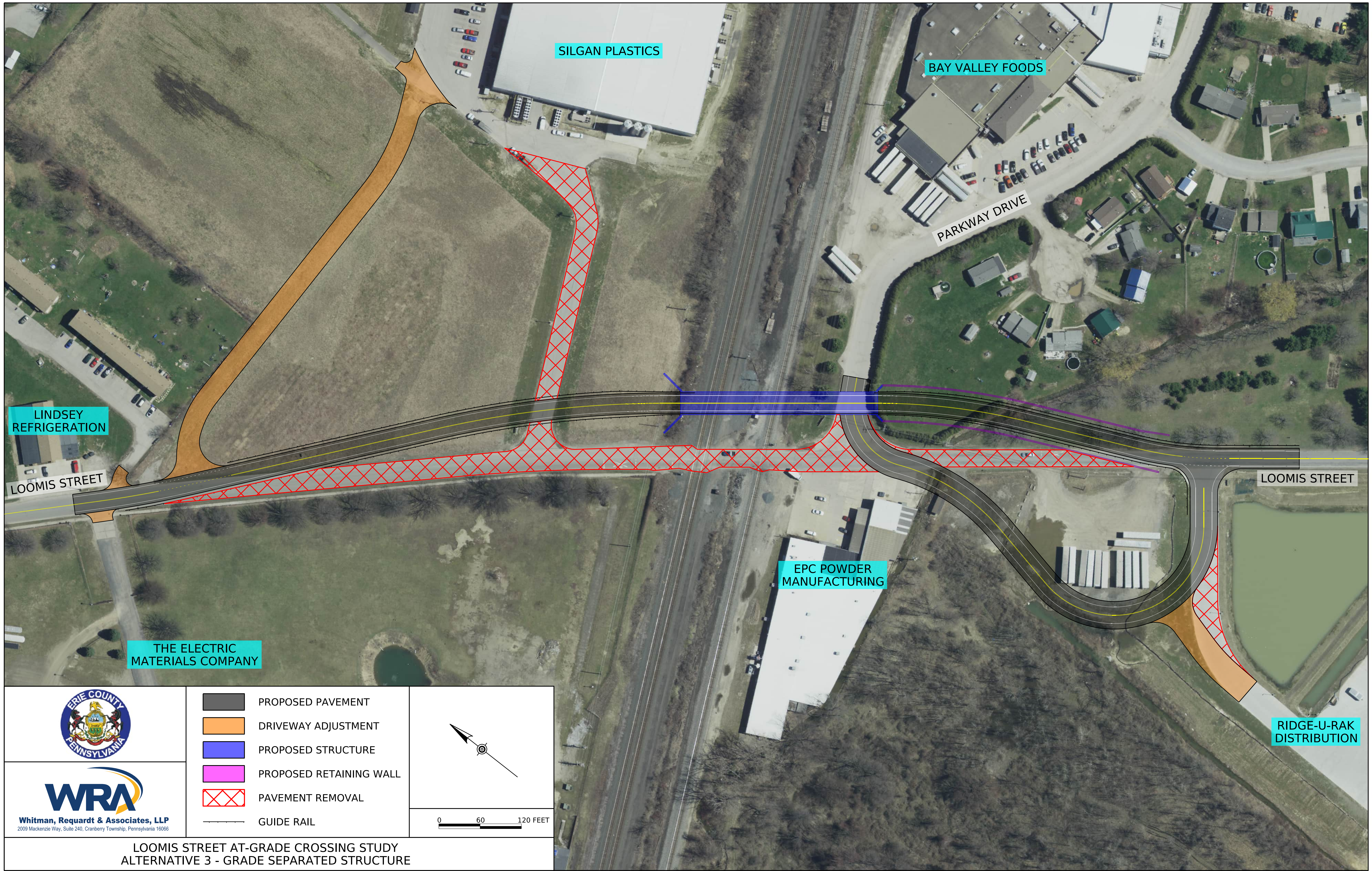
Escalation		
Current year	Rate	Escalation duration
2024	3% / year	3 years

Notes:

- Construction Item Cost were derived from PennDOT's ECMS Items Price History using an average cost within a similar quantity range.
- Contingency Ranges vary from 10% to 40% per PennDOT's Publication 352 Cost Estimating Guide.
- Allowance item costs are a percentage of the known major construction Items cost. A percentage is assigned to the pertinent items that are expected to be part of the project but can not yet be quantified. The percentage is based on the expected project size and the complexity level based on judgment from previous projects.
- Incidental Construction = Field office, Construction Surveying, CPM Schedule, Equipment Package, etc.
- Utility Impact Percentage is a percentage of the total construction cost to account for utility impacts. This value is based on the estimated impact to the utilities.

Appendix E:

Alternative 3 Grade Separated Structure and Cost Estimate



SILGAN PLASTICS

BAY VALLEY FOODS

PARKWAY DRIVE

LINDSEY REFRIGERATION

LOOMIS STREET

LOOMIS STREET






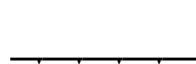
EPC POWDER MANUFACTURING

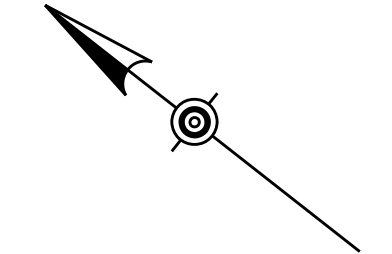
THE ELECTRIC MATERIALS COMPANY

RIDGE-U-RAK DISTRIBUTION



Whitman, Requardt & Associates, LLP
2009 Mackenzie Way, Suite 240, Cranberry Township, Pennsylvania 16066

-  PROPOSED PAVEMENT
-  DRIVEWAY ADJUSTMENT
-  PROPOSED STRUCTURE
-  PROPOSED RETAINING WALL
-  PAVEMENT REMOVAL
-  GUIDE RAIL



0 60 120 FEET

LOOMIS STREET AT-GRADE CROSSING STUDY
ALTERNATIVE 3 - GRADE SEPARATED STRUCTURE

