AMERICAN SOCIETY OF HIGHWAY ENGINEERS

National Project of the Year Award

OFFICIAL ENTRY FORM

AWARD CATEGORY (Check One): ☐ Under $20 Million ☑ Over $20 Million

SPONSORING REGION (Check One):

☒ Northeast	☐ Great Lakes	☐ Northwest
☐ Mid-Atlantic	☐ North Central	☐ Rocky Mountain
☐ Southeast	☐ South Central	☐ Southwest

CONTACT INFORMATION FOR SUBMITTING REGION:

Contact Name: Scott R. Eshenaur ASHE Region Position: Judging Committee Chairperson
Phone (Office): 717.790.9565 ext. 10422 Phone (Mobile): 717.580.8426 E-Mail Address: sreshenaur@modjeski.com

PROJECT INFORMATION:

ENTERING AGENCY/COMPANY'S NAME: Michael Baker International
PROJECT NAME: 222 North Corridor Phase 1 - SR 0222 Section 22S TYPE: Highway/Roadways
PROJECT LOCATION: Maidencreek Township
CITY: Blandon COUNTY: Berks STATE: Pennsylvania
FINAL CONSTRUCTION COST: $26,897,748.19 BUDGETED CONSTRUCTION COST: $26,671,266.68
PROJECT COMPLETION DATE: 11/4/2022

PROJECT ASHE SECTION: East Penn ASHE SECTION CONTACT NAME: Tom Dominiecki
PHONE (OFFICE): 610.783.3750 PHONE (MOBILE): 484.252.1825 E-MAIL: tdominiecki@gfnet.com

PROJECT TEAM:

PROJECT OWNER: Pennsylvania Department of Transportation, District 5-0
STREET ADDRESS: 1002 Hamilton Street
CITY: Allentown STATE: Pennsylvania ZIP: 18101
CONTACT PERSON: Michael Rebert, P.E. PHONE: 610-871-4110
E-MAIL ADDRESS: mrebert@pa.gov

PROJECT DESIGN FIRM: Michael Baker International
STREET ADDRESS: 500 Office Center Drive, Suite 210
CITY: Fort Washington STATE: Pennsylvania ZIP: 19044
CONTACT PERSON: Stephen T. Shimko PHONE: 215-442-5319
E-MAIL ADDRESS: sshimko@mbakerintl.com

PRIME CONTRACTOR: J.D. Eckman, INC.
STREET ADDRESS: 4781 Lower Valley Road
CITY: Atglen STATE: Pennsylvania ZIP: 19310
CONTACT PERSON: Ed Norcross PHONE: 610-806-2281
E-MAIL ADDRESS: enorcross@jdeckmaninc.com

Entry Form Completed By: Stephen T. Shimko **Date:** 1/6/2023

S.R. 0222 Section 22S

2023 Project of the Year Submittal

PROJECT OVERVIEW

The scope of work of the overall project includes intersection improvements at the existing signalized intersections of SR 0222 and SR 0073, the replacement of a signalized intersection with a roundabout at SR 0222 and Tamarack Boulevard/Genesis Drive and the installation of a roundabout at the intersection of SR 0222 & Schaeffer Road. The work includes full reconstruction and widening along SR 0222 between the three intersections and will continue to the SR 0222 bridge over Willow Creek to the south.

The proposed intersection improvements have been developed to address existing traffic and safety issues. This project will improve intersection operations, overall delay through the corridor, and pedestrian accessibility. The proposed intersection improvements include widening of SR 0222 to a five-lane cross section with two lanes in each direction with a center turn lane and 10-foot shoulders. The 10-foot shoulders are provided for the accommodation of non-motorized traffic including horse and buggies and bicycles. The signalized improvement proposed at SR 0222 and SR 0073 includes turning lanes on the intersection approaches.

Multilane roundabouts are proposed at SR 0222 and Genesis Drive/Tamarack Boulevard and SR 0222 and Schaeffer Road to accommodate the design year traffic. The circulatory lanes of the roundabout will consist of one to two variable width lanes, a 12’ truck apron, mountable curb, a concrete island and raised channelized splitter islands on each leg of the roundabout.

At the southern end of the project, the existing structure over Willow Creek will be reconstructed to accommodate the additional roadway width of four 11’ lanes and two 10’ shoulders.

Complexity

The project began construction in the fall of 2019 and was impacted in March of 2020 by the COVID-19 pandemic. When the team was cleared to resume construction, the new pandemic protocols added an additional layer of coordination. The use of technology and collaboration tools – like video conferencing and instant messaging – bridged the gap when we were unable to physically be in the same place. This was a huge undertaking during construction, where most problems are typically solved in the field with face-to-face interactions.

Utility impacts were extensive; virtually every utility within the corridor had to be relocated to facilitate the construction of the proposed drainage features and roadway geometry. Relocations included major aerial lines, underground communication conduits, gas & water lines, and the replacement of the entire sanitary sewer system. The design team worked closely with the utilities to determine private status and identify future right-of-way needs.

Michael Baker INTERNATIONAL

The most complex aspect of the project was the maintenance and protection of traffic. To facilitate construction of the improvements, staged construction was implemented. The staging sequence required was designed to ensure minimum disruptions to motorists and to maximize access during construction.

The proposed MPT maintains one lane in each direction throughout the project duration. The project required various phases of construction which alternates traffic from one side of the road to the other to accommodate for the roadway, utility, and roundabout construction. A temporary signal was necessary to facilitate the control of the intersection at Genesis Drive/Tamarack Boulevard while the traffic signal at SR 0222 and SR 0073 remained operational during the entire length of construction.

To complicate matters even further, all construction phasing was required to be put into a winter pattern between November 15th and March 15th. This pattern required a minimum 14' lane in order to accommodate PennDOT snow plowing activities, which significantly reduced available work areas during these months.

New Application of Existing Techniques / Originality / Innovation

While roundabouts are still relatively new in Pennsylvania, there are more than 8,000 roundabouts in the United States. Studies have shown that roundabouts are often safer, more efficient, less costly, and more aesthetically appealing than the conventional stop or signal-controlled intersections.

By reducing the number and severity of conflict points, roundabouts are a significantly safer type of intersection. There are 32 conflict points associated with a conventional intersection – eight merging (or joining), eight diverging (or separating), and 16 crossing. In contrast, there are only eight total conflict points at an equivalent roundabout – four merging and four diverging. Not only are conflict points halved with the roundabout, the type of conflicts that remain are the same-direction variety, which result in substantially less severity, and as a result, less likelihood of injury.

There are several reasons why roundabouts help reduce the likelihood and severity of collisions:

Low travel speeds: Drivers must slow down and yield to traffic before entering a roundabout. Speeds in the roundabout are typically between 15 and 20 miles per hour. The few collisions that occur in roundabouts are typically minor and cause few injuries since they occur at low speeds.

No light to beat: Roundabouts are designed to promote a continuous, circular flow of traffic. Drivers need only yield to traffic before entering a roundabout; if there is no traffic in the roundabout, drivers are not required to stop. Because traffic is constantly flowing through the intersection, drivers don't have the incentive to speed up to try and "beat the light," like they might at a traditional intersection.

One-way travel: Roads entering a roundabout are gently curved to direct drivers into the intersection and help them travel counterclockwise around the roundabout. The curved roads and one-way travel around the roundabout eliminate the possibility for T-bone and head-on collisions.

Social / Economic Considerations

Horse-drawn buggies typically aren't a consideration in highway improvement initiatives, but that feature of the local society was a critical concern for this project. Together, the design of the roundabouts and the public awareness program helped convince members of the Mennonite community that the roundabouts would safely accommodate horse and buggies - their primary transport mode. Thus, this element of the local society was preserved and accounted for in the project's design.

The Samuel G. Kaufman House, located at the intersection of SR 0222 & SR 0073, was determined eligible for listing in the National Register in 1996. To avoid significant impacts to the property, several avoidance measures were successfully incorporated into the preferred alternative in order to achieve a finding of *No Adverse Effect*.

The Michael Baker team also worked closely with a local developer who indicated plans to develop a 90-acre parcel which lies adjacent to SR 0222. The team designed direct roundabout access to, and egress from that parcel. If the property is developed in the future, vehicular traffic can access that parcel from the roundabout at Schaeffer Road.

The roundabouts opened in June 2022 and quickly achieved one of their principal objectives, reducing the travel time between Allentown and Reading during peak hour travel by approximately 25 percent.

Safety

The roundabout intersection improvements will add several key safety features to the various intersections. The roundabouts will discourage drivers from driving quickly as the roundabout will only be navigable at lower speeds. The roundabouts will enhance the driver's alertness and will reduce the number of rear-end crashes by preventing sudden stopping, a characteristic of traditional signalized intersections and queued intersection approaches. The elimination of crossing vehicle paths reduces vehicle conflict points and the potential for crashes, thereby saving substantial travel time for motorists and costs for damages and emergency services.

PennDOT specifications require compliance with all applicable OSHA requirements, and the contractor submitted a project safety program prior to the beginning of work. All contractor personnel were required to wear appropriate safety equipment, and PennDOT field inspection staff were authorized to suspend any operation deemed to be life-threatening or presenting a risk of significant injury.

Regarding public safety, traffic control plans were developed to provide separation between the work area and the traveling public. Any field changes to the traffic control plans were submitted to the District for review and approval.

Aesthetics and Sustainable Features

While function and safety were the primary focus, the project was also designed to fit seamlessly into the existing environment. The roadway alignments and curvilinear geometry of the roundabout blend into the adjacent topography. Landscaping and numerous plantings were placed in and around the mitigation sties and roadside basins that occurred along the entire project. These features have visually improved the corridor as well as the adjacent residential and commercial properties.

Meeting and Exceeding Owner's / Client's Needs

PennDOT is very pleased with the completion of this SR 0222 Section 22S improvement project. The roundabouts were substantially complete and opened to traffic in June 2022, a date that exceeded client expectations.

Previously mentioned COVID issues delayed some construction work coupled with the discovery of some recurring sinkholes, resulted in a final cost slightly higher than the original low bid estimate. PennDOT indicated it regards this performance as outstanding, given the unexpected delays.

Anticipated Completion Date: 11/04/2022
Substantial Completion Date: 06/06/2022
Project Budget: $26,671.266.68
Project Construction Cost: $26,897,748.19

PennDOT had indicated that there have been no major incidents and no major traffic delays since the roundabouts have become fully operational.

STATEMENT OF COMMITMENT

Michael Baker International would be pleased to attend the awards luncheon if the project was selected for the award.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	BERKS	0222	22S	97 OF 132
	MAIDENCREEK TOWNSHIP			

REVISION NUMBER	REVISIONS	DATE	BY

SR 0222
SURVEY & CONSTR ℄
CURVE DATA
PI STA 82+66.32
Δ= 5°16'56" LT
D= 2°51'53"
T= 92.26'
L= 184.39'
R= 2000.00'
E= 2.13'

SR 0222
SURVEY & CONSTR ℄
CURVE DATA
PI STA 82+66.32
Δ= 5°16'56" LT
D= 2°51'53"
T= 92.26'
L= 184.39'
R= 2000.00'
E= 2.13'

SR 0222
SURVEY & CONSTR ℄
CURVE DATA
PI STA 83+96.17
Δ= 5°09'20" LT
D= 6°50'14"
T= 37.73'
L= 75.40'
R= 838.00'
E= 0.85'

SR 0222
SURVEY & CONSTR ℄
CURVE DATA
PI STA 84+68.53
Δ= 19°40'21" RT
D= 28°38'52"
T= 34.68'
L= 68.67'
R= 200.00'
E= 2.98'

SR 0222
SURVEY & CONSTR ℄
CURVE DATA
PI STA 85+91.47
Δ= 13°09'02" LT

T-821
SURVEY & CONSTR ℄
CURVE DATA
PI STA 205+11.94
Δ= 5°08'07" RT
D= 11°27'33"
T= 22.42'
L= 44.81'
R= 500.00'
E= 0.50'

SR 0222
SURVEY & CONSTR ℄
CURVE DATA
PI STA 87+43.11
Δ= 12°03'58" LT
D= 9°32'57"
T= 63.41'
L= 126.36'
R= 600.00'
E= 3.34'

SR 0222
SURVEY & CONSTR ℄
CURVE DATA
PI STA 88+39.55
Δ= 5°14'19" RT
D= 7°49'38"
T= 33.49'
L= 66.93'
R= 732.00'
E= 0.77'

SR 0222 RDBT
SURVEY & CONSTR ℄
CURVE DATA
PI STA
Δ=180°00'00" LT
D=95°29'35"
T=-1.00'
L=188.50'
R=60.00'
E=-1.00'

SR 0222 RDBT
SURVEY & CONSTR ℄
CURVE DATA
PI STA
Δ=180°00'00" LT
D=95°29'35"
T=-1.00'
L=188.50'
R=60.00'
E=-1.00'

T-797
SURVEY & CONSTR ℄
CURVE DATA
PI STA 207+58.79
Δ=8°07'23" RT
D=9°32'58"
T=42.60'
L=85.07'
R=600.00'
E=1.51'

SCALE
0 25 50 FEET

LEGEND:
LUMINAIRE (TYP)

FOR PROFILE, SEE SHEETS 118, 124-126 | SURVEY BOOK NO. 24316 & 24317

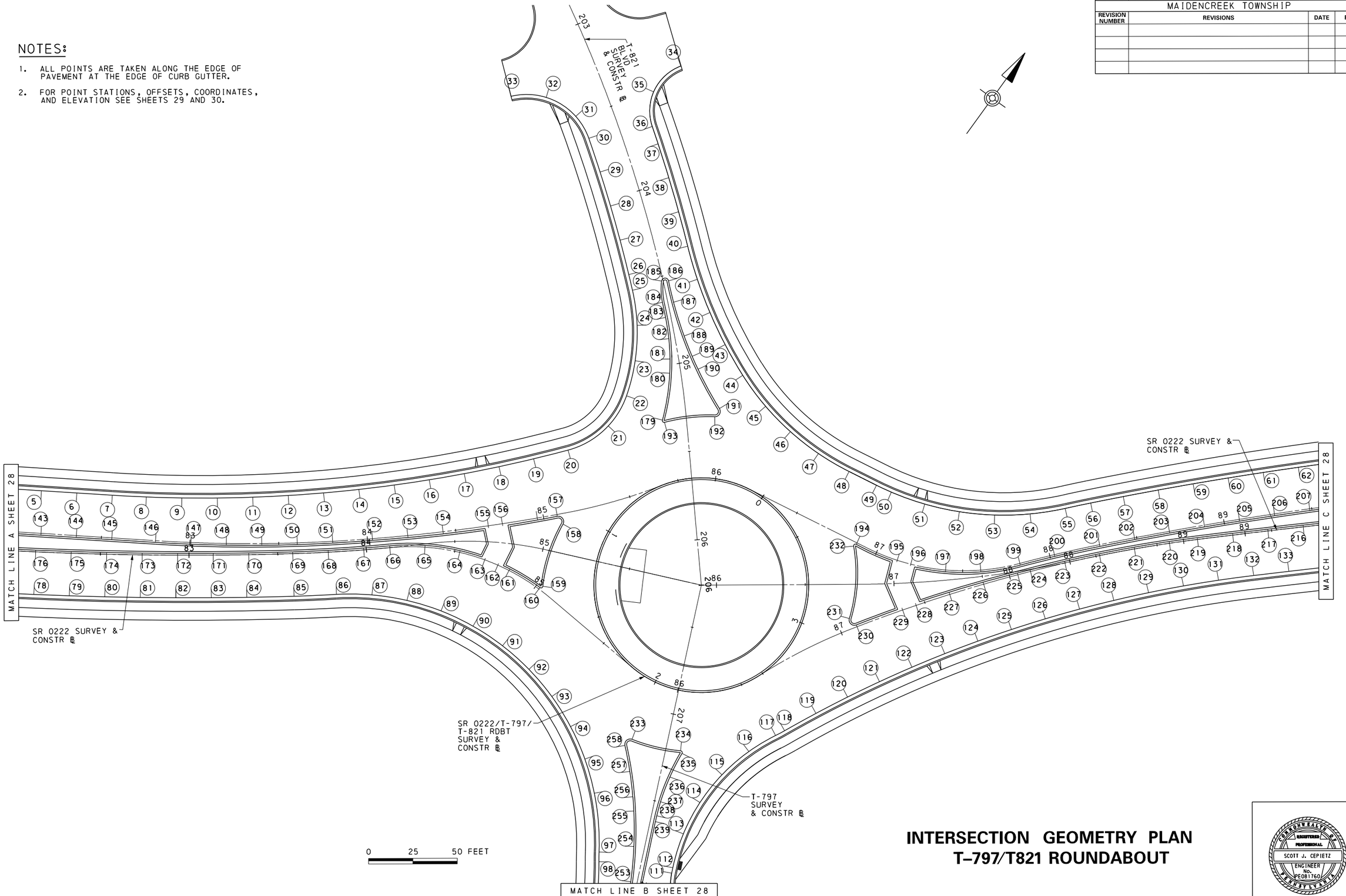
REGISTERED PROFESSIONAL
STEPHEN THOMAS SHIMKO
ENGINEER
No. PE070599

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	BERKS	0222	22S	27 OF 132
MAIDENCREEK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

NOTES:

1. ALL POINTS ARE TAKEN ALONG THE EDGE OF PAVEMENT AT THE EDGE OF CURB GUTTER.
2. FOR POINT STATIONS, OFFSETS, COORDINATES, AND ELEVATION SEE SHEETS 29 AND 30.



INTERSECTION GEOMETRY PLAN
T–797/T821 ROUNDABOUT

REGISTERED PROFESSIONAL
SCOTT J. CEPIETZ
ENGINEER No. PE081760
COMMONWEALTH OF PENNSYLVANIA

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	BERKS	0222	22S	20 OF 32
MAIDENCREEK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

SEE SHEET 28

SEE SHEET 19

SEE SHEET 21

SEE SHEET 29

SR 0222 SURVEY & CONSTR ℄

SR 0222 (ALLENTOWN PIKE)

T-821 (TAMARACK BOULEVARD)

TAMARACK BLVD SURVEY & CONSTR ℄

SR 0222/T-797 T-821 RDBT SURVEY & CONSTR ℄

T-797 (GENESIS DRIVE)

GENESIS DR SURVEY & CONSTR ℄

STA 203+53
W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F

STA 204+55
OM1-3 18"x18" TYPE F

STA 204+86
R4-7 24"x30" TYPE B

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 203+60

NO OUTLET
W14-2 30"x30" TYPE B
STA 203+99
REPLACE EXISTING

STA 205+28
R1-2 36"x36" TYPE B

STA 0+88
R6-4A 30"x24" TYPE B
0420/2536

Tamarack Blvd
D1-1D 72"x24" TYPE B
STA 205+28

R6-4A 48"x24" TYPE B STA 0+28 0420/2580

R1-2 36"x36" TYPE B STA 86+65 0430/0063

R1-2 36"x36" TYPE B STA 86+81 0430/0080

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 87+26 0430/0125

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 87+12 0430/0111

R3-5L R3-5S R3-5R
ONLY ONLY ONLY
REMOVE

R3-8I SPECIAL) 36"x36" TYPE B STA 88+00 0430/0199

CENTER LANE ONLY
R3-9B 24"x36" TYPE B STA 82+36 0420/2218

SOUTH 222
M3-3 24"x12" TYPE F
M1-4 30"x24" TYPE B
STA 83+06 0420/2288

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 87+46 0420/2454

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 87+46 0420/2454

M3-2R 24"x12" TYPE B
M1-2R 30"x24" TYPE B
STA 85+24 0420/2486

SOUTH 222
M3-2R 24"x12" TYPE B
M1-2R 30"x24" TYPE B
STA 85+24 0420/2486

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 87+46 0420/2454

W16-7P 24"x12" TYPE F
STA 87+46 0420/2454

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 84+66 0420/2488

R3-5L R3-5S R3-5R
ONLY ONLY ONLY
REMOVE

R3-8I SPECIAL) 36"x36" TYPE B STA 83+50 0420/2332

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 84+40 0420/2422

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 84+40 0420/2422

R1-2 36"x36" TYPE B
STA 85+00 0420/2482

R1-2 36"x36" TYPE B
STA 85+08 0420/2490

SEGMENT MARKER TO BE RELOCATED
R6-4A 48"x24" TYPE B STA 2+00 0420/2564

Genesis Dr
D1-1D 12"x24" TYPE B
STA 207+22

YIELD
R1-2 36"x36" TYPE B
STA 207+18

R6-4 30"x24" TYPE B STA 2+46 0430/0004

NORTH 222
M3-1 24"x12" TYPE F
M1-4 30"x24" TYPE B
W6-2R 21"x15" TYPE F
STA 86+77 0430/0076

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 86+99 0430/0098

W11-2 30"x30" TYPE B
W16-7P 24"x12" TYPE F
STA 87+24 0430/0123

NORTH 222
M3-1 24"x12" TYPE F
M1-4 30"x24" TYPE B
STA 89+16 0430/0315

SCALE
0 25 50 FEET

SIGNING PLAN

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
WILLIAM BEARCE KING
ENGINEER No. PE074275

04-JUN-2019

PROJECTWISE\Documents\Projects\Horsham0ffice\SR 222 Berks CountyFinal_Design\SR_73\Plot\Traffic\Sign_PMS signage
IP_PWP:d0290197\20-SR_222_73_Signal1.dgn

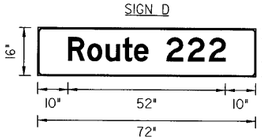
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	BERKS	0222	22S	1 OF 4
	MAIDENCREEK TOWNSHIP			

MATCH LINE STA. 10+35

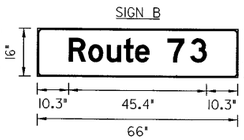
SIGN DETAILS
NOT TO SCALE

COLORS: BACKGROUND - GREEN (REFLECTORIZED)
LEGEND & BORDER - WHITE (REFLECTORIZED)

SIGN D



SIGN B



SERIES D

	10.0
R	6.3
o	6.1
u	5.6
t	3.8
e	4.7
	6.0
2	7.0
2	7.0
2	5.4
	10.0
	72

SERIES D

	10.3
R	6.3
o	6.1
u	5.6
t	3.8
e	4.7
	6.0
7	7.4
3	5.4
	10.3
	66

SIGN TABULATION				
PLAN SYMBOL	SERIES	SIZE	QTY	MESSAGE
A	R10-12	30"x36"	4	LEFT TURN YIELD ON GREEN
B	D3-4	66"x16"	2	ROUTE 73 *
C	D3-4	72"x16"	2	ROUTE 222 *
D	R10-3E(R)	9"x15"	4	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER →
E	R10-3E(L)	9"x15"	4	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER ←
F	R3-5R	30"x36"	1	RIGHT TURN ONLY (OVERHEAD)
G	R3-5A	30"x36"	3	STRAIGHT-THROUGH ONLY (OVERHEAD)
H	R3-5L	30"x36"	2	LEFT TURN ONLY (OVERHEAD)
I	R3-6SR	30"x36"	1	OPTIONAL RIGHT TURN (OVERHEAD)
J	W3-3	36"x36"	1	SIGNAL AHEAD SIGN
K	R3-7L	30"x30"	2	LEFT LANE MUST TURN LEFT

* OVERHEAD STREET NAME SIGNS TO BE STRUCTURE MOUNTED FLAT SHEET ALUMINUM WITH STIFFENERS OVERHEAD STREET NAME SIGNS TO CONSIST OF WHITE LEGEND AND BORDER ON GREEN BACKGROUND.
** ALL SIGNS TO UTILIZE RETROREFLECTORIZED TYPE III, IV VI, VII, VIII, IX, OR X SHEETING FOR LEGEND, BORDER, AND BACKGROUND

LEGEND

25' 2	MAST ARM/LENGTH/SUPPORT NUMBER
2	PEDESTAL/STRAIN POLE/POLE NUMBER
2	SIGNAL HEAD/BACKPLATE/VISORS/DIRECTIONAL ARROW/IDENTIFYING NUMBER
12	PEDESTRIAN SIGNAL HEAD/IDENTIFYING NUMBER
V2	VIDEO CAMERA/IDENTIFYING NUMBER
F	SIGN/IDENTIFYING LETTER
A1	EMERGENCY PRE-EMPTION FLASHING BEACON/IDENTIFYING CODE
A2	EMERGENCY PRE-EMPTION DETECTOR/IDENTIFYING CODE
2	JUNCTION BOX/IDENTIFYING NUMBER
8	PEDESTRIAN PUSH BUTTON/SIGN/IDENTIFYING NUMBER
6'x6' L5	LOOP DETECTION ZONE/SIZE
6'x6' 5	VIDEO DETECTION ZONE/IDENTIFYING NUMBER/ZONE DIMENSIONS
15' A	LUMINAIRE ARM/LENGTH
C/1"	CONDUIT/SIZE
	CONTROLLER
1	DIGITAL WAVE RADAR DETECTOR
W/4"	SOLID WHITE LINE/WIDTH
AW/6"	AUXILIARY WHITE LINE/WIDTH
BW/6"	BROKEN WHITE LINE/WIDTH
BY/4"	BROKEN YELLOW LINE/WIDTH
Y/4"	SOLID YELLOW LINE/WIDTH
DY/4"	SOLID DOUBLE YELLOW LINE/WIDTH

SIGNAL REQUIREMENTS

NOTE:
1. ALL SIGNAL HEADS SHALL HAVE LED'S.
2. ALL SIGNALS TO BE EQIPPED WITH RETROREFLECTIVE BACKPLATES.

TRAFFIC SIGNAL CONSTRUCTION PLAN

GENERAL NOTES

INSTALLATION OPERATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND ARE TO BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED, EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS WILL HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY ARE NOT TO BE LESS THAN 15 FEET OR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS ARE TO BE NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNAL HEADS MEASURED AT RIGHT ANGLES TO THE APPROACH IS TO BE 8 FEET.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE WILL OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY, IF APPLICABLE.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287-1974 AMENDED BY ACT 121-2008, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING STANDARDS, TC-8600 SERIES.

MAINTENANCE AND PROTECTION OF TRAFFIC FOR THE INSTALLATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PUBLICATIONS 213, TEMPORARY TRAFFIC CONTROL GUIDELINES.

THREADED PLATE MAST ARM CONNECTIONS WILL NOT BE PERMITTED FOR THIS TRAFFIC SIGNAL PERMIT.

REFER TO ROADWAY PLAN FOR LOCATION OF UTILITIES AND NAMES OF PROPERTY OWNERS.

CALL BEFORE YOU DIG !

PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE
AND 10 WORKING DAYS IN DESIGN STAGE
BEFORE YOU DIG CALL
THE PA ONE CALL SYSTEM TELEPHONE NUMBER.

1-800-242-1776

SIGNAL: 06-222-1

Michael Baker
INTERNATIONAL
500 OFFICE CENTER DRIVE, SUITE 210
FORT WASHINGTON, PA 19034
Phone: (215) 444-0888 · MBAKERINTL.COM

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL FERNANDO G. MASCIOLI ENGINEER PE056220E

5/29/18
DATE

COUNTY: BERKS

MUNICIPALITY: MAIDENCREEK TOWNSHIP

INTERSECTION: ALLENTOWN PIKE (S.R. 0222) & LAKE SHORE DRIVE/MAIN STREET (S.R. 0073)

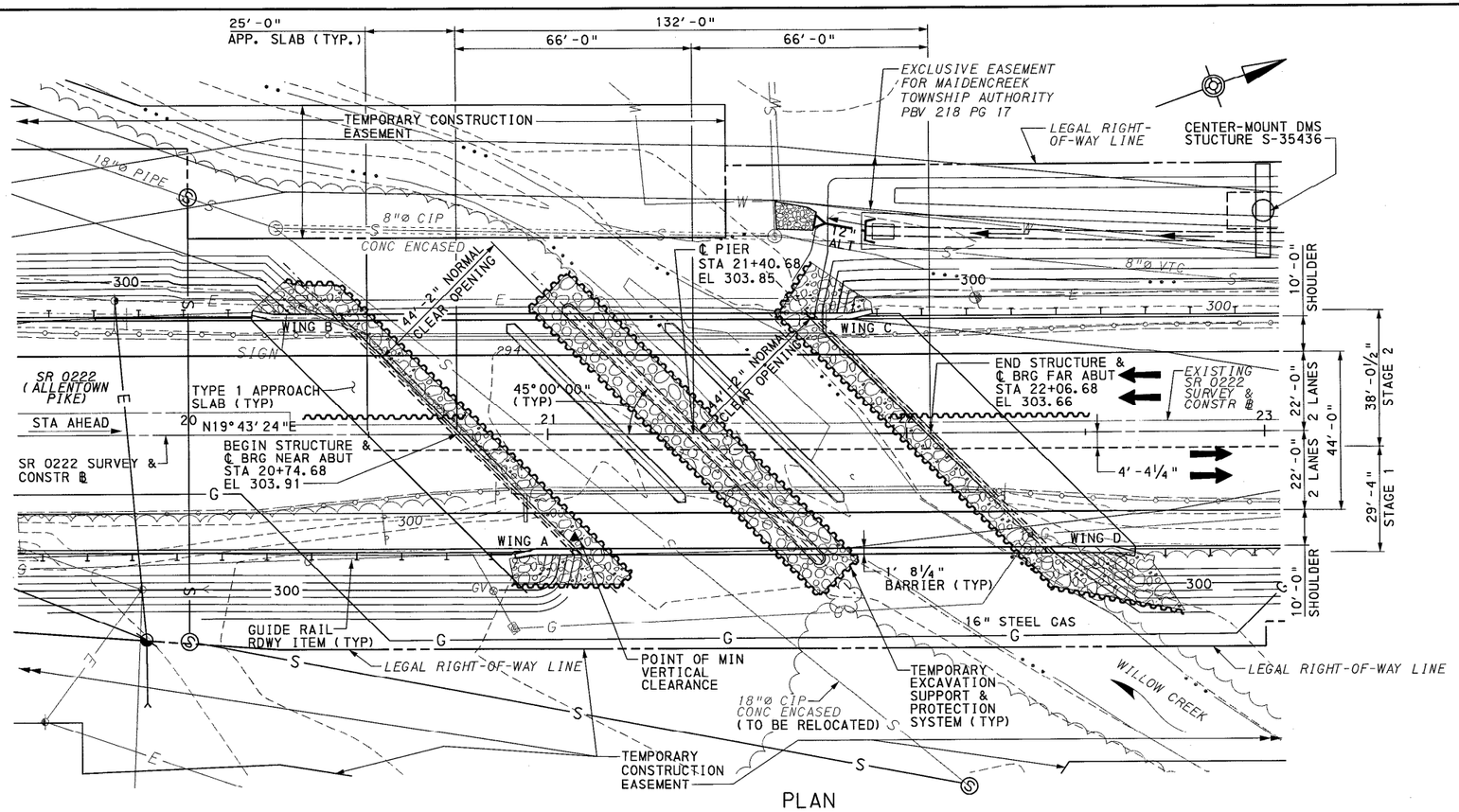
REVIEWED:
MUNICIPAL OFFICIAL — DATE 6/14/18

REVIEWED:
DISTRICT TRAFFIC SIGNALS DIV. — DATE 7/3/18

RECOMMENDED:
for DISTRICT TRAFFIC ENGINEER — DATE 7/5/18

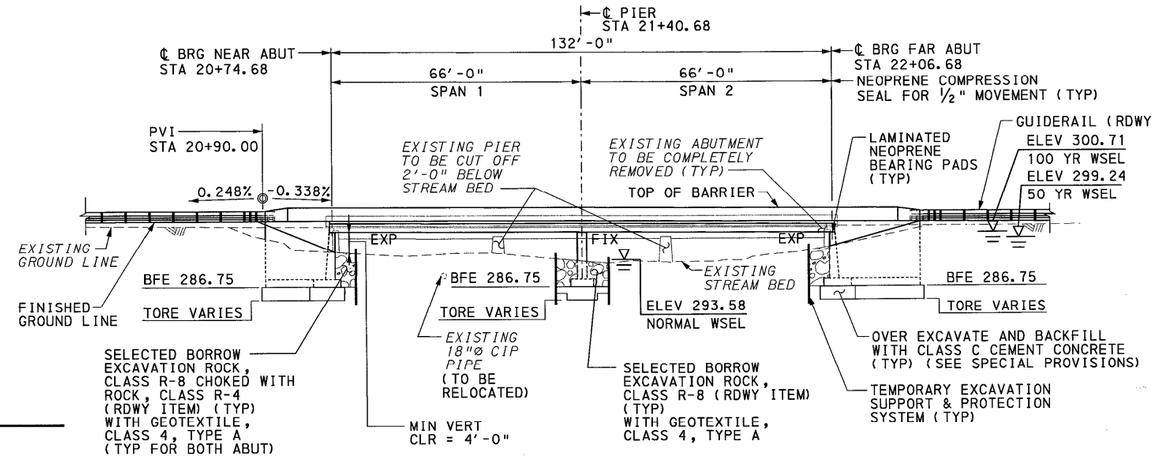
SCALE: 0 25 50 FEET

29-MAY-2018
IP_PWP: d0187112\01-SR_222_73_Signal.dgn



PLAN

0 10' 20' 30' 40'



ELEVATION

0 10' 20' 30' 40'

DATUM 250

EXISTING STRUCTURE DATA
STA: 21+58.00
TYPE: NON-COMPOSITE REINFORCED CONCRETE T-BEAM BRIDGE
SPAN: 132'-0" ℄ BRG TO ℄ BRG
CLEARANCE: N/A
SKEW: 45°00'00"
CURB TO CURB: 41'-3"

HORIZONTAL CURVE DATA

N19°43'24"E

STA 18+79.82 STA 33+54.15

VERTICAL CURVE DATA

P.V.I. STA. 20+90.00
ELEV. 304.06'
V.C. 200.00'
M.O. -0.15

0.248% -0.338%

LEGEND:

- DIRECTION OF TRAFFIC
- *296* *EXISTING CONTOUR*
- 300 PROPOSED CONTOUR
- *G* *EXISTING GAS LINE*
- *S* *EXISTING SEWER LINE*
- *E* *EXISTING ELECTRIC LINE*
- *W* *EXISTING WATER LINE*
- G PROPOSED GAS LINE
- S PROPOSED SEWER LINE
- E PROPOSED ELECTRIC LINE
- ▲ LOCATION OF LOW CHORD
- *GV* GAS VALVE
- *VTC* VITRIFIED CLAY
- BFE BOTTOM OF FOOTING ELEVATION
- TORE TOP OF ROCK ELEVATION
- WSEL WATER SURFACE ELEVATION
- TEMPORARY EXCAVATION SUPPORT & PROTECTION SYSTEM (TYP)
- SELECTED BORROW EXCAVATION ROCK, CLASS R-8 (RDWY ITEM)
- SELECTED BORROW EXCAVATION ROCK, CLASS R-8 CHOKED WITH ROCK, CLASS R-4 (RDWY ITEM)

NOTE: SEE MAINTENANCE AND PROTECTION OF TRAFFIC PLANS FOR STAGE CONSTRUCTION.

HYDRAULIC DATA

DRAINAGE AREA = 19.75 SQ. MILES
DESIGN FLOOD 50 YEARS

DESCRIPTION	*EXISTING*		PROPOSED	
FLOOD FREQUENCY	*50*	*100*	50	100
MAGNITUDE (cfs)	*2239*	*2887*	2239	2887
WATER SURFACE ELEV (ft)	*299.72*	*300.78*	299.24	300.71
VELOCITY (fps)	*6.97*	*8.14*	6.75	7.70

REFERENCES:

1. INDEX OF DRAWINGS, SUPPLEMENTAL DRAWINGS AND BRIDGE LOAD RATING TABLE
2. GENERAL NOTES

SHEET:

2
3

Mark	Description	By	Chk'd.	App'd.	Date
REVISIONS					

S.R. 0222 PREVIOUSLY KNOWN AS L.R. 157
BMS STR ID: MPMS/ECMS PROJ: 92414 BRKEY:

REVIEWED BY:

RK&K

651 EAST PARK DRIVE
SUITE 105
HARRISBURG, PA 17111

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JUSTIN MATTHEW VALENTIN ENGINEER PE083190

5/6/19

THE DESIGN REVIEW IS FOR GENERAL CONFORMANCE WITH THE DEPARTMENT'S DESIGN AND CONSTRUCTION CRITERIA AND STANDARDS AND IS NOT INTENDED TO RELIEVE THE DESIGNER OF FULL RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS OF THE PLANS.

PREPARED BY:

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JUSTIN ERIK BAIRD ENGINEER PE 074197

Michael Baker
INTERNATIONAL
500 OFFICE CENTER DRIVE, SUITE 210,
FORT WASHINGTON, PA 19034-3234
Phone: (215) 444-0888 - MBAKERINTL.COM

REGISTERED PROFESSIONAL ENGINEER
DATE: 5/9/19

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

BERKS COUNTY
SR 0222 SEC 22S
SEG 0400 OFFSET 0454
S.R. 0222 (ALLENTOWN PIKE) STA. 21+40.68
OVER WILLOW CREEK
TWO SPAN P/S CONCRETE SPREAD BOX BEAM BRIDGE
GENERAL PLAN AND ELEVATION

RECOMMENDED 5/20/2019

DISTRICT BRIDGE ENGINEER

SHEET 1 OF 51
+ SUPPLEMENTAL DRAWINGS

S-34722

Design:	BTD
Drawn:	EAR
Checked:	JEB

PW: PROJECTS\HORSHAMOFFICE\SR 222 BERKS COUNTY\FINAL_DESIGN\SR_73\STRUCTURES\BRIDGES\IP_PWP: d0247964\01-222_Wcreek_gpe_SpreadFooting.dgn
09-MAY-2019 11:27

SR 0222 & Schaeffer Road Roundabout – looking Northbound

Roundabout was designed to allow parcel along SB side to tie in as the 4th leg of roundabout when developed. Pavement Markings can be eradicated on minor legs to allow for 2 lanes on interior of the roundabout. Mitigation sites constructed around roundabout for SWM.

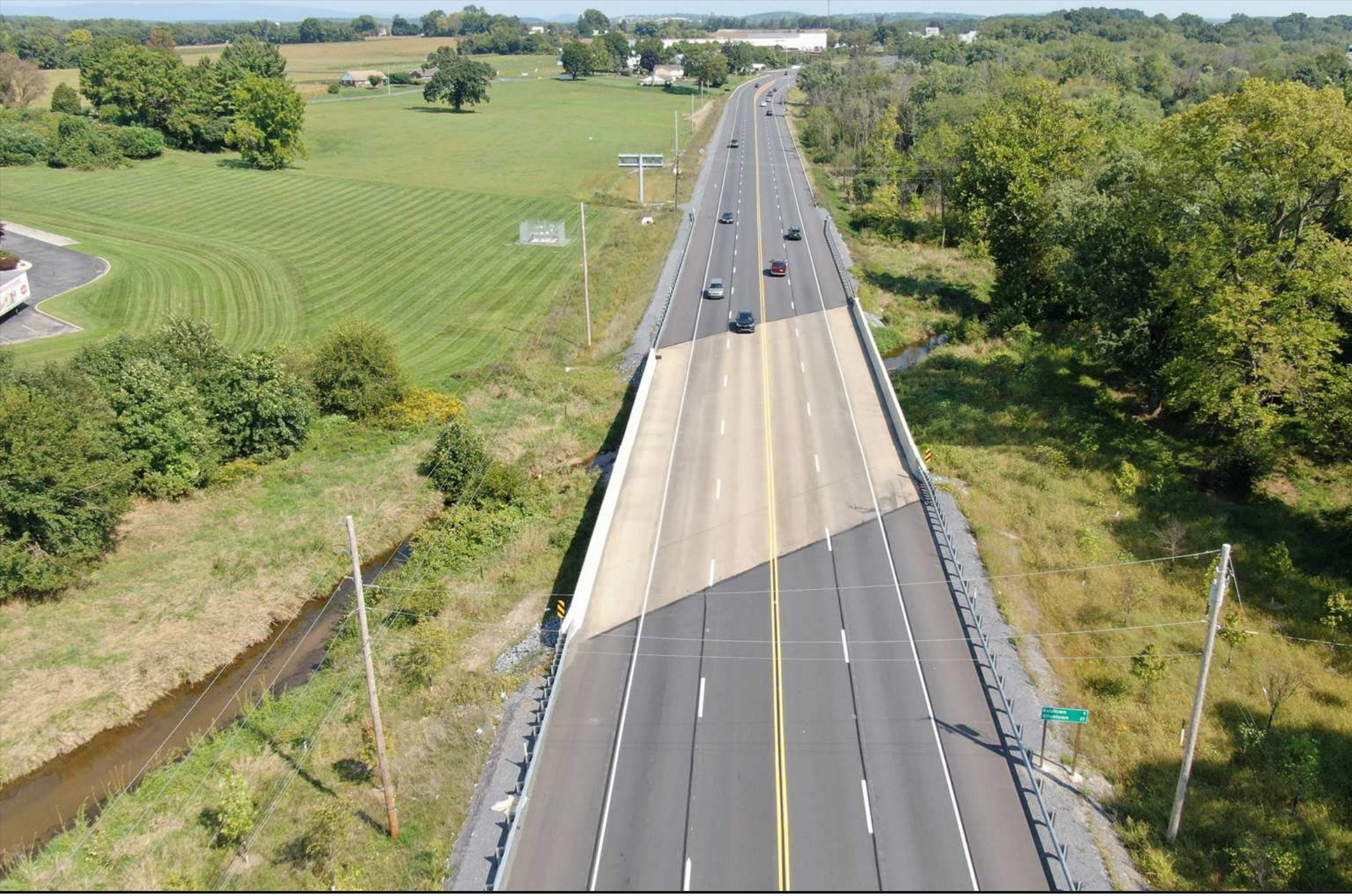
SR 0222 & Tamarack Blvd/Genesis Drive Roundabout

Roundabout replaced an existing signal which would cause major delays during peak hours. Existing Basins at CVS and Maidencreek Plaza were maintained (foreground). Newly constructed basins for project in background. Intersection had major utility and Traffic Control challenges.

SR 0222 – looking Northbound
SR 0222 & Tamarack Blvd/Genesis Drive Roundabout in foreground – Schaeffer Road Roundabout in background.

SR 0222 at SR 0073 Intersection – looking Northbound

Widened intersection, added turning lanes and provided pedestrian crossings – Improvements avoided historic parcel in top right quadrant of above photo.



SR 0222 at Willow Creek Bridge – looking Northbound

Four Lane Typical Section - relocated aerial poles and newly installed DMS sign along SB side of Roadway.