



Delaware River
Joint Toll Bridge
Commission

THE WORLD TAKES

TRENTON MAKES

2018 TOLL-SUPPORTED BRIDGE ANNUAL INSPECTION REPORT

TOLL-SUPPORTED BRIDGES

Lower Trenton
Calhoun Street
Scudder Falls
Washington Crossing
New Hope–Lambertville
Centre Bridge–Stockton
Lumberville–Raven Rock
Uhlertown–Frenchtown
Upper Black Eddy–Milford
Riegelsville
Northampton Street
Riverton–Belvidere
Portland–Columbia

TOLL BRIDGES

Trenton–Morrisville
New Hope–Lambertville
Interstate 78
Easton–Phillipsburg
Portland–Columbia
Delaware Water Gap
Milford–Montague

FEBRUARY 15, 2019

Prepared By:

 **Cherry, Weber
& Associates**
MEMBER OF THE VAN CLEEF ENGINEERING GROUP

Contract No. C-684A



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February 15, 2019

Mr. Joseph Resta
Executive Director
Delaware River Joint Toll Bridge Commission
2492 River Road
New Hope, PA 18938-9519

Re: General Engineering Consultant
2015 – 2020 Annual Inspections
DRJTBC Contract No. C-684A
**2018 Toll-Supported Bridge
Annual Inspection Report**

Dear Mr. Resta:

Van Cleef Engineering Associates, LLC (formerly Cherry, Weber & Associates, P.C.) is pleased to submit the Consulting Engineer's 2018 Toll-Supported Bridge Annual Inspection Report for the Commission's following facilities:

- A. The seven (7) Toll Bridges (9 structures)
- B. The thirteen (13) Toll-Supported (Non-Toll) Bridges
- C. Various roadways and thirty-four (34) approach bridges serving the main river crossings
- D. The Commission's Buildings and Grounds

The 2018 Toll-Supported Bridge Annual Inspection Report summarizes our findings based on the 2018 Inspection of the Toll-Supported Bridges. An update of the 2017 inspection of the Toll Bridge Facilities was completed to indicate any material changes in the conclusion and recommendation report sections. All Facilities are in operating condition. There are three (3) bridges listed as Structurally Deficient due to low load rating criteria and there are twenty-five (25) structures noted as Functionally Obsolete, which represents no change from last year.

The 2018 Annual Maintenance Report, which defines activities to be undertaken by the Commission's Maintenance staff, is published separately.

The report identifies ongoing and planned capital projects and their estimated costs for 2019 and 2020. The estimated expenditure for capital projects in 2019 is **\$179,451,344**. In addition, an estimated expenditure of **\$9,482,000** has been included in the capital plan for new vehicle and equipment purchases in 2019. Therefore, the total amount of ongoing capital projects and vehicle and equipment expenditures in 2019 is estimated to be **\$188,933,344**. The estimated expenditure for ongoing capital projects and vehicle and equipment expenditures for 2020 is **\$173,850,298**.

VanCleefEngineering.com

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I, Jeffrey W. Munzing, PE, do hereby certify, to the best of my knowledge, information, and belief that the information contained in the accompanying inspection report has been prepared in accordance with accepted engineering practice. The inspection and report conform to applicable requirements, criteria, guidelines and standards as stated in the FHWA NHI 12-049 "Bridge Inspectors Reference Manual", FHWA-IP-86-26 "Inspection of Fracture Critical Bridge Members" – 1986, as published by FHWA, and the AASHTO "Manual for Bridge Evaluation, 3rd Edition" – 2018, including all interims and is true and correct at the time of the inspection. This report has been reviewed using appropriate Quality Assurance guidelines in accordance with generally accepted engineering practice.

It has been a pleasure to serve the Commission. Please contact us if you require any further information.

Very truly yours,

VAN CLEEF ENGINEERING ASSOCIATES, LLC

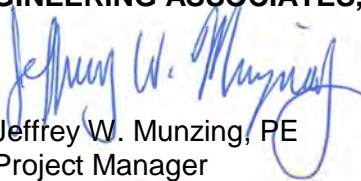

Jeffrey W. Munzing, PE
Project Manager



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Director of Training & Employee Safety
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INTRODUCTION

In accordance with the National Bridge Inspection Standards (NBIS) established by the Federal Highway Administration (FHWA), all bridges must be inspected at least once every two (2) years, more often if warranted, due to condition. Under the Commission's Bond Indenture, all bridges and toll facilities are to be inspected once every two (2) years. The Commission will inspect its Toll-Supported Bridges in even years (2018, 2020, etc.) and the Toll Bridges in odd years (2019, 2021, etc.). All load-posted bridges will receive special interim inspections in the year they do not receive their regular biennial inspection in accordance with PennDOT requirements. The associated facilities and grounds are inspected with each respective bridge.

This 2018 Toll-Supported Bridge Annual Inspection Report of bridges and facilities owned and operated by the Delaware River Joint Toll Bridge Commission contains the findings of the 2018 inspections of the Toll-Supported Bridges. This year's inspections consisted of thirteen (13) Toll-Supported Bridges and any accompanying facilities and approach structures. In addition to the bridge inspections, an inspection of the Toll-Supported Bridge Monitor Shelters was conducted, including all approach roadways and ramps, as well as a sign reflectivity assessment of all signs at the Toll-Supported Bridge facilities (except Scudder Falls), under the jurisdiction of the Commission. The conclusions and recommendations concerning the Toll Bridges are based on the 2017 inspections. Any updates to the 2017 conclusions or recommendations for the Toll Bridges are indicated by text that is ***bold and italicized***. The inspection findings shown for the Toll Bridges are for informational purposes.

Commission Regional Maintenance Supervisors and maintenance personnel provided our inspection crew with support services and access equipment necessary for performing the inspections. Several maintenance personnel also assisted in providing a valuable "walk through" of the bridges prior to beginning the inspections, highlighting the major areas of concern and any previous work done on the structure.

The equipment used to access the majority of the bridges consisted of Commission installed rigging (underdeck), ladders, Commission-owned lift trucks and an under-bridge unit (Bridgemaster).

The following report highlights the significant findings observed during the inspections, including recommended measures of repairing or improving noted deficiencies, either by Commission maintenance forces or by a future contract. This report, however, does not discuss routine preventative maintenance items regularly performed by maintenance forces. Any maintenance type deficiencies which have been identified during the annual inspection can be found in the *2018 Annual Maintenance Report*, published under a separate cover, which has been prepared to expedite communication of repair work to the maintenance staff. In general these maintenance tasks include, but are not limited to, the following:

- Removal of accumulated debris from the deck, deck joints, inlets, catch basins, and drainage pipes
- Annual cleaning of structures (bridge flushing)
- Monitoring and repair of lighting and electrical work
- Removal of vegetation and debris from substructures
- Removal of graffiti from bridges and retaining walls
- Patching concrete spalls and asphalt potholes
- Sealing roadway and bridge deck cracks

- Localized cleaning and painting of rusted steel/bearings
- Deck joint rehabilitation
- Guide rail repairs
- Miscellaneous steel repairs

A consistent numbering system was used to identify the bridge spans. Span numbering generally begins at the westernmost location of the bridge and increases to the east. However, a specific numbering system was not utilized for the individual structural members. The locations for individual members (stringers, floorbeams, etc.) are referenced by their relationship to known fixed points, such as bridge fascias and piers.

The following capital improvement projects were completed since the inception of the Capital Improvement Program in 2001. Among these projects are the following:

COMPLETED PROJECTS (2001-2018)		
CONTRACT NO.	PROJECT	PROGRAM COST
380	T-M TB Rehab + One Aux. NB Lane	\$99,433,230
424	I-78 Roadway Rehabilitation (NJ)	\$49,255,578
CAI2	Compact Authorized Investments	\$33,260,827
437	E-P TB Rehabilitation	\$29,976,422
396	Electronic Surveillance/Detection System	\$21,083,025
430	M-M Toll Bridge Rehabilitation	\$18,507,283
379	E-ZPass Implementation	\$18,023,146
472	Delaware Water Gap Toll Bridge Rehabilitation	\$17,582,749
506	I-78 Toll Bridge PA Approach Paving Improvements	\$16,489,230
393	Prelim. Eng. & Environ. Doc. for Scudder Falls (I-95) Improvements	\$13,126,249
508	I-78 Welcome Center & Maintenance Garage Improvements	\$12,078,625
447	CS TSB Rehabilitation	\$10,866,358
444	Upper Black Eddy - Milford TSB Rehabilitation	\$9,967,847
476	District 1, 2 & 3 Substructure & Scour Remediation	\$9,736,650
429	CB-S Rehabilitation	\$9,730,805
370A	NH-L TB Plaza & Bridge Rehab	\$9,671,373
371	R-B TSB Rehabilitation Contract (Design / Construction)	\$9,258,179
573	2011 - 2012 Substructure Repair & Scour Remediation	\$8,830,549
427B	I-78 Open Road Tolling (ORT) Lanes	\$8,640,584
445	RGL Rehabilitation	\$7,909,813
370B	NHLTSB Rehabilitation Contract (Design, Construction, CM/CI)	\$7,700,991
365	Northampton Street Bridge Rehabilitation	\$7,364,066
543	NH-L TB PA & NJ Approach Roadways Repaving & NJ Route 29 Overpass Bearing Seat & Bridge Painting	\$7,200,146
566	P-C Approach Roadway Improvements	\$7,134,156
645	Buildings & Facilities Energy Conservation Measures	\$6,967,210
	76 Completed Projects, each under \$250,000	\$6,637,288
440B	Phase 1 - DWG Toll Bridge ORT Implementation	\$6,239,749
363	Uhlerstown-Frenchtown Rehabilitation	\$5,779,187
397	NH-L Addition & Renovations	\$5,767,617
427C	E-ZPass In-Lane System Integration DBM (CAPITAL COSTS ONLY)	\$5,534,768
369	Power Upgrades - All Facilities, Struct Wiring, Telephone	\$4,760,754

COMPLETED PROJECTS (2001-2018)		
CONTRACT NO.	PROJECT	PROGRAM COST
398	Cleaning & Painting of the LT TSB & Sign Replacement	\$4,567,205
443	L-RR TSB Rehabilitation & Retaining Wall Reconstruction	\$3,574,538
474	DWG Maintenance Garage Improvements	\$3,298,061
442A	Phase 1 Rehab. & Concept Study for the Washington Crossing TSB	\$3,293,657
498	NH-L TB - Floorbeam Bracket Improvements	\$3,022,595
639	Trenton-Morrisville TB Approach Roadways Improvements	\$2,863,511
436	E-P TB Sign Struct Replacements, Repair & Signage Upgrades	\$2,725,971
639LT	Lower Trenton TSB Approach Roadways Improvements	\$2,284,681
441	P-C TB Facility Improvements	\$2,055,181
CA11	Compact Authorized Investment Consultants	\$1,918,550
420	E-P Sidewalk Replacement	\$1,705,247
563	I-78 Roadway Median Improvements - New Jersey	\$1,468,315
393C	Scudder Falls TSB Deck Joint Replacement	\$1,446,418
641	E-P TB Ramp C Slope Stabilization	\$1,405,982
717	M-M TB Salt Storage Building	\$1,405,662
677	Scudder Falls Bridge Interim Deck Repairs	\$1,241,049
528	Financial Management System	\$1,207,991
650	R-B TSB Critical Members Strengthening	\$1,177,739
624	DWG River Road Improvements	\$1,013,113
687	Lower Trenton TSB "Trenton Makes" Sign Replacement	\$ 990,706
427D	E-ZPass Customer Service Center / Violation Processing Center (CSC/VPC) DBOM (CAPITAL COSTS ONLY)	\$ 988,580
421	High Priority Structural Steel Repairs at the SFTSB	\$ 968,625
514	District 3 Toll Bridge Facilities Emergency Generators Improvements	\$ 878,719
410	I-78 Expansion Dam Replacement	\$ 867,788
505	R-B Water Street Improvements	\$ 862,095
389	Emergency and Priority Repair Contract (all Bridges) -T/TS 389	\$ 749,233
435	NH-L Terne Roof Replacement	\$ 685,101
395A	Northerly Corridor Congestion Mitigation Study	\$ 647,376
432	M-M Upgrade Water Supply	\$ 647,143
584	Customer Service Center / Violations Processing Center	\$ 631,060
465	E-P Replace Roof System on Admin Bldg and Garage	\$ 599,782
492	I-80 NJ Repaving (NJDOT)	\$ 581,442
391	RGL End Floorbeam Bearings (Task Order)	\$ 565,563
368	Southerly Crossing Corridor Study	\$ 544,643
373	E-P Pavement of Bridge Approaches (PennDOT)	\$ 517,090
562	I-78 Roadway Median Improvements - Pennsylvania	\$ 492,664
392	I-78 Salt Storage Bin	\$ 485,681
366	Substructure & Scour Remediation (total)	\$ 482,299
549	Level 3 – Investment Grade Traffic and Revenue Forecasts	\$ 470,508
390	CS Interim Repair Contract (Structural Steel Repairs)	\$ 445,913
500	TM Elevator Upgrade	\$ 436,706
428	WX Deck joint replacement/ rehabilitation @ Pier 1,2,4 & 5	\$ 407,885
440A	Phase 1 DWG Toll Bridge ORT Study	\$ 405,011
550	Traffic Count Program Upgrade	\$ 397,284
524	IT Network Systems & Telephone Upgrades	\$ 377,820
389	Emergency and Priority Repair Contract (all Bridges) -I-80/NHTSB	\$ 367,116
388	P-C TS Ped Bridge - Handicap Accessible Ramp	\$ 305,656
439	District 3 Roof Replacement - DWG	\$ 297,021
388A	P-C TSB Deck Repairs and Drainage Modifications	\$ 290,998

COMPLETED PROJECTS (2001-2018)		
CONTRACT NO.	PROJECT	PROGRAM COST
554	NH-L TB Electrical Improvements	\$ 290,466
439	District 3 Roof Replacement - P-C	\$ 265,756
597	I-78 Rock Slide Mitigation	\$ 264,213
585	Cartegraph Upgrades (IT Dept.)	\$ 257,668
	Total Completed Projects (2001-2018)	\$ 544,655,526

The capital improvement projects shown below are underway and are either being developed, studied, designed, or constructed:

PROJECTS UNDERWAY		
CONTRACT NO.	PROJECT	PROGRAM COST
660	Scudder Falls Bridge Replacement Project	\$570,361,629
519	Southern Operations & Maintenance Facilities Improvements	\$47,314,983
707	Commission Administration Building at Scudder Falls	\$28,871,583
ESS	Electronic Surveillance System (ESS) Department Projects	\$19,660,862
644	I-78 Bridges and Approach Slabs Rehabilitation	\$13,301,199
540	ETC System Replacement	\$12,949,072
590	NHS TSB Floor System Replacement & Rehabilitation	\$10,737,495
630	IT Department Capital Improvements	\$3,280,019
611	New Hope - Lambertville Toll Bridge Salt Storage Facility Improvements	\$2,794,069
711	E-P TB Salt Storage Building	\$2,792,000
556	Bridge Monitoring System for Select Vehicular Bridges	\$2,106,414
708	New Hope - Lambertville Toll Bridge Floor System Rehabilitation	\$2,055,669
647	Regional Facility Improvement Projects (In-house)	\$1,624,488
676	E-ZPass Customer Service Center AET System Components	\$1,187,500
700	E-ZPass Transponders - 2016/17 Tag Swap and Additional Tags	\$1,155,446
685	CB-S TSB Approach Pavement & Stormwater Inlet Improvements	\$904,635
541	All Electronic Toll (AET) Collection / Cashless Tolling Strategy Study	\$167,473
608	Project Management & Capital Planning Software System	\$26,617
	Total Projects Underway	\$ 721,291,154

PROJECTS PLANNED		
CONTRACT NO.	PROJECT	PROGRAM COST
730	Southern Region Maintenance Garages	\$34,382,249
643	I-78 New Jersey Roadway Mill & Paving	\$16,461,043
697	Washington Crossing Bridge Replacement	\$13,389,413
713	E-P TB Admin Building Modernization & Generator Upgrade	\$11,806,094
552	Cleaning & Painting of the I-78 Main River Bridges	\$9,734,449
674	Trenton-Morrisville Toll Bridge All Electronic Tolling	\$8,941,308
719	DWG Westbound Toll Plaza Approach and Roadway Rehabilitation	\$7,516,864
659	Centre Bridge Stockton Toll Supported Bridge Rehabilitation	\$7,372,888
642	Uhlerstown - Frenchtown TSB Rehabilitation	\$6,681,887
698	Lower Trenton Toll Supported Bridge Cleaning & Painting	\$6,431,663
678	NH-L Toll Supported Bridge Rehabilitation	\$4,303,498
622	Portland - Columbia Ped. TSB Improvements	\$4,183,235
721	I-78 Pavement Rehabilitation (Joint Rehabilitation)	\$4,120,000
571	Bridge Monitor Shelter Replacement Program	\$3,699,944
718	Milford - Montague Toll Bridge & Approach Roadway Repaving	\$3,076,478
658	Riverton - Belvidere TSB Rehabilitation	\$2,888,028
564	E-P TB Parking Lot Improvements	\$839,117
682	Fuel Management System	\$651,966
709	T-M TB Route 1 & PA Avenue Interchange Improvements Study	\$250,000
680	NH-L Toll Bridge Parking Lot Paving	\$220,828
714	Sign Replacement Program	\$176,156
	Total Projects Planned	\$ 147,127,109

VEHICLES & EQUIPMENT, LABOR AND UNFORESEEN PROJECTS (2001-2028)

Capitalized Engineering Department Labor	\$24,704,060
Capital Program Management Consultant Expenditures	\$22,161,442
Vehicles & Equipment	\$49,651,147
Unforeseen Projects (All Bridges)	\$14,327,563
TOTAL	\$ 110,844,212

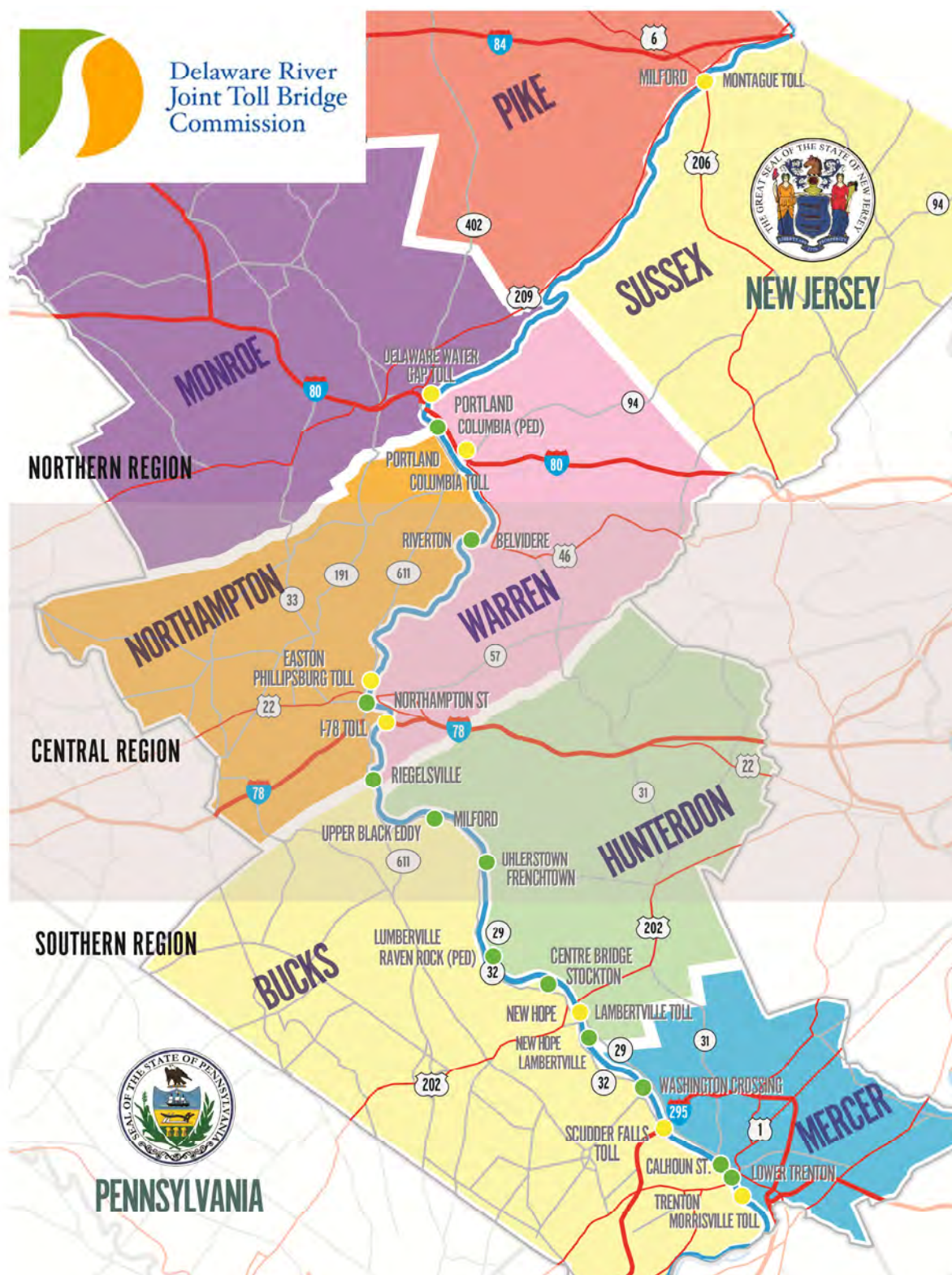
In 2000 the Commission adopted a “fix it right” philosophy for its Capital Program as compared to the previous “fix what’s broken” approach. The “fix it right” approach is based on the premise that whenever a project requires a bridge closure for implementation, that project must be designed so that no additional repair projects requiring a closure will be necessary for a subsequent period of at least 15 years. The estimated costs of the recommended improvements included in this report account for all costs of design, construction, construction management and inspection, and contract administration, are consistent with the Commission’s “fix it right” approach.

The format of the cost sheets for the 2018 Annual Inspection Report reflects the estimated cost of recommended improvements for Toll-Supported Bridges, funded by the General Reserve in 2019 and 2020. Cost sheets for the Toll Bridges have also been updated to reflect anticipated costs in

2019 and 2020. In addition the cost sheets provide the total program cost of the projects (Design, CM-CI and Construction, etc.). The total in each section does not include the cost of completed projects.

This report will summarize significant findings, recommendations, and associated estimated costs at the end of each section for each facility. Following the main reports are the recommendations for equipment and vehicle inspections and their associated repair/replacement costs. Finally, the Schedule of Insurance is provided on pages SI-1 through SI-8.

KEY SHEET



***COMMISSION INITIATIVES
AND SYSTEM-WIDE PROJECTS
(2019 - 2020 Expenditures)***

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

In addition to addressing the findings of the annual inspection, the Commission has instituted in its Capital Program a number of "Commission Initiatives and System-Wide Projects". These initiatives increase the safety and security of patrons, increase the Commission's responsiveness to emergencies, identify needed future capacity improvements, and provides more efficient management of projects and equipment.

The following is a partial listing of Commission Initiatives and System-Wide Projects that have begun or will begin in the near future:

COMMISSION INITIATIVES & SYSTEM-WIDE PROJECTS

General Reserve Fund

Contract	Project Description	Program Cost	2019	2020	2 Year Total
CapEng	<u>Capitalized Engineering Department Labor</u> This Commission initiative tracks the in-house engineering department's efforts on all capital projects. The total programmed amount is shown as well as the expected expenditures in the next two years.	\$24,704,060	\$1,120,000	\$1,158,080	\$2,278,080
502	<u>CPMC (CAPITALIZED CPMC LABOR)</u> This project includes Contract No. C-502A Capital Program Management Consultant (CPMC) Services into 2015. Additional costs are programmed for continued CPMC expenditures to be procured under additional "CPMC" contracts as needed throughout the rest of the 10-year Rolling Capital Improvement Program.	\$22,161,442	\$600,000	\$620,400	\$1,220,400
540	<u>ETC System Replacement</u> Replacement of the existing Electronic Toll Collection (ETC) System which was implemented in 2002 and had an expected life of 8 to 10 years.	\$12,949,072	\$1,130,538	\$0	\$1,130,538
541	<u>All Electronic Toll (AET) Collection / Cashless Tolling Strategy Study</u> This study includes the investigation of Cashless Tolling Technologies and policies implemented throughout the region and how best to incorporate within the Commission's toll facilities and the Scudder Falls	\$167,473	\$36,530	\$0	\$36,530
556	<u>Bridge Monitoring System for Select Vehicular Bridges</u> Implementation of a Bridge Monitoring System to include structural health monitoring as well as overweight / oversized vehicle detection, deterrent and enforcement of select vehicular bridge facilities. Work includes a feasibility study to investigate and report on the use of sensor type technologies as a means to evaluate and electronically monitor the structures.	\$2,106,414	\$788,536	\$0	\$788,536
630	<u>IT Department Capital Improvements</u> IT Department Capital Projects. For details see the 2019-2028 Capital Program Cost Backup Data Sheets.	\$3,280,019	\$2,125,000	\$310,200	\$2,435,200

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

		General Reserve Fund			
Contract	Project Description	Program Cost	2019	2020	2 Year Total
ESS	<u>Electronic Surveillance System (ESS) Department Projects</u> ESS Department Capital Projects. For details see the 2019-2028	\$19,660,862	\$6,776,000	\$1,911,882	\$8,687,882
647	<u>Regional Facility Improvement Projects (In-house)</u> Capital projects requested by DEDO / Maintenance. For details see the	\$1,624,488	\$760,939	\$0	\$760,939
676	<u>E-ZPass Customer Service Center AET System Components</u> The design and build of the E-ZPass Customer Service Center / Violation Processing Center video billing that is needed to support AET.	\$1,187,500	\$237,500	\$0	\$237,500
700	<u>E-ZPass Transponders - 2016/17 Tag Swap and Additional Tags</u> This project will consist of the purchase of the Commission's share of replacement E-ZPass tags for the 2016/17 Tag Swap program being done by the NJ Customer Service Center and the 2017 purchase of new E-ZPass tags for new customers, which has been found in previous years under the Vehicles & Equipment list.	\$1,155,446	\$100,000	\$0	\$100,000
714	<u>Sign Replacement Program</u> This project will of replacing those signs inspected by the GEC which fail the retrorreflectivity comparison test. Most of these signs are smaller signs such and it is assumed these will be replaced by maintenance forces and the cost will be for material only.	\$176,156	\$97,460	\$35,156	\$132,616
550	<u>Traffic Count Program Upgrade</u> Replacement of the existing Traffic Count System with a new system to count traffic at all vehicular Toll Supported Bridges and the free direction of all Toll Bridges. The installation of a new traffic count program to manage the traffic data includes the replacement of the traffic counters, modems and software. The new system may provide increased functionality such as vehicle length data and speed data. Upgrade TSB sites to hardwired from wireless modem.	\$397,284	\$36,410	\$0	\$36,410
682	<u>Fuel Management System</u> Implementation of a system utilizing a secure element such as a key or proximity card to authorize and control the dispensing of fuel products to fleet vehicles while collecting accurate, valuable fuel usage and vehicle data for fuel accounting, Fleet Management and Fleet maintenance. A comprehensive hardware, software and telephone support plan is required and made up of fully trained Installation Technicians and Customer Support Technicians made available to make our fuel management system run smoothly from day one.	\$651,966	\$0	\$22,598	\$22,598
Total for all of the above Commission Initiatives and System-wide Projects:		\$90,222,182	\$13,808,913	\$4,058,315	\$17,867,228

TRENTON - MORRISVILLE

TOLL BRIDGE FACILITY

(Structure No. 20)



TRENTON - MORRISVILLE TOLL BRIDGE FACILITY

GENERAL

TRENTON - MORRISVILLE TOLL BRIDGE

(12 span, simply supported, composite steel multi - girder)

The Trenton - Morrisville Toll Bridge (Structure No. 20) carries US Route 1 over the Delaware River between Trenton, New Jersey and Morrisville, Pennsylvania.

The main bridge is a twelve span, simply supported, composite steel girder structure with an overall length of 1,322 feet. The substructure consists of reinforced concrete abutments and piers with granite facing on the piers. The bridge was originally constructed by the Commission in 1952 as a four (4) lane roadway, and widened to six (6) lanes in 1965 for a total roadway width of 62 feet. In 1983 an aluminum barrier was erected across the bridge, creating three southbound and two northbound lanes. In 1992, the toll plaza was converted to one way collection under Contract No. T-312. In 2009 an extensive widening and rehabilitation project was completed, creating an additional northbound lane. The current configuration has three (3) northbound and three (3) southbound lanes with a total minimum roadway width of 76 feet.

The posted speed limit in the northbound direction is 40 mph while the speed limit on the approach in the southbound direction is 50 mph, which decreases to 40 mph near the Union Street overpass.

The multiyear project for the widening and rehabilitation of the Route 1 corridor was completed under Contract No. T-380B in 2009. This work included the main river bridge and approach structures in New Jersey and Pennsylvania and included the addition of an approach structure in New Jersey (Ramp "C"). The project's major elements included the following work:

- Rehabilitating the main river bridge and widening it to accommodate a northbound auxiliary lane for exiting into Trenton
- Providing a deceleration lane on the viaduct over the Delaware Canal and Conrail property on the Pennsylvania side of the bridge
- Modifying the interchange at South Pennsylvania Avenue in Morrisville and installing a new traffic signal and resurfacing the pavement on South Pennsylvania Avenue
- Installing noise walls adjacent to northbound Route 1 in Morrisville
- Constructing a new toll plaza, serving southbound motorists on the Morrisville side of the bridge
- Realigning the NJ Route 29 Ramp (Ramp C) and constructing a new bridge over Route 29 to allow for improved access to that highway
- Rehabilitating, cleaning and repainting structural steel components of the bridge and its Route 1 approaches

Most recently completed in early 2015, several approach roadway and ramps were repaired or resurfaced throughout the Commission's jurisdiction, both NJ and PA, under Contract No. T-639A. Full resurfacing was performed at 3 ramps on the NJ side (Ramp A, E, and J) and 3 ramps on the PA side (Ramp C, I, and Y), with crack sealing at the remaining ramps. This project also included miscellaneous deck and parapet repairs, including the application of a methacrylate sealer to bridge decks, at several of the approach structures.

TRENTON - MORRISVILLE TOLL BRIDGE APPROACH STRUCTURES

The New Jersey approach consists of nine (9) approach structures. The Pennsylvania approach consists of two (2) approach structures.

TRENTON - MORRISVILLE TOLL BRIDGE FACILITY AND GROUNDS

The southbound one way toll plaza, located at the Pennsylvania approach, has five toll lanes. A new toll plaza was constructed in 2009 and consists of three tollbooths erected on concrete islands, and two E-ZPass only lanes, an overhead canopy and a service tunnel for the toll collection staff and ETC equipment. All lanes are equipped for E-ZPass. The toll system barrier gates were removed in 2010 with the installation of Violation Enforcement System (VES) technology - high resolution cameras and lights - in toll collection lanes.

Contract No. T-500A Trenton - Morrisville Administration Building Elevator Modernization was completed in 2009.

In 2017, the Commission completed the transition to a new toll-collection system under Contract No. DB-540A, which included the Trenton - Morrisville toll plaza.

The 2017 inspection included the main river bridge, eleven (11) approach bridges, eight (8) sign structures, the facility and grounds, and a sign retro-reflectivity assessment.

SIGNIFICANT FINDINGS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

TRENTON - MORRISVILLE TOLL BRIDGE MAIN RIVER BRIDGE

(12 span, simply supported, composite steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in good condition.

The approach roadway is in good condition.

The superstructure and substructure above the waterline are in good condition.

An underwater inspection was performed in 2016 under Contract No. C-628A-6. The substructure was found to be in satisfactory condition due to exposed footings at the piers.

The two (2) sign structures, #2051 in Span 2 and #2052 at Pier 11, are in good condition.

ROUTE 29 OVERPASS (NJ)

(3 span, simply supported prestressed concrete spread box beams)

The structure is in overall good condition.

The approach roadway is in good condition.

The deck, superstructure and substructure are in good condition.

RAMP N OVERPASS (NJ)

(1 span, steel multi - girder)

The structure is in overall good condition.

The deck, approach roadway, superstructure and substructure are in good condition.

RAMP IY OVERPASS (NJ)

(3 span, simply supported steel multi - girder)

The structure is in overall good condition.

The approach roadway is in good condition.

The deck, superstructure and substructure are in good condition.

RAMP Y OVERPASS (LONG RAMP) (NJ)

(4 span, continuous steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in satisfactory condition due to cracks and spalls on the top of deck.

The approach roadway is in good condition.

The superstructure is in good condition.

The substructure is in satisfactory condition.

UNION STREET OVERPASS (NJ)

(1 span, steel multi - girder)

The structure is in overall good condition.

The deck is in good condition.

The approach roadway is in very good condition.

The superstructure and substructure are in good condition.

CENTRE STREET UNDERPASS (NJ)

(1 span, riveted steel plate girders)

The structure is in overall satisfactory condition.

The deck, approach roadway, and superstructure are in good condition. The abutment rocker bearings exhibit pack rust between the masonry plate and the rocker.

The substructure is in satisfactory condition.

BROAD STREET UNDERPASS (NJ)

(1 span, steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in satisfactory condition due to spalls on the top of deck.

The approach roadway and superstructure are in good condition.

The substructure is in satisfactory condition due to spalls and incipient spalls on both abutments.

WASHINGTON STREET OVERPASS (PA)

(1 span, steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in very good condition.

The approach roadway and superstructure are in good condition.

The substructure is in satisfactory condition due to incipient spalls on both abutments, and a spall on south abutment bearing pedestal for Girder 5.

Sign structure #2053 at the south approach is in good condition.

SOUTH PENNSYLVANIA AVENUE OVERPASS (PA)

(1 span steel multi - girder)

The structure is in overall good condition.

The deck is in good condition.

The approach roadway is in good condition.

The superstructure and substructure are in good condition. Many anchor bolts and keeper plates were noted to be missing at the abutment bearings. Section loss was noted at the bearing bolster for Girder 1 at the north abutment. Many of the north abutment sliding plate bearings are excessively expanded.

Sign structures #2054, 2055, 2056, 2057 and 2058 at the US 1 and S. Pennsylvania Avenue approaches and exit ramp are in good condition.

RAMP N OVER UNION STREET (NJ)

(3 span, simply supported prestressed concrete girders)

The structure is in overall good condition.

The deck is in very good condition.

The approach roadway, superstructure and substructure are in good condition. Several of the prestressed concrete beam ends exhibit spalls and cracks. Many of the bearings have unseated or missing anchor bolt nuts.

RAMP C OVER NJ ROUTE 29 (NJ)

(2 span, steel multi - girder)

The structure is in overall very good condition.

The deck, approach roadway, superstructure and substructure are in very good condition.

TRENTON - MORRISVILLE TOLL BRIDGE FACILITY AND GROUNDS

Administration Building: The building's exterior limestone and bridge veneer exhibits evidence of expansion jacking at the relieving angles and lintels. The masonry is pushing out due to pressure from the rusting ferrous metal supports behind. The brickwork is cracked and has rotated. One of the more significant areas where movement occurs due to corrosion is adjacent to the roof scupper and along the roof parapet. The building's roof is over 20 years old and is leaking.

The building's veneer has undergone movement at the corners and some attempt has been made to fill the cracks. At the location of the limestone panels, at the building's corners, the veneer seems to be distressed. Water may be getting in through the numerous open joints and has penetrated the concrete frame rusting the column reinforcement causing failure of the surfaced concrete and expanding.

This issue is exasperated by the open joints in the stone and as a result the metal supports continuing to corrode. Stone losses at the upper areas suggest that the anchors that tie the stone back to the masonry have rusted. The expanded rusted metal is pushing off the face of the stone.

There are many areas of open joints both in the stone and the brick and in areas between structures. There are also open joints around the exterior face of the windows and evidence shows water is penetrating these joints and causing damage on the interior side.

The parking lot on the east side of the building has a drainage inlet with deteriorated masonry for the upper courses.

Storage Garage: There are cracks in the brick masonry at the corners which appear to be expansion related. There has been some attempt to fill the cracks; however there are indications that the building experienced movement subsequent to the repair. There is no provision for expansion control in the existing building and appears to have formed its own. There is evidence that the metal lintels over the masonry wall openings have rusted and expanded causing the brick veneer to push out.

Maintenance Garage: In the rear of the maintenance garage, there is an emergency egress path that leads to Washington Street at one end and to the maintenance service yard on the other end. At the end leading to the street, the path is closed off by a chain linked fence and gate which is locked. The egress path is also obstructed by materials placed there for storage.

In 2017, the Commission initiated Contract No. T-645A – Buildings & Facilities Energy Conservation Measures – Electrical/Lighting and Contract No. T-645B – Buildings & Facilities Energy Conservation Measures – Mechanical/Controls. This work will include, but is not limited to, LED street lights at the Trenton - Morrisville Toll Facility.

CONCLUSIONS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

TRENTON - MORRISVILLE TOLL BRIDGE MAIN RIVER BRIDGE

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Repaint localized areas of steel girders in Span 6
 - Patch spalls and seal cracks at the west abutment and Pier 2
 - Repoint mortar at Piers 2 through 9
 - Remove debris at Pier 2
 - Place riprap at Pier 3, Pier 4, and Pier 6

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

ROUTE 29 OVERPASS (NJ)

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

RAMP N OVERPASS (NJ)

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

RAMP IY OVERPASS (NJ)

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

RAMP Y OVERPASS (LONG RAMP) (NJ)

The structure is in overall satisfactory condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

UNION STREET OVERPASS (NJ)

The structure is in overall good condition.

- Items to be included in future repair contract:
 - Replace missing anchor bolt nut at Girder 8 North Abutment bearing, and tighten loose anchor bolt nut at Girder 1 South Abutment bearing.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

CENTRE STREET UNDERPASS (NJ)

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Remove pack rust and reset the bearings at the east abutment

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

BROAD STREET UNDERPASS (NJ)

The structure is in overall satisfactory condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

WASHINGTON STREET OVERPASS (PA)

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Reconstruct the Girder 5 bearing pedestal at the south abutment

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

SOUTH PENNSYLVANIA AVENUE OVERPASS (PA)

The structure is in overall good condition.

- Items to be included in future repair contract:
 - Replace the missing anchor bolts and keeper plates at the abutment bearings.
 - Repair the section loss at the steel bolster under the north bearing at Girder 1.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

RAMP N OVER UNION STREET (NJ)

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

RAMP C OVER NJ ROUTE 29 (NJ)

The structure is in overall very good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

TRENTON - MORRISVILLE TOLL BRIDGE FACILITY AND GROUNDS

While the buildings and structures located on the grounds have been maintained in a state of good repair, building infrastructure improvements are necessary at the Trenton - Morrisville Administration Building. These include replacement of the aged and poorly functioning HVAC (Heating, Ventilation, Air Conditioning) system, replacement of the aged roofing system which has been repaired repeatedly, repairs to the building's stone façade, and miscellaneous interior renovations to replace leaking windows, aged plumbing in poor condition, and certain necessary ADA improvements.

The Commission is in the process of procuring a design consultant for Contract No. C-519A Southern Operations & Maintenance Facilities Improvements to renovate and improve facilities at both the Morrisville and New Hope Toll Bridge locations.

- Items to be included in future repair contract:
 - Repair cracks and recoat the retaining wall along main toll road adjacent to employee parking lot
 - Repair uneven concrete sidewalks throughout the site
 - Remove damaged door below stairs at southeast corner of property and permanently block access
 - Treat the rusted relieving angles and replace ferrous anchors with stainless steel spiral anchors in the Administration Building masonry
 - Replace limestone panels at wall base of main entrance to Administration Building
 - Repair cracks in concrete and replace granite wall panel above salt storage at toll plaza level
 - Replace roof access door and penthouse access door
 - Repair concrete retaining wall along the south side of the toll plaza

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Trenton-Morrisville Toll Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		2 Year Total
			2019	2020	
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2009					
709	T-M TB Route 1 & PA Avenue Interchange Improvements Study	\$250,000	\$250,000	\$0	\$250,000
BRIDGES SUB TOTAL		\$250,000	\$250,000	\$0	\$250,000
<u>Facilities and Grounds</u>					
TMTB	Unforeseen Projects	\$1,547,420	\$100,000	\$103,400	\$203,400
519	Southern Operations & Maintenance Facilities Improvements	\$47,314,983	\$14,498,186	\$15,582,323	\$30,080,509
730	Southern Region Maintenance Garages	\$34,382,249	\$184,288	\$190,553	\$374,841
FACILITIES AND GROUNDS SUB TOTAL		\$83,244,652	\$14,782,474	\$15,876,276	\$30,658,750
TOTAL COST		\$83,494,652	\$15,032,474	\$15,876,276	\$30,908,750

NEW HOPE - LAMBERTVILLE

TOLL BRIDGE FACILITY

(Structure No. 140)



NEW HOPE - LAMBERTVILLE TOLL BRIDGE FACILITY

GENERAL

NEW HOPE - LAMBERTVILLE TOLL BRIDGE

(10 span, continuous, steel two girder/floorbeam/stringer)

The New Hope - Lambertville Bridge (Structure No. 140) was opened to traffic on July 22, 1971 and carries US Route 202 over the Delaware River between Delaware Township, New Jersey and Solebury Township, Pennsylvania.

The bridge is a ten span, continuous, steel two girder and floorbeam structure. The deck is reinforced concrete and carries two lanes of traffic in each direction separated by a median barrier. The substructure units are composed of reinforced concrete with stone facing. The total length of the structure is 1,682 feet measured from center to center of bearings. In 2003, the Rehabilitation of the New Hope - Lambertville Toll Bridge was completed under Contract No. T-370B-3. Work completed under this contract included deck, bearing (installed isolation bearings), deck joint, parapet, light pole, and guide rail rehabilitation as well as miscellaneous cleaning and painting as needed on the bridge.

The posted speed limit in both the northbound and southbound direction is 55 mph.

Complete rehabilitation of the floorbeam cantilever brackets was completed in October 2009 under Contract No. T-498A. All of the 130 steel cantilever bracket tie plates on the bridge were strengthened with high strength steel. Structural repairs were also made to the stringer bearings and steel catwalk, which included replacing the stringer bearing bolts and replacement of deteriorated sections of the catwalk.

Substructure Repairs of Piers 2 through 6 including both abutments were completed under Contract No. T/TS-476A-1 in 2010. These repairs included masonry repointing at Piers 2 and 4 and both abutments. Epoxy injection crack sealing of Piers 2 through 6 and the NJ abutment were also completed at this bridge.

Pavement rehabilitation and approach bridge repairs were completed in November 2013 under Contract No. T-543A. These repairs included the rehabilitation, repair and repaving of the NJ and PA Route 202 approach roadways and rehabilitation/resurfacing of associated on/off ramps to PA Route 32 and NJ Route 29. Bridge repairs included repointing of masonry joints, joint sealing, methacrylate sealer to concrete surfaces, concrete deck/substructure repairs, blast cleaning and repainting of structural steel members, deck joint repairs, and replacement of all bearings at the Route 32 and Route 29 approach structures.

Contract No. C-702B-2 New Hope - Lambertville Toll Bridge Floor System Rehabilitation Design Services is underway to address steel repairs and strengthen areas of the superstructure beneath deck joints and pin hangers. The work will also include spot cleaning and painting of the superstructure. Other necessary floor system repairs will be included following an in-depth inspection of the bridge. ***In 2018, the construction began under Contract No. T-708A.***

NEW HOPE - LAMBERTVILLE APPROACH BRIDGES

The Commission's jurisdiction also includes the loop ramp interchanges with overpasses provided at Route 29 in New Jersey and Route 32 in Pennsylvania. The posted speed limit on the approach roadways is 55 mph.

NEW HOPE - LAMBERTVILLE FACILITY AND GROUNDS

The toll plaza on the Pennsylvania approach was reconstructed in 2003 under Contract No. T-370B-2, and has one way toll collection, replacing the two way collection prior to the rehabilitation. Two lanes are equipped with toll booths and two lanes are E-ZPass only, but all four (4) lanes are equipped with E-ZPass and can accept cars or trucks. The toll plaza is erected on concrete islands and is protected with an overhead canopy that matches the Operations building roof. The Sergeant's Office is located between Lane 2 and Lane 3. The toll booth barrier gates were removed in 2010 with the installation of Violation Enforcement System (VES) technology - high resolution cameras and lights - in toll collection lanes.

The administration building and attached maintenance garage facility roofs were replaced in 2005 under Contract No. T-435A.

Contract No. T-397B, New Hope - Lambertville Toll Bridge Building Administration Building Renovations & Addition was completed in October 2008. Contract No. T-397B included the renovation and refurbishment of approximately 9,200 S.F. of existing building space, the construction of a new three story addition of 6,000 S.F., and assorted building (structural, electrical, mechanical, HVAC, etc.) system improvements. Installation of a backup generator to supply all power needs of the facility was also included.

Upon rededication of the Administration Building in December 2008, the New Hope – Lambertville Toll Bridge facility is now known as the New Hope Headquarters and Administration Building and houses the Commission's Executive Staff as well as some administrative and operations staff.

In 2010, highway lighting electrical improvements were completed under Contract No. T-554A. The work included providing, installing and testing electrical equipment, grounding, and circuits for the highway lighting electrical system and replacements and upgrades of electrical panel board's equipment at the New Hope - Lambertville Toll Bridge Administration Building.

In 2017, the Commission completed the transition to a new toll-collection system under Contract No. DB-540A, which included the New Hope - Lambertville toll plaza.

The 2017 inspection included the main river bridge, two (2) approach bridges, three (3) sign structures, the facility and grounds, and a sign retro-reflectivity assessment.

SIGNIFICANT FINDINGS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

NEW HOPE - LAMBERTVILLE TOLL BRIDGE

(10 span, continuous, steel two girder/floorbeam/stringer)

The structure is in overall satisfactory condition.

The deck is in good condition.

The approach roadway is in good condition.

The superstructure is in satisfactory condition. There are numerous stringers that exhibit section loss to the web and bottom flange. Several stringers exhibit web holes and corrosion cracks at beam ends beneath deck joints.

The substructure above the waterline and pin and hanger system are in good condition.

An underwater inspection was performed in 2016 under Contract No. C-628A-6. The substructure was found to be in good condition.

Sign structures #14051 in Span 2 and #14052 in Span 8 are in good condition.

NJ ROUTE 29 OVERPASS

(3 span, simply supported, steel multi - girder)

The structure is in overall good condition.

The deck, approach roadway, superstructure and substructure are in good condition.

PA ROUTE 32 OVERPASS

(1 span, reinforced concrete rigid frame)

The structure is in overall good condition.

The deck (roadway slab over the frame), approach roadway, superstructure and substructure are in good condition.

Sign Structure #14053 on the west approach is in good condition.

NEW HOPE - LAMBERTVILLE TOLL BRIDGE FACILITY AND GROUNDS

The buildings and structures located on the grounds have been maintained in a state of good repair, and are in overall good condition. The roadways at the tollbooths are in good condition. New electronic signs have been installed above the toll lanes since the previous inspection. The paint striping throughout the toll plaza is reported to be deteriorated and needs to be repainted often.

Since the previous inspection, the break room kitchen was renovated.

The concrete block foundation for the storage shed near the canal is deteriorated. Voids in the concrete block are visible from the exterior of the shed.

There are settled drainage inlets at the southeast corner of the parking lot.

There are several dying trees along the edge of the property at the west side of the Administration building.

In 2017, the Commission initiated Contract No. T-645A – Buildings & Facilities Energy Conservation Measures – Electrical/Lighting and Contract No. T-645B – Buildings & Facilities Energy Conservation Measures – Mechanical/Controls. This work will include, but is not limited to, LED lighting replacement, LED street lights, boiler replacement / upgrades and domestic hot water heater upgrade at the New Hope – Lambertville Toll Facility.

The Commission is in the process of procuring a design consultant for Contract No. C-519A Southern Operations & Maintenance Facilities Improvements to reconfigure some interior spaces.

CONCLUSIONS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

NEW HOPE - LAMBERTVILLE TOLL BRIDGE MAIN RIVER BRIDGE

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Clean and spot paint the structural steel and bearings, and steel deck joint plates
 - Perform structural steel repairs at locations of corrosion and section loss beneath the deck joints and pin hangers
 - Tighten the loos post tensions rod at south end of Floobeam 3 in Span 10
 - Repoint stone masonry at the abutments
 - Repair spalls and deteriorated concrete at Piers 1, 4 & 7
 - Place riprap at Pier 2
 - Remove trees at Piers 8 & 9 and remove debris at Piers 2, 3, 5 and 6

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

NJ ROUTE 29 OVERPASS

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

PA ROUTE 32 OVERPASS

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

NEW HOPE - LAMBERTVILLE TOLL BRIDGE FACILITY AND GROUNDS

- Items to be included in future repair contract:
 - Repair the damaged concrete block foundation at the storage shed.
 - Repair settled drainage inlets at the southeast corner of the parking lot
 - Contract an arborist to address dying trees along edge of property

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

New Hope Lambertville Toll Bridge

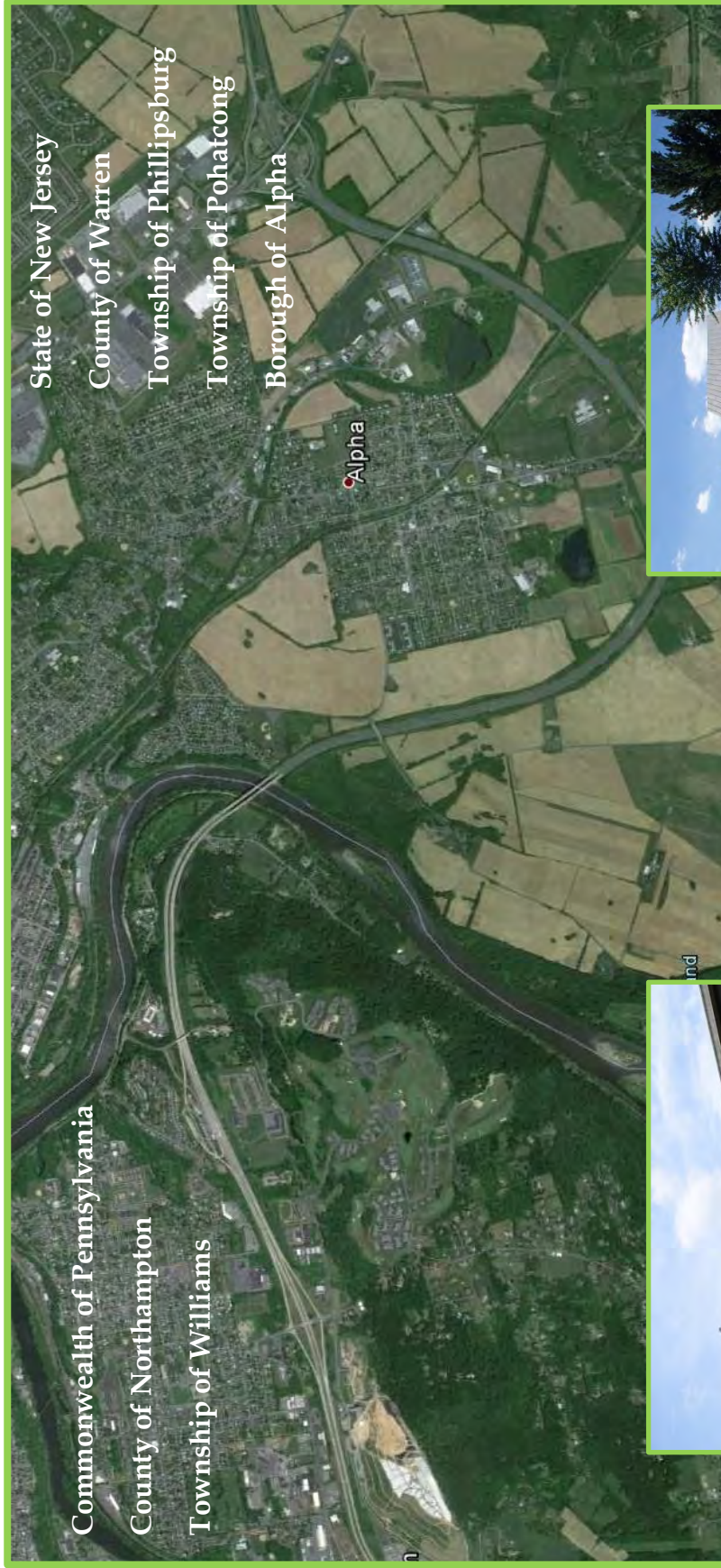
ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		
			2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The approaches were repaved in 2013-2014					
Cantilever Bracket Improvements were completed in 2009					
708	New Hope - Lambertville Toll Bridge Floor System Rehabilitation completed in 2018.	\$2,055,669	\$5,000	\$0	\$5,000
BRIDGES SUB TOTAL		\$2,055,669	\$5,000	\$0	\$5,000
<u>Facilities and Grounds</u>					
NHLTB	Unforeseen Projects	\$1,187,660	\$150,000	\$77,550	\$227,550
611	New Hope - Lambertville Toll Bridge Salt Storage Facility Improvements	\$2,794,069	\$2,539,221	\$0	\$2,539,221
FACILITIES AND GROUNDS SUB TOTAL		\$3,981,729	\$2,689,221	\$77,550	\$2,766,771
TOTAL COST		\$6,037,399	\$2,694,221	\$77,550	\$2,771,771

INTERSTATE 78

TOLL BRIDGE FACILITY

(Structure Nos. 270 & 275)



INTERSTATE 78 TOLL BRIDGE FACILITY

GENERAL

INTERSTATE 78 TOLL BRIDGE MAIN RIVER BRIDGE

(Twin 7 span, continuous, steel multi - girder)

The Interstate 78 toll bridge carries traffic over the Delaware River between Williams Township, Northampton County, Pennsylvania and the Town of Phillipsburg, Warren County, New Jersey. The facility was opened to traffic on November 21, 1989.

The Interstate 78 main river bridge (Structure Nos. 270 & 275) is a twin, 1,222 foot long, four girder, 7 span continuous steel bridge. The dual roadways are each 48 feet from curb to curb and carry three lanes of traffic. The substructure consists of reinforced concrete hammerhead piers and reinforced concrete stub abutments. The posted speed limit on the bridge is 55 mph in the westbound direction and 65 mph in eastbound direction.

INTERSTATE 78 APPROACH BRIDGES

The New Jersey approach consists of six (6) approach structures. The Pennsylvania approach consists of five (5) approach structures. In total there are eleven (11) approach structures owned and maintained by the Commission that are part of the Interstate 78 Toll Bridge Facility.

In 2011, the west deck joint of the I-78 Westbound over County Route 519 overpass structure at Milepost 2.2 in New Jersey was rehabilitated after it began to fail.

INTERSTATE 78 ROADWAY

The Commission's jurisdiction extends approximately 2.2 miles to the west at the Pennsylvania approach and includes five (5) approach structures and a Welcome Center. The New Jersey approach extends approximately 4.2 miles to the east from the main river bridge and includes six (6) approach structures (not including Conrail over I-78 or the Route 22/173 structures).

In October 2009, the Commission completed Contract No. T-424A, I-78 Roadway Rehabilitation, a two year rehabilitation project along the agency's 4.2-mile segment of I-78 in New Jersey. The project included subsurface remediation to address sinkholes as well as rehabilitating cracked roadway conditions as a result of heavy truck traffic along the roadway. Subsurface voids were filled and stabilized as part of the project; the Commission's New Jersey segment of I-78 is in an area where subsurface limestone geologic formations are prone to sinkholes. Work included rehabilitation of the concrete roadway, utilizing a variety of techniques including polyurethane grout injection and concrete slurry grouting. Crack stitching was also utilized at numerous locations, complete full depth replacement of the roadway was completed at the worst locations. The Still Valley Exit 3 Ramp was also rehabilitated as part of the project. Other improvements included repairs to various overpasses and secondary bridge structures, and the installation of a variety of safety upgrades, such as new striping and guide rails.

In 2010, the Commission completed two Design - Build Contracts, DB-562A & DB-563A, for the design and installation of median guide rails along the Commission's jurisdiction in NJ & PA to address potential cross - overs. Contract No. DB-563A also included the installation of snow fence on the County Route 519 overpass structure in NJ.

Contract No. T-506A, I-78 Toll Bridge Pennsylvania Approach Paving Improvements was completed in 2013. Work completed under this contract included repaving of the entire Pennsylvania Approach and repaving of the Welcome Center Parking Lot.

In 2017, construction work began under Contract T-644A, I-78 Bridges and Approach Slabs Rehabilitation (*currently in progress 2018*). This project consists of approximately 7.0 miles of roadway, five (5) bridges, and a Welcome Center in the Commission's jurisdiction within Pennsylvania, six (6) bridges in the Commission's jurisdiction within New Jersey, and two (2) bridges on I-78 over the Delaware River. Specific improvements and repairs include, but are not limited to:

- *Precast Approach Slab Replacements*: This work includes the repair and replacement of approach slabs at all eight (8) bridges carrying I-78. Existing traffic lane slabs adjacent to I-78 bridge decks are to be replaced with precast slabs.
- *Painting Existing Structural Steel*: This work includes the removal of existing paint and repainting structural steel at all six (6) New Jersey bridges.
- *Asphalt Overlay and Regrading*: This work includes an asphalt overlay of the existing roadways at selected locations and over all proposed approach slabs.
- *Deck Seal Coat*: This work includes prepping the existing deck, performing miscellaneous spall repairs, and sealing the entire deck of all thirteen (13) bridges with a penetrating sealer material. In addition, deck joint seals are to be replaced at four (4) bridges.
- *Miscellaneous Substructure Repairs*: This work includes the delineation of deteriorated substructure concrete, the removal of the concrete and the patching of the repair areas at selected locations.
- *Miscellaneous Superstructure Repairs*: This work includes miscellaneous repairs to steel and concrete superstructure members at selected locations.
- *Roadway Re-Striping*: This work includes re-striping of all roadways within the Commission's jurisdiction and replacement of damaged or missing flexible delineators and raised pavement markers.

INTERSTATE 78 TOLL BRIDGE FACILITY AND GROUNDS

The one way toll plaza, opened in 1989, and is located on the Pennsylvania approach of the westbound lanes and had seven (7) toll lanes. The toll plaza was reconfigured to four (4) lanes and two (2) Express E-ZPass lanes in 2010 under Contract No. DB-427B: I-78 Open Road Tolling Lanes (Express E-ZPass) Implementation. This traffic congestion/mitigation project involved the reconfiguration of the barrier toll plaza, removing three lanes and installing two Express E-ZPass lane with shoulders and paving and re-striping work approaching the toll plaza. All lanes are capable of handling both cars and trucks. The project also involved the installation of new LED variable message signs on the canopy. All lanes are equipped with E-ZPass. The toll booth barrier gates were removed in 2010 with the installation of Violation Enforcement System (VES) technology – high resolution cameras and lights - in toll collection lanes.

The salt storage building was constructed under Contract No. T-392R in 2003.

In 2017, the Commission completed the transition to a new toll-collection system under Contract No. DB-540A, which included the I-78 toll plaza.

The 2017 inspection included the eastbound and westbound main river bridges, eleven (11) approach structures, five (5) sign structures, and a sign retro-reflectivity assessment.

The facilities and grounds were not inspected this year due to construction in progress under Contract No. T-508A, I-78 Maintenance Garage Expansion & Renovation (***completed in 2018***). The Scope of Work for this project includes, but is not limited to the following:

- Renovation of existing Maintenance Facility
- Additions to the Maintenance Facility. Original 6 bay, 6,600 S.F. building to be expanded to nearly 19,000 S.F. with 16 bays.
- Replacement of all exterior windows at Welcome Center and Tunnel Stair
- Canopy at Welcome Center and Toll Booth for employee protection and canopy access
- HVAC equipment upgrades through-out the facility
- New direct digital control (DDC) building automation system (BAS) incorporating a state-of-the-art, microprocessor-based control platform with an open communication protocol and remote access.
- New standing-seam metal roof for the Welcome Center, Toll Plaza, Maintenance Garage and Tunnel Stair
- Welcome Center plumbing chase improvements
- Full site and remote sewer pump station Emergency Power Distribution Systems
- Site-wide lightning protection system replacement
- Improve site emergency ingress and egress to I-78
- New fueling island canopy and fuel dispensing pumps
- Storage bays for vehicles and equipment storage
- Male and female locker facilities
- Radiant floor heating throughout the existing and new Maintenance Garage Facility
- New state-of-the-art brining production system
- Relocated compactor and dumpster
- Operable partition in lunch room

SIGNIFICANT FINDINGS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

INTERSTATE 78 TOLL BRIDGE (EASTBOUND)

(7 span, continuous, steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in satisfactory condition. The top of the deck exhibits numerous fine to medium transverse cracks throughout. The metal Stay-In-Place forms on the underside of the deck have isolated areas of spot rust and the concrete overhangs exhibit few fine cracks with efflorescence.

The approach roadway is in satisfactory condition. A few medium to wide transverse cracks and several concrete and asphalt patched spalls were noted on the concrete approach slabs.

The superstructure and substructure above the waterline are in good condition. The paint system is showing signs of distress throughout with isolated areas of minor to locally moderate corrosion of the structural steel.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The substructure was found to be in satisfactory condition due to cracks and small spalls throughout the substructure units.

INTERSTATE 78 TOLL BRIDGE (WESTBOUND)

(7 span, continuous, steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in satisfactory condition. The top of the deck exhibits numerous fine to medium transverse cracks throughout. The metal Stay-In-Place forms on the underside of the deck have isolated areas of spot rust and the concrete overhangs exhibit few fine cracks with efflorescence.

The approach roadway is in satisfactory condition. A few medium to wide transverse cracks and several concrete and asphalt patched spalls were noted on the concrete approach slabs.

The superstructure and substructure above the waterline are in good condition. The paint system at several areas of the structural steel is beginning to show signs of aging, with localized areas of light to moderate rust.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The substructure was found to be in satisfactory condition due to cracks and small spalls throughout the substructure units.

The six (6) sign structures (#27551, 27552, 27553, 27554, 27555 and 27556 (E-ZPass ORT gantry)) on the approaches to the toll plaza are in overall good condition.

SERVICE ROAD OVERPASS

(1 span, simply supported, prestressed concrete adjacent box beams)

The structure is in overall good condition.

The deck, approach roadway, superstructure and substructure are in good condition.

MORGAN HILL ROAD OVERPASS

(2 span, continuous, prestressed concrete spread box beams)

The structure is in overall good condition.

The deck is in satisfactory condition. The top of the deck exhibits fine to medium cracks throughout, with some cracks being partially sealed. The compression seal deck joints at both abutments are partially covered with debris and exhibit deterioration where visible.

The approach roadway immediately adjacent to the bridge is in satisfactory condition. Medium to wide cracks and minor settlement in the bituminous concrete pavement were noted throughout both approach roadways.

The superstructure and substructure are in good condition.

CEDARVILLE ROAD OVERPASS

(4 span, simply supported, prestressed concrete I-girders)

The structure is in overall satisfactory condition.

The deck is in good condition. The compression seal deck joints show loss of adhesion and signs of leakage, as evidenced by staining on the substructures and prior installation of hot-pour sealer.

The approach roadway immediately adjacent to the bridge is in satisfactory condition. The asphalt wearing surface exhibits minor to moderate settlement with pattern cracking.

The superstructure is in satisfactory condition due to common cracks with rust stains and a few small spalls with exposed strands at the ends of the prestressed girders. There is a severely displaced neoprene bearing pad at the west girder bearing at Pier 1.

The substructure is in good condition.

I-78 WESTBOUND OVER PA ROUTE 611

(3 span, simply supported, prestressed concrete spread box beams)

The structure is in overall good condition.

The deck, superstructure and substructure are in good condition. Some areas of prestressed beam ends and keeper blocks exhibit minor spalls.

The approach roadway is in satisfactory condition. Several asphalt and concrete patches, as well as a few medium to wide transverse cracks, were noted at the concrete approach and transition slabs at both sides.

I-78 EASTBOUND OVER PA ROUTE 611

(3 span, simply supported, prestressed concrete spread box beams)

The structure is in overall good condition.

The deck, superstructure and substructure are in good condition. Some areas of prestressed beam ends and diaphragms exhibit minor spalls.

The approach roadway is in satisfactory condition. Several asphalt and concrete patches, as well as a few medium to wide transverse cracks and a spall with exposed rebar were noted at the concrete approach and transition slabs.

CARPENTERSVILLE ROAD OVERPASS

(2 span, continuous, steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in good condition.

The approach roadway immediately adjacent to the bridge is in satisfactory condition. Random medium to wide cracks were noted in the concrete approach slabs.

The superstructure is in good condition. The bottom flanges of the steel girders exhibit light to moderate rust and the remaining portion of the superstructure and bearings exhibit light surface rust. The west girder at the north abutment and east girder at the south abutment have limited clearance from the abutment backwalls.

The substructure is in satisfactory condition. The north and south abutment breastwalls exhibit map cracking with water leakage and efflorescence. There is a spall in the east end of the north abutment breastwall.

EDGE ROAD OVERPASS

(2 span, continuous, steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in good condition.

The approach roadway immediately adjacent to the bridge is in satisfactory condition. Fine to medium cracks were noted, with several cracks partially sealed. Approach sidewalk sections located along the wingwalls also exhibit differential settlement.

The superstructure is in satisfactory condition. The girders and bearings exhibit light to moderate rust throughout.

The substructure is in satisfactory condition. The north and south abutment backwalls and breastwalls exhibit fine to medium full height vertical cracks, water staining, and small spalls.

I-78 WESTBOUND OVER NJ ROUTE 519

(2 span, continuous, steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in good condition. Fine transverse cracks were noted in the concrete deck over the pier.

The approach roadway is in satisfactory condition. The concrete approach and transition slabs exhibit common edge spalls and spalls with deteriorating asphalt and concrete patches, and partially sealed transverse cracks.

The superstructure is in good condition. The bottom flanges of the girders, end diaphragms, and bearings exhibit moderate rust and the remaining portion of the superstructure exhibits light surface rust. Localized heavy rust was noted at several girder ends and abutment bearings. No notable section loss was observed.

The substructure is in satisfactory condition. Both abutment breastwalls exhibit medium horizontal and vertical cracks, map cracking, and several hollow areas. The center pier also exhibits small spalls with exposed reinforcement and cracking on several columns.

I-78 EASTBOUND OVER NJ ROUTE 519

(2 span, continuous, steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in satisfactory condition. The compression seal deck joints are partially covered with hot-poured sealer and exhibit areas of minor to moderate settlement, with a perforation in west abutment joint seal. The concrete headers at the east and west abutment deck joints exhibit spalls with numerous patches. Fine transverse cracks were also noted in several locations of the concrete deck.

The approach roadway is in satisfactory condition. The concrete approach and transition slabs exhibit common edge spalls and spalls with deteriorating asphalt and concrete patches, and partially sealed transverse and random cracks.

The superstructure is in good condition. The bottom flanges of the girders exhibit light to moderate rust and the remaining portion of the superstructure and bearings exhibit light surface rust. Localized heavy rust was noted at several girder ends and abutment bearings. No notable section loss was observed.

The substructure is in satisfactory condition. The east and west abutment breastwalls exhibit fine to medium horizontal and vertical cracks, map cracking, and water staining throughout. The center pier also exhibits small spalls with exposed reinforcement at a few columns.

I-78 WESTBOUND OVER RAMP C

(1 span, simply supported, steel multi - stringer)

The structure is in overall satisfactory condition.

The deck is in good condition. Spalls were noted the west abutment deck joint header.

The approach roadways are in satisfactory condition. The bituminous concrete approach roadways (beyond the approach slabs) exhibit medium to wide cracks / separation between pavement joints. There are several spalls, broken patches, and deteriorated asphalt patches at the concrete approach and transition slabs.

The superstructure is in good condition. The superstructure and bearings generally exhibit areas of light rust, with moderate to heavy rust at some fascia girders and bearings.

The substructure is in satisfactory condition. The east and west abutment breastwalls exhibit fine to medium vertical cracks with areas of water leakage. One large backwall spall was noted the south end of the east abutment.

I-78 EASTBOUND OVER RAMP C

(1 span, simply supported, steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in good condition.

The approach roadways are in satisfactory condition. The bituminous concrete approach roadways (beyond the approach slabs) exhibit medium to wide cracks / separation between pavement joints. There are several spalls, wide cracks, and deteriorated asphalt and concrete patches at the concrete approach and transition slabs.

The superstructure is in good condition. The superstructure and bearings generally exhibit areas of light rust, with moderate to heavy rust at some fascia girders and bearings.

The substructure is in satisfactory condition. The east and west abutment breastwalls exhibit medium vertical cracks, with areas of map cracking and heavy water staining.

INTERSTATE 78 TOLL BRIDGE FACILITY AND GROUNDS

The overall condition of the I-78 Facility and Grounds is good. The buildings and structures located on the grounds have been maintained in a state of good repair. Some of the I-78 facility vehicles and equipment are not protected from the weather and are stored along the adjacent parking lots due to a lack of storage capacity within the buildings.

In 2017, construction commenced under Contract No. T-508A, the I-78 Maintenance Garage Expansion & Renovation project (refer to description under preceding "GENERAL" section).

In 2017, the Commission initiated Contract No. T-645A – Buildings & Facilities Energy Conservation Measures – Electrical/Lighting and Contract No. T-645B – Buildings & Facilities Energy Conservation Measures – Mechanical/Controls. This work will include, but is not limited to, LED lighting replacement, LED street lights, air conditioning replacement, and domestic hot water heater upgrade at the I-78 Toll Facility.

CONCLUSIONS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

INTERSTATE 78 TOLL BRIDGE (EASTBOUND)

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Replace the missing raised pavement markers throughout the bridge
 - *Rehabilitate the approach and transition slabs.
 - *Investigate/improve the profile/slope of the west approach slab transition
 - *Replace the corroded drainage pipe cleanout covers and clean all inlets
 - Power wash, clean and paint the structural steel and bearings
 - Clean and epoxy coat the bridge seats
 - Pressure inject cracks at Pier 4E
 - Remove debris at Pier 5E

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

INTERSTATE 78 TOLL BRIDGE (WESTBOUND)

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Replace the missing raised pavement markers throughout the bridge
 - *Rehabilitate the approach and transition slabs.
 - *Replace the corroded drainage pipe cleanout covers and clean all inlets
 - Clean and paint the structural steel and bearings
 - Clean and epoxy coat the bridge seats
 - Pressure inject horizontal cracks at Pier 4W.

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

SERVICE ROAD OVERPASS

The structure is in overall good condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck, barriers and approach slabs with methacrylate sealer

- *Patch the asphalt relief joints between the approach and transition slabs
- *Seal crack in west approach north shoulder slab
- *Repair the concrete at the edges of the drainage inlet at the northeast corner
- *Reconstruct the drainage swale and repair the slope protection along the south side of the west approach

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

MORGAN HILL ROAD OVERPASS

The structure is in overall good condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Replace the deteriorated compression seals at the north and south abutment deck joints

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

CEDARVILLE ROAD OVERPASS

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Repair spalls at the ends of prestressed concrete beams and apply epoxy waterproofing at all beam ends
 - *Replace the compression seals at Piers 1, 2 and 3 deck joints
 - *Replace the shifted elastomeric bearing pad at the south fascia beam at Pier 1
 - *Repair the west cheekwall at the south abutment

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

I-78 WESTBOUND OVER PA ROUTE 611

The structure is in overall good condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Rehabilitate the concrete approach and transition slabs
 - *Replace the missing raised pavement markers

- Augment existing joint seals to extend higher due to leakage through the south parapet joints (low side of superelevated deck).

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

I-78 EASTBOUND OVER PA ROUTE 611

The structure is in overall good condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Rehabilitate the deteriorated concrete approach and transition slabs
 - Augment existing joint seals to extend higher due to leakage through the south parapet joints (low side of superelevated deck).

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

CARPENTERSVILLE ROAD OVERPASS

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck, barriers, and approach slabs with methacrylate sealer
 - *Clean and paint the superstructure steel and bearings
 - *Clip ends of east and west fascia girders to increase clearance from backwall
 - *Clean and epoxy coat the bridge seats
 - Repair heavy scaling and deterioration at the approach slab shoulders

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

EDGE ROAD OVERPASS

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck, barriers, and approach slabs with methacrylate sealer
 - *Clean and paint the superstructure steel and bearings
 - *Clean and epoxy coat the bridge seats

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

I-78 WESTBOUND OVER NJ ROUTE 519

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Replace the deck joints with new strip seal deck joints, including repairs to the concrete headers.
 - *Rehabilitate the deteriorated concrete approach and transition slabs
 - *Clean and paint the superstructure steel and bearings
 - *Clean and epoxy coat the bridge seats
 - *Patch the spalls and unsound areas at the northeast wingwall, the northeast corner and south end of the east abutment breastwall, the north end of the west abutment, and several locations at the base of pier columns.

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

I-78 EASTBOUND OVER NJ ROUTE 519

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Clean and paint the superstructure steel and bearings
 - *Clean and epoxy coat the bridge seats
 - *Rehabilitate the concrete approach and transition slabs
 - *Patch the spalls and unsound areas at the west abutment breastwall and several locations at the base of pier columns.
 - *Replace the deck joints with new strip seal deck joints, including repairs to the concrete headers.

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

I-78 WESTBOUND OVER RAMP C

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Clean and paint the superstructure steel and bearings
 - *Clean and epoxy coat the bridge seats
 - *Rehabilitate the concrete approach and transition slabs
 - *Patch the large spall at the south end of the east abutment backwall

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

I-78 EASTBOUND OVER RAMP C

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - *Seal the entire bridge deck and barriers with methacrylate sealer
 - *Clean and paint the superstructure steel and bearings
 - *Clean and epoxy coat the bridge seats
 - *Rehabilitate the concrete approach and transition slabs

** Indicates repairs included in Contract No. T-644A.*

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

INTERSTATE 78 ROADWAY

Contract Nos. T-424A and T-506A completed the I-78 Roadway Rehabilitation in New Jersey (2009) and Pennsylvania (2013), respectively. The roadway is in overall satisfactory condition. During the 2017 inspection, common medium to wide transverse cracks with adjacent pothole formation was observed throughout the bituminous concrete roadway surface on the New Jersey approach. DRJTBC has been performing ongoing repairs of these defects. These defects occur at an estimated 300 locations.

Also, encroaching vegetation was observed growing over the top of the gabion retaining walls along each direction near mile post 0.3 in New Jersey.

The collision damaged end terminal along I-78 WB median at M.P. 2.0 (NJ) should be repaired under a guide rail maintenance contract.

For a list of maintenance repair items for the I-78 roadway, see the *2017 Annual Maintenance Report*.

INTERSTATE 78 TOLL BRIDGE FACILITY AND GROUNDS

- Items to be included in future repair contract:
 - *Replace damaged or missing snow guards at the maintenance garage
 - *Consider upgrading the public restrooms at the Visitor's Center
 - *Consider converting open storage area at the end of the garage into an enclosed storage space or expanding the garage area
 - Trees and vegetation should be cleared within the clear zone along the entire length of the Commission's jurisdiction
 - *Replace the damaged skylight pane at the south tunnel shelter
 - *Repair deteriorated mortar joints, spalled masonry, and damaged flue vent at the Maintenance Garage.
 - Level the roadway surrounding the drainage inlets throughout the truck parking lot

* Addressed by Contract No. T-508A

Under Contract No. T-508A, the existing Maintenance Building is undergoing expansion and renovations in 2017. Work also includes, but is not limited to, various maintenance and safety upgrades at the Toll Plaza, Welcome Center, Salt Shed, and Tunnel Stair Enclosure.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Interstate 78 Toll Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		
			2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
721	I-78 Pavement Rehabilitation (Joint Rehabilitation)	\$4,120,000	\$4,120,000	\$0	\$4,120,000
BRIDGES SUB TOTAL		\$4,120,000	\$4,120,000	\$0	\$4,120,000
<u>Facilities and Grounds</u>					
I-78TB	Unforeseen Projects	\$2,273,931	\$150,000	\$155,100	\$305,100
FACILITIES AND GROUNDS SUB TOTAL		\$2,273,931	\$150,000	\$155,100	\$305,100
TOTAL COST		\$6,393,931	\$4,270,000	\$155,100	\$4,425,100

EASTON - PHILLIPSBURG
TOLL BRIDGE FACILITY
(Structure No. 300)



EASTON - PHILLIPSBURG TOLL BRIDGE FACILITY

GENERAL

EASTON - PHILLIPSBURG TOLL BRIDGE

(1 span, steel Petit Thru - Truss)

The Easton - Phillipsburg Toll Bridge (Structure No. 300) carries US Route 22 over the Delaware River between the City of Easton, Pennsylvania, and the Town of Phillipsburg, New Jersey. The bridge was opened to traffic on January 14, 1938. Westbound only toll collection commenced on June 4, 1989.

The main river bridge consists of a 540 foot steel Petit thru - truss span over the Delaware River. The overall length, including the approaches on either end of the structure, is approximately 1,010 feet. The roadway width is 40 feet between the trusses and carries 4 lanes of traffic. There are 8 foot sidewalks cantilevered outside of both trusses. The substructure consists of reinforced concrete abutments. The posted speed limit through the toll bridge facility is 25 mph.

Sidewalk reconstruction was performed under Contract No. T-420 and was completed in 2004.

The Easton - Phillipsburg Toll Bridge and all approach structures received in depth, hands on inspection in 2010 as part of Contract No. T-437A, Easton - Phillipsburg Toll Bridge Rehabilitation. All work under Contract No. T-437A was completed in 2015. This contract included the rehabilitation of the main river bridge, including bituminous deck removal and replacement, cleaning and painting of all structural steel, rehabilitation/replacement of bridge drainage system, structural steel and substructure repairs, and rehabilitation of pedestrian railings. All five (5) approach structures received various repairs/upgrades, including superstructure replacement of the PA Route 611 overpass, new LMC overlay, painting of structural steel, and bearing replacement at Bank/Third Street overpasses, new ADA compliant ramp at Bushkill Street at the Pedestrian Tunnel entrance, and significant repairs/repainting of the Broad Street viaduct. The NJ and PA approach roadway concrete slabs and sign structures were also rehabilitated. Other miscellaneous repairs and upgrades included roadway and bridge lighting replacement, installing aesthetic lighting under the Third Street overpass, minor repairs and painting of the toll booth facilities as well as electrical upgrades to the toll facility Load Center in the Administration Building.

EASTON - PHILLIPSBURG TOLL BRIDGE APPROACH STRUCTURES

The Commission's jurisdiction includes a total of five (5) approach structures, one structure at the NJ approach (Broad Street Viaduct) and the remaining four (4) on the PA approach.

Approximately 2,000 feet of the Pennsylvania approach was reconstructed in 1982. This reconstruction included new superstructures for the overpasses at Bank Street, Third Street and Route 611. The truss support for the center bearing at the west abutment of the Broad Street Viaduct was reconstructed in 2001.

EASTON - PHILLIPSBURG TOLL BRIDGE FACILITY AND GROUNDS

The toll plaza was converted to one way toll collection in 1989 under Contract No. T-296. It is located at the New Jersey approach and has five (5) toll lanes. All tollbooths are erected on concrete islands and are protected by an overhead canopy. All lanes are equipped for E-ZPass. The toll booth barrier gates were removed in 2010 with the installation of Violation Enforcement System (VES) technology – high resolution cameras and lights - in toll collection lanes.

The roof on the administration building and garage was replaced in 2007 under Contract No. T-465A.

In 2017, the Commission completed the transition to a new toll-collection system under Contract No. DB-540A, which included the Easton-Phillipsburg toll plaza. Part of this work included construction of new toll lane slabs and loop detectors.

The 2017 inspection included the main river bridge, the five (5) approach bridges, four (4) sign structures, the facility and grounds, and a sign retro-reflectivity assessment.

SIGNIFICANT FINDINGS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

EASTON - PHILLIPSBURG TOLL BRIDGE MAIN RIVER BRIDGE

(1 span, steel Petit Thru - Truss)

The structure is in overall good condition.

The deck, superstructure, and substructure are in good condition.

There is no approach roadway for this structure due to the adjacent approach structures.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The substructure was noted to be in good condition.

The sign structures (4 total) are in overall satisfactory condition. Sign Structure #30051 approximately 250 feet west of the main river bridge exhibits several fine to medium cracks with efflorescence and areas of spalled concrete at the north concrete pedestal foundation. The toll lane signs on Sign Structure #30053, just east of the toll plaza, have been replaced with electronic units since the previous inspection.

BROAD STREET VIADUCT

(5 span, simply supported, riveted steel three girder - floorbeam - stringer system)

The structure is in overall satisfactory condition.

The deck, approach roadway, and substructure are in good condition.

The superstructure is in satisfactory condition due to localized occurrences of minor section losses on the girder webs and flanges, which have been arrested by the recent repainting.

ROUTE 611 OVERPASS

(1 span, simply supported, steel multi - girder)

The structure is in overall good condition.

The deck and superstructure are in very good condition.

The approach roadway (west only) and substructure are in good condition.

THIRD STREET OVERPASS

(1 span, simply supported, steel multi - girder)

The structure is in overall good condition.

The deck, superstructure and substructure are in good condition.

The approach roadways are in very good condition.

BANK STREET OVERPASS

(3 span, continuous, steel multi - girder)

The structure is in overall good condition.

The deck is in satisfactory condition due to spalls with exposed reinforcement at the underside of south deck overhang.

The approach roadway, superstructure and substructure are in good condition.

PEDESTRIAN TUNNEL

(Single cell, reinforced concrete box culvert)

The structure is in overall good condition.

The roadway and culvert are in good condition.

EASTON - PHILLIPSBURG TOLL BRIDGE FACILITY AND GROUNDS

The buildings and structures located on the grounds have been maintained in a state of good repair, and are in overall fair condition. Overall the toll plaza is in satisfactory condition.

The maintenance building asphalt parking lot is in fair condition with numerous cracks and worn asphalt.

The administration building brick and stone façade exhibits areas of distress and displacement of the bricks due to pressure resulting from water intrusion. There are issues with the masonry relieving angles and associated displacement of the brick veneer, which warrant an in-depth inspection. The liner to the administration building chimney is scaling and flakes are falling down the chimney flue. The AC unit in the 3rd floor IT room was found to be defective.

Sidewalk cracking and settlement was noted along the Ramp C retaining wall walkway, at the top of the stairway to the roadway level and at several other locations throughout the grounds.

Localized cracking, efflorescence, small spalls, and minor displacements were observed on several retaining walls.

EASTON - PHILLIPSBURG TOLL BRIDGE FACILITY AND GROUNDS (continued)

In 2017, the Commission initiated Contract No. T-645A – Buildings & Facilities Energy Conservation Measures – Electrical/Lighting and Contract No. T-645B – Buildings & Facilities Energy Conservation Measures – Mechanical/Controls. This work will include, but is not limited to, LED lighting replacement, LED street lights, air conditioning replacement, and domestic hot water heater upgrade at the Easton - Phillipsburg Toll Facility.

CONCLUSIONS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

EASTON - PHILLIPSBURG TOLL BRIDGE MAIN RIVER BRIDGE

The structure is in overall good condition.

- Items to be included in future repair contract:
 - Consider modifications to the curb scuppers and collection system cleanouts.
 - Pressure inject cracks at the east and west abutments
 - Repoint mortar joints at the east and west abutment slope protection
 - Place riprap at the west abutment and along the embankments.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

BROAD STREET VIADUCT

The structure is in overall satisfactory condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

ROUTE 611 OVERPASS

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

THIRD STREET OVERPASS

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

BANK STREET OVERPASS

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

PEDESTRIAN TUNNEL

The structure is in overall good condition.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

EASTON - PHILLIPSBURG TOLL BRIDGE FACILITY AND GROUNDS

- Items to be included in future repair contract:
 - The administration building brick and stone façade exhibits areas of distress and displacement of the bricks due to pressure resulting from water intrusion. An in depth inspection should be performed to confirm the extent and causes of the issues with the masonry relieving angles and the displacement of the brick veneer. Repairs may include removing courses of masonry directly above and below the relieving angles, removing rust, and treating the metal angles. Reinstallation or replacement of the angles may also be required.
 - Repair and repoint areas of cracked, missing and deteriorated brick masonry throughout the Administration Building and Maintenance Garage
 - Mill and resurface the asphalt parking lot
 - Remove the sidewalk and curbs at the retaining wall along Ramp C and install new curb and landscaping
 - Repair sidewalk at top of stairway to roadway level
 - Repair deteriorated concrete apron in bay 10
 - A developed plan should be considered to maintain the paint striping in the toll plaza.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Easton-Phillipsburg Toll Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2014					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
EPTB	Unforeseen Projects	\$1,114,875	\$75,000	\$77,550	\$152,550
564	E-P TB Parking Lot Improvements	\$839,117	\$0	\$90,500	\$90,500
711	E-P TB Salt Storage Building	\$2,792,000	\$2,607,627	\$0	\$2,607,627
713	E-P TB Admin Building Modernization & Generator Upgrade	\$11,806,094	\$0	\$0	\$0
FACILITIES AND GROUNDS SUB TOTAL		\$16,552,086	\$2,682,627	\$168,050	\$2,850,677
TOTAL COST		\$16,552,086	\$2,682,627	\$168,050	\$2,850,677

PORTLAND - COLUMBIA
TOLL BRIDGE FACILITY
(Structure No. 340)



PORTLAND - COLUMBIA TOLL BRIDGE FACILITY

GENERAL

PORTLAND - COLUMBIA TOLL BRIDGE

(10 span, simply supported riveted steel multi - girder)

The Portland - Columbia Toll Bridge Facility (Structure No. 340) opened to traffic on December 1, 1953 and converted to toll collection in the westbound direction only on May 25, 1989 under Contract No. T-297. The bridge connects Pennsylvania Route 611 at Portland, Pennsylvania with US Route 46 at a section of Knowlton Township, New Jersey. US Route 46 merges with Interstate 80 located just north of the bridge on the New Jersey approach.

The main river bridge consists of a ten span, simply supported riveted steel plate girder system with an approximate total length of 1,309 feet. The roadway is 29 feet wide from curb to curb and carries one lane of traffic in each direction with a posted speed limit of 35 mph. The substructure units consist of reinforced concrete piers and concrete bin abutments. All the substructures are founded on spread footings with the exception of Pier 8, which is founded on piles. The piers also have partial granite stone facing.

A rehabilitation contract performed in 1992 included replacement of the existing concrete deck with a cast - in - place deck and concrete parapets. The combination sidewalk and maintenance walkway were removed and a new lighting system on the downstream side of the main bridge was installed. Approach roadway improvements (NJ and PA) and new drainage systems were also constructed. In 1998, the main river bridge, the pedestrian bridge to the north of the toll bridge, and both approach structures were cleaned and painted by contract.

In 2010, the Commission completed a Substructure & Scour Remediation project in Districts 1, 2 & 3 under Contract No. T/TS-476A-2. This project included substructure repairs of piers 1 through 9 and both abutments including masonry repointing, epoxy injection crack sealing of pier footings and spall repairs. In 2012, the Commission completed a second Substructure & Scour Remediation project in Districts 1, 2 & 3 under Contract No. T/TS-573A. This project included underwater repairs to the footings at piers 6 and 7 consisting of tremie and concrete bag remediation.

Repairs to the approach roadways and the application of methacrylate deck sealant were completed in 2015 under Contract No. T-566A. This contract included toll plaza roadway slab reconstruction; approach roadway/ramp resurfacing, reconstruction, and widening; resurfacing at the Locust Street overpass approaches; roadway lighting upgrades; drainage improvements; replacement of all main river and approach bridge deck joint sealers; application of a methacrylate sealer to all bridge decks/parapets; and other miscellaneous improvements.

PORTLAND - COLUMBIA APPROACH BRIDGES

The Commission's jurisdiction also includes two additional bridges at the New Jersey approach, Locust Street and US 46 overpass. Deck and barrier replacements were performed in 1992 in conjunction with the main river bridge rehabilitation contract.

Repairs to the Locust Street Bridge were completed in 2010 under Contract No. T-441A. These repairs included, resetting, cleaning and painting of the steel bearings, concrete repairs to the bridge substructure and new concrete slope protection at each abutment.

Repairs to the approach roadways and the application of deck sealant were performed as part of Contract No. T-566A in 2015.

PORTLAND - COLUMBIA TOLL BRIDGE FACILITY AND GROUNDS

The one way toll plaza, located at the Pennsylvania approach, has three toll lanes. All the tollbooths are erected on concrete islands and are protected by an overhead canopy. All three lanes are equipped for E-ZPass. The toll booth barrier gates were removed in 2010 with the installation of Violation Enforcement System (VES) technology – high resolution cameras and lights - in toll collection lanes.

A 2,000 ton salt storage barn was constructed in 2010 under Contract No. T-441A which services all District 3 bridges. Also completed under Contract No. T-441A was the installation of impact attenuators at the toll plaza, repairs to the concrete toll plaza islands and restriping of the traffic marking in the toll plaza area. The facility parking lot, driveways and maintenance yards were resurfaced and new curbs and sidewalks were also installed. Another project element was the installation of a sewer line connecting the administration building to the new Portland Borough municipal sewer system.

The roof on the maintenance garage and the administration building was replaced in 2005 under Contract No. T-439A.

In 2017, the Commission completed the transition to a new toll-collection system under Contract No. DB-540A, which included the Portland - Columbia toll plaza. This work included construction of new toll lane slabs with loop detectors.

The 2017 inspection included the main river bridge, two approach bridges, five (5) sign structures, the facility and grounds, and a sign retro-reflectivity assessment.

SIGNIFICANT FINDINGS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

PORTLAND - COLUMBIA TOLL BRIDGE

(10 span, simply supported riveted steel multi - girder)

The structure is in overall good condition.

The deck, superstructure and substructure above the waterline are in good condition. There are several locations of section loss to the beam ends and connection plates throughout the superstructure, which are arrested by paint. The girders have isolated locations of spot rust.

The approach roadway has been upgraded from satisfactory to good condition due to the completion of repairs under Contract No. T-566A. The various Commission-owned approach roadways and ramps were rehabilitated under Contract No. T-566A in 2015 and 2016.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The underwater components of the substructure were noted to be in good condition.

The sign structures (5 total) are in overall good condition. The painted sign structures were cleaned and repainted under Contract No. T-566A.

ROUTE 46 OVERPASS

(1 span, riveted steel multi - girder)

The structure is in overall good condition.

The deck, superstructure and substructure are in good condition. Areas of section loss were noted on the secondary members of the superstructure.

The approach roadway has been upgraded from satisfactory to good condition due to the completion of repairs under Contract No. T-566A.

LOCUST STREET OVERPASS

(4 span, simply supported steel multi - girder)

The structure is in overall good condition.

The deck, approach roadway, superstructure and substructure are in good condition.

PORTLAND - COLUMBIA TOLL BRIDGE FACILITY AND GROUNDS

The buildings and structures located on the grounds have been maintained in a state of good repair, and are in overall good condition.

The buildings show several stress cracks in the brick masonry.

The asphalt pavement at the Administration Building and Maintenance Garage is in satisfactory condition.

The concrete toll booth islands show deterioration.

The HVAC system is approximately 20 years old and may be reaching the end of its useful life. During the facilities inspection, Maintenance personnel noted the current HVAC system does not function properly. In 2017, the Commission initiated Contract No. T-645A – Buildings & Facilities Energy Conservation Measures – Electrical/Lighting and Contract No. T-645B – Buildings & Facilities Energy Conservation Measures – Mechanical/Controls. This work will include, but is not limited to, LED lighting replacement, LED street lights, and air conditioning replacement at the Portland - Columbia Toll Facility.

CONCLUSIONS

Based on the findings of the 2017 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

PORTLAND - COLUMBIA TOLL BRIDGE

The structure is in overall good condition.

- Items to be included in future repair contract:
 - Perform structural steel repairs at various locations on the girders and lateral bracing gussets.
 - Remove tack welds at fascia girders
 - Spall repairs at East Abutment and Piers 1, 2, 3, 4, 5 and 7.
 - Remove debris at Piers 5, 7 and 8
 - Place riprap at vertically exposed portions of Pier 8

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

ROUTE 46 OVERPASS

The structure is in overall good condition.

- Items to be included in future repair contract:
 - Perform structural steel repairs at lateral gusset plates (2 locations) at Girder 4

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

LOCUST STREET OVERPASS

The structure is in overall good condition.

- Items to be included in future repair contract:
 - Clean and paint the bearings
 - Seal the wide vertical crack in Pier 1, Column 1 with epoxy

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

PORTLAND - COLUMBIA TOLL BRIDGE FACILITY AND GROUNDS

- Items to be included in future repair contract:
 - Reconstruct deteriorated toll booth islands
 - Conduct a detailed building life and safety study
 - Exterior lighting upgrades (Included in Contract No. T-645A)
 - Air conditioner replacement (Included in Contract No. T-645B)

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Portland-Columbia Toll Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		
			2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
Approach roadways and ramps rehabilitated in 2015					
	BRIDGES SUB TOTAL	\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
PCTB	Unforeseen Projects	\$754,292	\$50,000	\$51,700	\$101,700
	FACILITIES AND GROUNDS SUB TOTAL	\$754,292	\$50,000	\$51,700	\$101,700
	TOTAL COST	\$754,292	\$50,000	\$51,700	\$101,700

DELAWARE WATER GAP
TOLL BRIDGE FACILITY
(Structure Nos. 380 & 390)



Commonwealth of Pennsylvania
County of Monroe
Borough of Delaware Water Gap

State of New Jersey
County of Warren
Township of Hardwick



DELAWARE WATER GAP TOLL BRIDGE FACILITY

GENERAL

DELAWARE WATER GAP TOLL BRIDGE

(Eastbound: 17 span, riveted steel multi - girder)

(Westbound: 16 span, riveted steel multi - girder)

The Delaware Water Gap Toll Bridge (Structure Nos. 380 and 390) carries Interstate 80 across the Delaware River near Delaware Water Gap, Pennsylvania, and Hardwick Township, NJ, providing a gateway from the eastern metropolitan area to the Pocono recreational area. Through Pennsylvania, the four lane limited access highway crosses the width of Pennsylvania to the Ohio border and directly connects to the Ohio Turnpike. On the New Jersey side, Interstate 80 connects the Delaware Water Gap Toll Bridge to the George Washington Bridge.

The toll bridge, built by the Commission and opened on December 16, 1953, is a twin, multi - span (17 spans EB and 16 spans WB), steel riveted plate girder bridge approximately 2,465 feet in total length. The dual roadways are each 28 feet wide from curb to curb, carrying two lanes of traffic each, and are separated by an aluminum barrier. A 5 foot wide sidewalk is located on the south side of the eastbound roadway, separated from the travel lanes with a concrete barrier. The substructure units consist of reinforced concrete bin abutments and piers. The piers also have partial granite stone facing. The speed limit posted at both approach roadways is 55 mph.

Major rehabilitation work was completed in 1989. The rehabilitation work included reconstruction of the toll plaza for one way toll collection in the westbound direction (8 total lanes), deck replacement, construction of a New Jersey approach pedestrian walkway, toll plaza access tunnel, and miscellaneous pavement replacement. Other work performed under this contract included the installation of the aluminum median barrier, lighting and signage.

In November 2011, both structures were rehabilitated under Contract No. T-472A. This contract included replacement of the steel expansion bearings, concrete repairs to the piers and abutments, replacement of the deck joints and cleaning and painting of the structural steel.

In 2010, the Commission completed a Substructure & Scour Remediation project in Districts 1, 2 & 3 under Contract No. T/TS-476A-2. This project included substructure repairs to piers 4W through 7W, 14W and 14E including masonry repointing and spall repairs. In 2012, the Commission completed a second Substructure & Scour Remediation project in Districts 1, 2 & 3 under Contract No. T/TS-573A. This project included repairs to the footings at piers 8W, 9W, 8E and 9E consisting of epoxy injection crack sealing and Riprap repair around the perimeter of the footing.

DELAWARE WATER GAP TOLL BRIDGE FACILITY AND GROUNDS

The one way toll plaza, located at the Pennsylvania approach has five (5) toll lanes. The toll plaza was reconfigured in 2011 under the Delaware Water Gap Open Road Tolling Implementation, Contract No. T-440B. This traffic congestion/mitigation project involved the reconfiguration of the barrier toll plaza, removing three lanes to make way for a single Express E-ZPass lane with shoulders, and the construction of several new overhead sign structures. The

project included the removal of the three left toll plaza booths and replacing them with a single open road tolling lane. Additionally, the remaining five lanes at the toll plaza consist of a new E-ZPass only lane and four mixed mode (cash and electronic toll collections) lanes. All lanes are now capable of handling both cars and trucks. The project also involves the installation of new signs and sign structures, paving and striping work. The toll booth barrier gates were removed in 2010 with the installation of Violation Enforcement System (VES) technology – high resolution cameras and lights - in toll collection lanes.

A ½ mile section of Interstate 80 east of the bridge was resurfaced in 2007 under Contract No. T-492A, a reimbursement agreement with the New Jersey Department of Transportation.

The Delaware Water Gap Maintenance Garage Expansion was completed in 2013 under Contract No. T-474A. The roof on the maintenance garage and the administration building were also replaced in 2005 under Contract No. T-439A.

In 2017, the Commission completed the transition to a new toll-collection system under Contract No. DB-540A, which included the I-80 Delaware Water Gap toll plaza. This work also included construction of new toll lane slabs with loop detection.

The 2017 inspection included the eastbound and westbound main river bridges, seven (7) sign structures, the facility and grounds, and a sign retro-reflectivity assessment.

SIGNIFICANT FINDINGS

Based on the findings of the 2017 inspections, the main river bridges are capable of safely supporting all legal loads.

DELAWARE WATER GAP TOLL BRIDGE (EASTBOUND)

(17 span, (4 continuous and 13 simply supported), riveted steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in satisfactory condition. Although not affecting the riding surface, numerous fine to wide transverse cracks were noted throughout the deck. The structure rehabilitation under Contract No. T-472A included the application of a penetrating deck sealant.

The approach roadway is in satisfactory condition. Fine to medium map cracks were noted at the approaches. Patches and small edge spalls were also noted at the approaches.

The superstructure and substructure above the waterline are in good condition.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The underwater components of the substructure were noted to be in satisfactory condition due to minor deterioration of the substructure units and exposed footings.

DELAWARE WATER GAP TOLL BRIDGE (WESTBOUND)

(16 span, (3 continuous and 13 simply supported), riveted steel multi - girder)

The structure is in overall satisfactory condition.

The deck is in satisfactory condition. Although not affecting the riding surface, numerous fine to wide transverse cracks were noted throughout the deck. The structure rehabilitation under Contract No. T-472A included the application of a penetrating deck sealant.

The approach roadway is in satisfactory condition. Fine to medium map cracks were noted at the approaches. Patches and small edge spalls were also noted at the approaches.

The superstructure and substructure above the waterline are in good condition.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The underwater components of the substructure were noted to be in satisfactory condition due to minor deterioration of the substructure units and exposed footings at several piers.

The seven (7) sign structures spanning over the westbound lanes, located near the toll plaza and at the east bridge approach, are in overall good condition. The E-ZPass (ORT) gantry structure at the toll plaza is also in good condition.

DELAWARE WATER GAP TOLL BRIDGE FACILITY AND GROUNDS

The buildings and structures located on the grounds have been maintained in a state of good repair, and are in overall good condition.

Since the previous inspection, a multi-unit AC system was installed throughout the administration building

The maintenance garage was expanded and a new roof was installed as part of Contract No. T-474A. Several locations of blistered roof membrane were evident during the inspection and should be monitored regularly.

Since the previous inspection, generator upgrades were completed under Contract No. T-514A, District 3 Facilities Emergency Standby Generators Improvement.

The westbound west approach slabs approaching the toll booths and in the ORT lane just west of the toll booths show common spalling at slab joints and a few areas of noticeable settlement. Spall formation in the westbound toll plaza slabs is continuing as evidenced by ongoing spall repairs (concrete and asphalt patching). Noticeable settlement was observed at the asphalt pavement in the westbound E-ZPass ORT lane adjacent to PennDOT overhead sign structure, and in the pavement in the vicinity of a drainage inlet in the westbound west approach adjacent to the toll bridge.

There is a large fracture in the median barrier on the I-80 east (New Jersey) approach near milepost 0.3. Repairs are currently being implemented.

In 2017, the Commission initiated Contract No. T-645A – Buildings & Facilities Energy Conservation Measures – Electrical/Lighting and Contract No. T-645B – Buildings & Facilities Energy Conservation Measures – Mechanical/Controls. This work will include, but is not limited to, LED lighting replacement, LED street lights, and air conditioning replacement at the Delaware Water Gap Toll Facility.

CONCLUSIONS

Based on the findings of the 2017 inspections, the main river bridges are capable of safely supporting all legal loads.

DELAWARE WATER GAP TOLL BRIDGE (EASTBOUND)

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Place riprap at Piers 8, 9 and 10
 - Remove debris at Piers 3, 8, 9, 10, 11, 12 and 13

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

DELAWARE WATER GAP TOLL BRIDGE (WESTBOUND)

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Place riprap at Pier 8.
 - Remove debris at Piers 3, 8, 9, 12 and 13

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

DELAWARE WATER GAP TOLL BRIDGE FACILITY AND GROUNDS

While the facility is being maintained in good condition overall, a detailed life and safety study should be conducted.

Air conditioning is recommended in the tunnel to extend the life of the toll collection system and other electrical equipment.

The paint striping throughout the toll plaza is reported to be deteriorated and needs to be repainted often. A developed plan should be considered to maintain the paint striping up to code.

A sidewalk connecting the exit from the Maintenance Garage at the north end to the driveway should be constructed.

Rehabilitation of the toll plaza slabs should be considered due to continuous spall repairs in the westbound lanes, the settlement of the asphalt pavement in westbound E-ZPass lane adjacent to PENNDOT overhead sign structure and the settlement in the roadway adjacent to the drainage inlet at the westbound lanes of the west approach to the structure.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

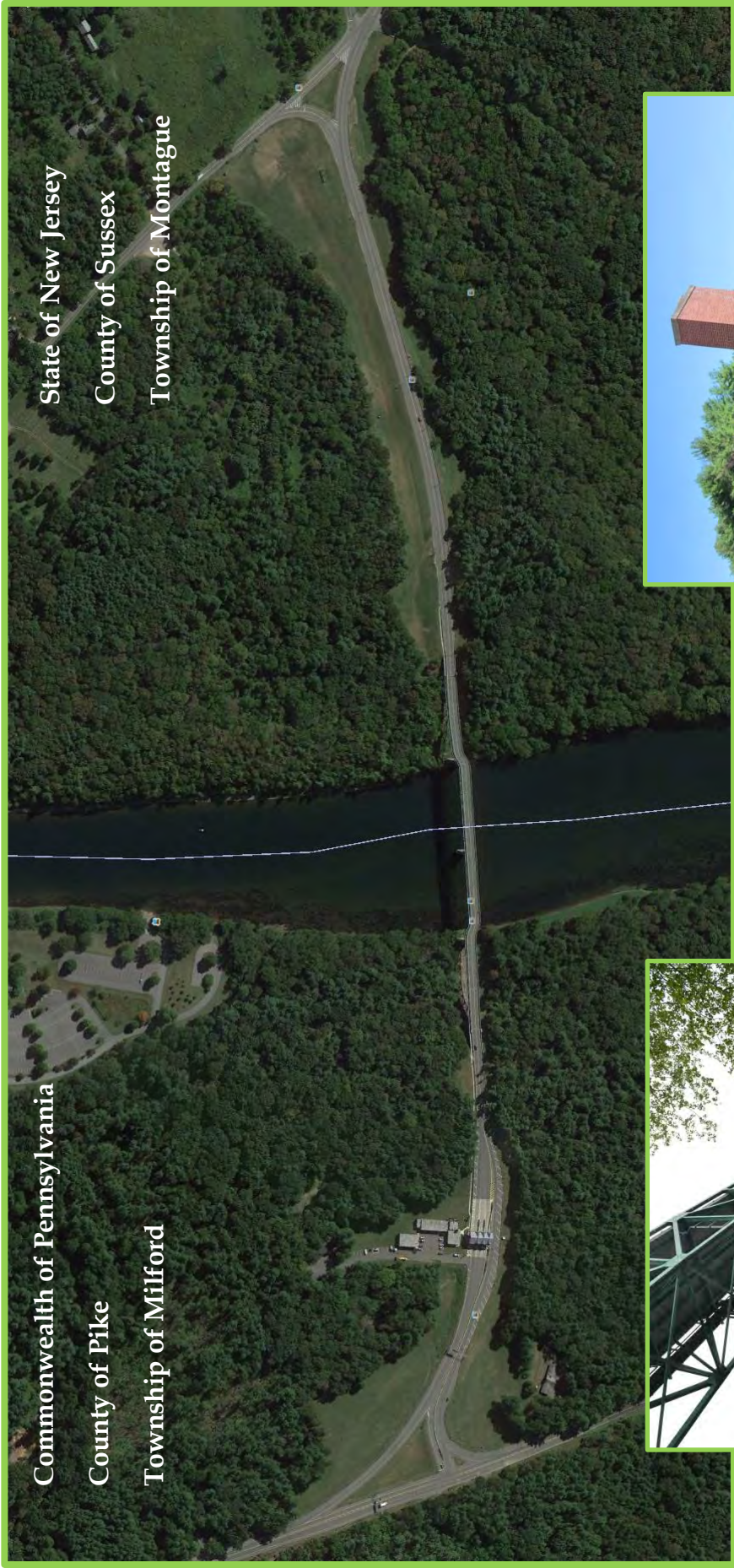
2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Delaware Water Gap Toll Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2011					
719	DWG Westbound Toll Plaza Approach and Roadway Rehabilitation	\$7,516,864	\$229,867	\$7,286,997	\$7,516,864
BRIDGES SUB TOTAL		\$7,516,864	\$229,867	\$7,286,997	\$7,516,864
<u>Facilities and Grounds</u>					
DWGTB	Unforeseen Projects	\$1,087,308	\$75,000	\$77,550	\$152,550
FACILITIES AND GROUNDS SUB TOTAL		\$1,087,308	\$75,000	\$77,550	\$152,550
TOTAL COST		\$8,604,172	\$304,867	\$7,364,547	\$7,669,414

MILFORD - MONTAGUE
TOLL BRIDGE FACILITY
(Structure No. 400)



MILFORD - MONTAGUE TOLL BRIDGE FACILITY

GENERAL

MILFORD - MONTAGUE TOLL BRIDGE

(4 span, continuous, steel deck truss)

The Milford - Montague Toll Bridge (Structure No. 400) is the northernmost toll bridge across the Delaware River under the Commission's jurisdiction. Located seven miles south of the New Jersey/New York state line, the bridge connects US Route 206 at Montague, New Jersey to US Route 209 at Dingman Township, Pennsylvania.

The toll bridge, built by the Commission and opened to traffic on December 30, 1953, is a four span continuous steel deck truss structure with an approximate total length of 1,150 feet. The curb to curb width of the roadway is 27'-6" and carries one lane of traffic in each direction with a posted speed limit on the approaches of 40 mph. Cantilevered from the north truss is a 4'-0" wide sidewalk. The substructure units consist of reinforced concrete abutments and piers with granite stone facing on the piers.

In 1982 the original deck was replaced with precast concrete deck panels and stringers were relocated (fifth stringer added) for the addition of the cantilevered sidewalk. Also included in the 1982 rehabilitation project were modifications to the substructures and bridge lighting, and the addition of the aluminum safety barriers. In 1998, the New Jersey approach was milled and repaved by contract. In 1999 the toll plaza was converted to one way collection.

Contract No. T-430A, a rehabilitation contract for the Milford - Montague Toll Bridge, was completed in 2009. The improvements to the structure included precast concrete deck replacement, superstructure steel repairs, cleaning and painting of the superstructure, substructure repairs, slope protection and erosion damage repairs, approach roadway repaving, drainage improvements, safety feature improvements (signage, guide rails, etc.), and a new toll plaza and canopy.

MILFORD - MONTAGUE TOLL BRIDGE FACILITIES AND GROUNDS

At the Pennsylvania approach, there are three westbound toll collection lanes that are protected by a canopy and founded on concrete islands. The toll plaza was constructed in 2009 under Contract No. T-430A. The toll booth barrier gates were removed in 2010 with the installation of Violation Enforcement System (VES) technology – high resolution cameras and lights - in toll collection lanes.

In 2017, the Commission completed the transition to a new toll-collection system under Contract No. DB-540A, which included the Milford-Montague toll plaza.

The Commission facility was connected to the local municipal water supply provided by the Milford Water Authority in 2009 under Contract No. T-432A.

The parking lot was repaved under Contract No. T-430A in 2009.

The 2017 inspection included the main river bridge, the facility and grounds, four (4) sign structures and a sign retro-reflectivity assessment.

In 2018, the Milford-Montague Toll Bridge Salt Storage Building was completed under Contract No. T-717A. This work included the removal of the existing salt storage building, construction of a new 500 Ton Salt Storage Building, and associated paving, electrical, and lighting.

SIGNIFICANT FINDINGS

Based on the findings of the 2017 inspections, the main river bridge is capable of safely supporting all legal loads.

MILFORD - MONTAGUE TOLL BRIDGE

(4 span, continuous, steel deck truss)

The structure is in overall good condition.

The deck is in good condition.

The approach roadway, superstructure and substructure above the waterline are in good condition. Several of the truss gusset plates exhibit minor distortion due to pack rust. There were several instances of localized spalling at the ends of pier seats.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The underwater components of the substructure were noted to be in good condition.

The four (4) sign structures are overall good condition. However replacement of the substandard and faded sign panels on all sign structures should be considered. Also, based on the fatigue prone aluminum tri-chord truss construction, complete replacement of Sign Structures #40051 and 40053 (both in PA) is recommended. Sign Structure #40054 (US 206 in NJ) has an exposed power supply line extending the height of the tower.

Since the previous inspection, construction of new approach sidewalks on both approaches to the bridge was completed by Commission Maintenance forces.

MILFORD - MONTAGUE TOLL BRIDGE FACILITIES AND GROUNDS

The buildings and structures located on the grounds have been maintained in a state of good repair, and are in overall good condition.

The toll plaza was replaced, and approach roadway rehabilitated under Contract No. T-430A in 2009.

Since the previous inspection, the Commission completed the transition to a new toll-collection system under Contract No. DB-540A. This work included construction of new toll lane slabs with loop detectors. Also, generator upgrades were completed under Contract No. T-514A, District 3 Facilities Emergency Standby Generators Improvement.

During the facilities inspection, Maintenance and Operations personnel had noted the current HVAC system does not function properly and is inadequate. In 2017, the Commission initiated Contract No. T-645A – Buildings & Facilities Energy Conservation Measures – Electrical/Lighting and Contract No. T-645B – Buildings & Facilities Energy Conservation Measures – Mechanical/Controls. This work will include, but is not limited to, LED lighting replacement, LED street lights, and air conditioning replacement at the Milford - Montague Toll Facility.

CONCLUSIONS

Based on the findings of the 2017 inspections, the main river bridge is capable of safely supporting all legal loads.

MILFORD - MONTAGUE TOLL BRIDGE

The structure is in overall good condition.

- Items to be included in future repair contract:
 - Place riprap at the north and east ends of Pier 2 in front of the exposed footing
 - Remove debris at Pier 2
 - Replace substandard sign structure panels at all four (4) sign structures.
 - Replace the fatigue prone aluminum tri-chord truss sign structures (#40051 and #40053) at the west approach.

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

MILFORD - MONTAGUE TOLL BRIDGE FACILITIES AND GROUNDS

While the facility is being maintained in good condition overall, a detailed life and safety study should be conducted.

The HVAC system in the Administration Building was reported to be inadequate. Air conditioning is to be replaced under Contract No. T-645B.

The paint striping throughout the toll plaza is reported to be deteriorated and needs to be repainted often. A developed plan should be considered to maintain the paint striping.

- Items to be included in future repair contract:
 - Demolish the maintenance salt canopy due to structural instability (this work is included in Contract No. T-717A)
 - Conduct a detailed building life and safety study

For a list of maintenance repair items, see the *2017 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Milford-Montague Toll Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS
FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2009					
	BRIDGES SUB TOTAL	\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
MMTB	Unforeseen Projects	\$767,191	\$50,000	\$51,700	\$101,700
	FACILITIES AND GROUNDS SUB TOTAL	\$767,191	\$50,000	\$51,700	\$101,700
	TOTAL COST	\$767,191	\$50,000	\$51,700	\$101,700

LOWER TRENTON
TOLL-SUPPORTED BRIDGE
(Structure No. 40)



LOWER TRENTON TOLL-SUPPORTED BRIDGE

GENERAL

LOWER TRENTON TOLL-SUPPORTED BRIDGE

(5 span, subdivided Warren Truss)

The Lower Trenton Toll-Supported Bridge (Structure No. 40), also known as the “Trenton Makes” Bridge, carries Bridge Street traffic from Trenton, New Jersey to Morrisville, Pennsylvania; one of three bridges connecting these two towns.

The structure is a five span subdivided Warren Truss built in 1928, with a total length of approximately 1,022 feet. The roadway consists of two lanes, one lane in each direction separated by a center truss. The curb to curb width of each lane is approximately 19 feet, 5 inches. A timber plank sidewalk is supported by the upriver truss on steel cantilever brackets. The substructure, originally built in 1804, widened and raised in 1874, consists of stone masonry.

The structure is currently posted for a 5 ton weight limit restriction and a 25 mph speed limit.

The downriver truss displays the “TRENTON MAKES THE WORLD TAKES” sign which is mounted to the truss members; hence, the nickname “The Trenton Makes Bridge”. The original sign was erected in 1935 and replaced in 1981. A new sign was installed in 2005 under Contract No. TS-398C. In May 2018 under Contract No. TS-687A Lower Trenton Toll-Supported Bridge Sign Lighting Replacement, upgrades were completed to the sign. This contract upgraded the “Trenton Makes The World Takes” letters by removing the existing neon tube lighting, painting the letter housings, and installing new color changing LED strip lighting.

The structure was cleaned and painted under Contract No. TS-398A in 2005.

Contract No. T/TS-476A-1 Substructure Repair and Scour Remediation-District 1, included above water repairs to Piers 1 through 4 and the PA abutment including masonry repointing, epoxy crack sealing and masonry stone replacement. Pier 4 also included underwater concrete repairs to the apron. This work was completed in 2010. The second scour contract, Contract No. T/TS-573A included underwater concrete repairs to the aprons at Piers 1, 2 and 3. This work was completed in 2012.

Contract No. TS-639B Lower Trenton Toll-Supported Bridge Approach Roadways Improvements was completed in 2015. This contract included the reconstruction of the east and west approach roadways to the main river bridge, which includes New Warren Street (NJ) and Bridge Street (PA). Work involved the rehabilitation of bituminous and concrete pavements, new brick paver islands, resurfacing adjacent areas of several local side streets, and ADA upgrades.

Contract No. TS-699A, NJ Approach Traffic Signal Upgrades, was also completed in 2018 which included the installation of traffic signs, traffic signals, and pedestrian signal upgrades at the east approach of the bridge,

The east approach bridge over State Route 29 is NJDOT owned and was not part of the inspection.

LOWER TRENTON TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

A Bridge Monitor shelter is located at the northwest Pennsylvania approach, installed in 2006.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

LOWER TRENTON TOLL-SUPPORTED BRIDGE

(5 span, subdivided Warren Truss)

The structure is in overall satisfactory condition.

The bridge deck is in good condition. The NJ and PA approach roadways are in very good condition due to the work done under Contract No. TS-639B.

The superstructure is in satisfactory condition. Numerous lower chord gusset plates at the north, center and south trusses exhibit areas of up to 1/4" material losses in all spans. Lower chord members at the south truss typically exhibit material losses up to 3/16". Up to 5/16" pack rust was noted at the lower chord members between the north and south plates and angle members with areas of minor material losses to the plates. Truss members above the deck exhibit paint chalking with the chalking more severe at the top plate at the upper chord where heavy bird droppings are common. Floorbeams show typical minor section loss randomly throughout the top and bottom flanges, locally up to 1/4" deep. The floorbeams, stringers, and bearings exhibit localized areas of coating loss throughout the structure.

The substructure above the waterline is in satisfactory condition. The abutments and piers exhibit numerous areas of cracked and missing mortar. A few piers also show loose and missing stones in isolated areas. The pier concrete aprons were mostly not visible at the time of inspection due to the water level, but the upper concrete apron at Pier 4 was observed to have areas of moderate to heavy scaling with some exposed reinforcement bars. The underwater report notes that this original apron is supplemented below by a newer concrete apron which was submerged and not visible during this inspection.

An underwater inspection was performed in 2016 under Contract No. C-628A-6. The substructure units below the waterline were found to be in satisfactory condition.

LOWER TRENTON TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania Bridge Monitor shelter is in overall satisfactory condition. The floor tiles in the shelter are in poor condition. The restroom sink is temporarily supported with a 2x4 due to a loose wall mount. The electrical panel in the PA Bridge Monitor shelter is not properly located in the restroom. Numerous other maintenance level defects were observed throughout the Bridge Monitor shelter and the grounds.

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

LOWER TRENTON TOLL-SUPPORTED BRIDGE

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Repair or replace the east and west abutment deck joints.
 - Perform miscellaneous structural steel repairs (rivets, anchor bolts, section loss, impact damage, shim plates, etc.).
 - Spot clean and paint the superstructure and bearings.
 - Replace fractured masonry stones at the abutments and piers.
 - Repoint masonry joints at Piers 1, 2, 3 & 4.
 - Repair the spalled concrete aprons at Pier 1 and Pier 4.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

LOWER TRENTON TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania Bridge Monitor shelter is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Replace the missing fence along the northwest channel embankment wall.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Lower Trenton Toll-Supported Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
This bridge was rehabilitated in 1997					
The Trenton Makes sign elements were replaced in 2017.					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
LTTSB	Unforeseen Projects	\$403,680	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$403,680	\$25,000	\$25,850	\$50,850
TOTAL COST		\$403,680	\$25,000	\$25,850	\$50,850

CALHOUN STREET
TOLL-SUPPORTED BRIDGE
(Structure No. 60)



CALHOUN STREET TOLL-SUPPORTED BRIDGE

GENERAL

CALHOUN STREET TOLL-SUPPORTED BRIDGE

(7 span, wrought iron Phoenix Pratt Truss)

The Calhoun Street Toll-Supported Bridge (Structure No. 60) is one of three bridges constructed to connect Trenton, New Jersey and Morrisville, Pennsylvania. The bridge serves as a connector between NJ Route 29 and PA Route 32. The truss was built in 1884 and the stone masonry substructure was built in 1859.

The structure is a seven span, wrought iron, pin connected Phoenix Pratt Truss with a total length of approximately 1,274 feet. The open steel grid deck provides a curb to curb width of 18 feet, 6 inches. A timber plank sidewalk is supported by the upriver truss on steel cantilever brackets.

The structure is currently posted for a 3 ton weight limit restriction and a 15 mph speed limit. The structure is also posted for an 8 foot vertical clearance on the bridge roadway.

A comprehensive rehabilitation of the structure was completed under Contract No. TS-447B in 2010. Major work items performed during this rehabilitation included floor system, deck and sidewalk replacement, truss repairs, cleaning and painting of existing superstructure steel, substructure repairs and approach roadway work.

Contract No. T/TS-476A-1 Substructure Repair and Scour Remediation-District 1, included underwater concrete repairs to the footings at Piers 4, 5 and 6. This work was completed in 2010. Contract No. T/TS-573A included underwater footing repairs at Piers 1, 2, and 3, and was completed in 2012.

CALHOUN STREET TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

A Bridge Monitor shelter is located at the southwest and southeast corners of the Pennsylvania and New Jersey approaches, respectively.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

CALHOUN STREET TOLL-SUPPORTED BRIDGE

(7 span, wrought iron Phoenix Pratt Truss)

The structure is in overall satisfactory condition.

The deck is in good condition.

The approach roadways are in good condition.

The superstructure and substructure above the waterline are in good condition.

An underwater inspection was performed in 2016 under Contract No. C-628A-6. The substructure units below the waterline were found to be in satisfactory condition.

CALHOUN STREET TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania Bridge Monitor shelter is in overall satisfactory condition. The roof has loose shingles, and there is evidence of water infiltration through the roof with water staining noted in the ceiling insulation and tiles. The exterior floor drain is clogged and can potentially lead to flooding problems in the shelter basement. Hold down bolts at the sill plate connection to the foundation walls are missing. The emergency lighting system did not function when tested. The pedestrian signal control at the northwest corner (at intersection with PA Route 32) is not functioning. Erosion exists at the parking area at the north side of the west approach.

The New Jersey Bridge Monitor shelter is in overall good condition. The emergency lighting system did not function when tested. A gap exists in the pedestrian railing adjacent to the shelter wall.

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

CALHOUN STREET TOLL-SUPPORTED BRIDGE

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Replace cracked decorative casting at east portal at south truss in Span 4.
 - Install new anchor bolts at Span 4 north truss bearing at Pier 4.
 - Insert shim plates at stub stringer pier bearings.
 - Repoint mortar at all substructure units.
 - Repair concrete spalls and masonry voids at the piers.
 - Remove the vegetation growth and debris from the piers.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

CALHOUN STREET TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania Bridge Monitor shelter is in overall satisfactory condition.

The New Jersey Bridge Monitor shelter is in overall good condition.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Calhoun Street Toll-Supported Bridge

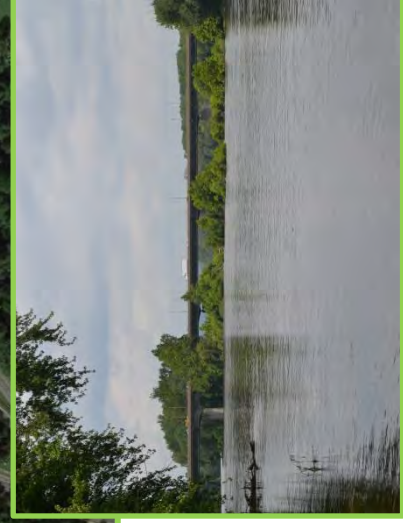
ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2010					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
CSTSB	Unforeseen Projects	\$340,433	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$340,433	\$25,000	\$25,850	\$50,850
TOTAL COST		\$340,433	\$25,000	\$25,850	\$50,850

SCUDDER FALLS

TOLL-SUPPORTED BRIDGE

(Structure Nos. 80, 81 & 82)



SCUDDER FALLS TOLL-SUPPORTED BRIDGE

GENERAL

SCUDDER FALLS TOLL-SUPPORTED BRIDGE

(10 span, riveted steel plate girder)

The Scudder Falls Toll-Supported Bridge (Structure No. 80) carries Interstate 95 over the Delaware River from Lower Makefield Township, Pennsylvania to Ewing Township, New Jersey.

The main river bridge is a ten span, riveted steel plate girder structure consisting of two span continuous deck girders and alternating cantilever spans. Built by the Commission in 1959 and opened to traffic on June 22, 1961, the bridge carries two dual roadways each having a curb to curb width of 27 feet with a concrete median barrier, and flanked by an upstream and downstream safety walk. The total length of the bridge is 1,744 feet. The substructure units are reinforced concrete, with stone facing on the piers.

The posted speed limit on the bridge approach roadways is 55 mph. The Commission's jurisdiction at this crossing also includes two Pennsylvania approach overpasses, one at the Pennsylvania Canal and the other at Taylorsville Road.

In 1982, the deck was repaired and overlaid with 1 ¼" thick latex modified concrete. In 1991, auxiliary support systems were installed at all original pin / hangers comprising the girder hinges. The deck joints were replaced in 2006 under Contract No. TS-393C. In 2015, the top of deck received extensive spall repairs under Contract No. TS-677A.

Based upon conclusions contained in its 2002 Southerly Crossings Corridor Study, the Commission decided to replace the existing Scudder Falls Bridge. The Replacement Project will also reconstruct and widen the Pennsylvania and New Jersey approach roadways; and, reconstruct and reconfigure the Taylorsville Road interchange in Pennsylvania and the NJ Route 29 Interchange in New Jersey. The Commission completed the Environmental Documentation and Preliminary Design phase of the Project in 2012 with the issuance of Federal approval for the project. Subsequently, the Commission completed the necessary long lead work tasks including archaeological investigations, environmental permitting, right-of-way acquisition, and stormwater management design.

Replacement of the bridge began in late 2016 under Contract No. T-668A, Scudder Falls Bridge Replacement Project. Construction currently is projected to take approximately 4 years to reach completion. The Scudder Falls Bridge Replacement Project area extends 4.4 miles along I-95 – from the PA State Route 332 interchange in Bucks County, Pennsylvania to the Bear Tavern Road interchange in Mercer County, New Jersey.

The work includes a complete replacement of the existing four-lane Scudder Falls Bridge over the Delaware River with six lanes of through traffic (three in each direction), two auxiliary lanes northbound for entry/exit travel, and one auxiliary lane southbound for entry/exit travel. The new crossing will consist of dual seven span structures (one NB and one SB), each supported by six piers and two abutments with a total length of about 1,814 feet.

The bridge replacement project is projected to be the largest single capital undertaking in the Commission's history – over \$500 million – providing new capacity and new safety upgrades to meet both current and future traffic demands along I-95 in Pennsylvania, at the bridge's two adjoining interchanges in New Jersey and Pennsylvania, and on the bridge itself. The current four lane bridge with no breakdown shoulders, ranks as one of the most heavily travelled river crossings among the 20 bridges in the Commission's system.

The Pennsylvania Turnpike Commission has begun construction of a new interchange, which will provide a direct link from the Turnpike to existing I-95 in Bucks County. The first of three stages is anticipated to be completed in 2018, with the remaining construction schedule largely dependent on funding. Once completed, the Pennsylvania Turnpike will be re-designated as I-95 from the new interchange east to the connection with the New Jersey Turnpike at the Delaware River. The existing I-95 roadway north of the new interchange through Bucks County including the Scudder Falls Bridge has been approved by AASHTO to be re-designated as I-295.

Other major components of the Scudder Falls Bridge Replacement Project include:

- Widening of I-295 from the PA State Route 332 exit in Pennsylvania to the bridge by adding an additional lane in each direction (widening to the inside of the highway).
- Reconfiguration of the I-295/Taylorsville Road Interchange in Lower Makefield Twp., Pa. by eliminating the existing eastern southbound off ramp from I-295 and combining it with the existing western southbound off ramp.
- Reconstruction and reconfiguration the I-295/NJ Route 29 interchange through the use of roundabouts. This option would avoid traffic signals, resulting in a folded diamond interchange with two roundabout intersections at the ramps with I-295.
- Fifteen (15) MSE retaining walls with a total length of 10,370 feet with a maximum fill height of 40 feet.
- Twenty-four (24) new sign structures: Fourteen (14) cantilever sign structures and ten (10) overhead sign structures.
- Addition of a bicycle and pedestrian facility on the new upstream structure carrying southbound traffic.
- Addition of noise abatement walls along the New Jersey and Pennsylvania approach roadways.
- Constructing an All Electronic Tolling gantry for collecting tolls into Pennsylvania.
- Constructing a new Bridge Monitor Building that will house Commission staff, ESS, IT and All Electronic Tolling equipment.

To fully finance the multifaceted project, the Commission will implement All Electronic Tolling (AET) on the new Scudder Falls Bridge in the southbound direction only. This will be the Commission's first AET facility, which will collect tolls at prevailing highway speeds, eliminating the need for a traditional toll plaza. The FHWA has determined there is no need for a tolling agreement for the facility.

PENNSYLVANIA CANAL OVERPASS

(1 span, simply supported, steel multi-stringer)

The Pennsylvania Canal Overpass (Structure No. 81) carries Interstate Route 95 over the Pennsylvania Canal in Lower Makefield Township, Pennsylvania. The structure is an approach bridge to the main Scudder Falls Toll-Supported Bridge that crosses the Delaware River.

The Pennsylvania Canal Overpass is a single span, concrete deck, multi-stringer structure founded on reinforced concrete abutments on footings, which are supported by steel bearing piles. Opened to traffic on June 22, 1961, the bridge carries two dual roadways each with a curb to curb width of 37 feet with a concrete median barrier and shoulders. The total span length of the bridge is 61 feet, 4 inches. The deck was replaced in 1982, and has since been overlaid with bituminous concrete.

This structure will be replaced with new wider dual 113 foot long, single span pre-stressed concrete girder parallel structures (one each SB and NB) as part of the Scudder Falls Bridge Replacement project.

TAYLORSVILLE ROAD OVERPASS

(3 span, simply supported, steel multi-stringer)

Taylorsville Road Overpass (Structure No. 82) carries Interstate 95 over Taylorsville Road in Lower Makefield Township, Pennsylvania and provides access to the main Scudder Falls Toll-Supported Bridge over the Delaware River. The bridge was built in 1959 and opened to traffic on June 22, 1961. The deck was repaired and overlaid with 1 ¼" thick latex modified concrete in 1982, and has since been overlaid with bituminous concrete.

The structure is a three span, concrete deck, multi-stringer structure founded on reinforced concrete abutments and piers on footings that are supported by cast in place concrete piles. The bridge carries two dual roadways each with a curb to curb width of 44 feet with a concrete median barrier and shoulders. The total length of the structure is 138 feet, with a main span length of 81 feet over Taylorsville Road.

This structure will be replaced with new wider dual 103 foot long, single span pre-stressed concrete girder parallel structures (one each SB and NB) as part of the Scudder Falls Bridge Replacement project.

SCUDDER FALLS TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

Under the Scudder Falls Bridge Replacement Project, the Commission has purchased or obtained a number of properties in Pennsylvania and a section of Right-of-Way in New Jersey. Some have existing structures (houses and/or garages) which have remained, while others may not have had structures or they were demolished. At the time of inspection, there was one house and garage owned by the Commission on River Road in Pennsylvania, which was being occupied by Consultants relating to the Scudder Falls Replacement Project, and it was not inspected.

SCUDDER FALLS TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS (continued)

Additionally, in 2016, the Commission purchased an approximately 10-acre lot outside of the Right-of-Way associated with the Scudder Falls Bridge Replacement Project located at the corner of Woodside and Taylorsville Roads in Lower Makefield Township. The intended use of the property is for construction of a two-story Administrative building that would serve as the Commission's administrative headquarters, replacing the undersized, aged, and deteriorating building adjacent to Route 1 in Morrisville. In addition to the building, the Commission will also reconstruct the current park-and-ride lot at the location to accommodate 103 parking spaces and assume ownership of the lot; taking full responsibility for the future operation, maintenance, landscaping, and snow and trash removal in perpetuity. The Commission also would renovate the 1799 Building into Public Restrooms and construct, at its expense, a bicycle/pedestrian path from the reconstructed park & ride lot to the Delaware Canal Park towpath, which subsequently will be linked to the bike-pedestrian facility to be constructed across the river. In 2018, Contract No. T-707A Commission Administration Building at Scudder Falls and Adaptive Reuse of the 1799 Building was awarded and construction is underway.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads. Due to the netting installed under the bridge to discourage peregrine falcon habitation, access to the floorbeams and stringers were limited. Several of the findings below are carried over from the 2016 inspection.

SCUDDER FALLS TOLL-SUPPORTED BRIDGE

(10 span, riveted steel plate girder)

The structure is in overall fair condition.

The deck is in fair condition. The top of deck typically exhibits numerous transverse cracks. Numerous concrete patches were noted throughout the top of deck, many placed during the 2015 Contract No. TS-677A deck repair project. Total combined (old and new) patch area comprises approximately 20% of the top of deck. Several of the recent patching repairs extend the full depth of the deck. The older patches showed isolated occurrences of minor edge spalls and common fine cracks. The underside of deck exhibits scattered spalls and transverse cracking with exposed and corroded reinforcement. Combined area of spalls and cracking comprise 15% of the total underside of deck area.

The approach roadways and associated ramps are in satisfactory condition. Deteriorated asphalt was noted at numerous locations, most prevalent adjacent to the concrete headers. The approach roadways and ramps exhibit several small spalls and medium to wide cracks. An on-call repair Contractor has been performing repairs to the top of deck and approach roadways to maintain rideability during the construction of the Scudder Falls replacement structures.

The superstructure is in fair condition. A total of nine (9) stringers located in Spans 2, 5, 6, 8 and 9 exhibit horizontal corrosion cracks in the web and material losses at the bottom flange adjacent to the retrofit bearings at floorbeam cantilevers. Floorbeam 3 in Span 6 exhibits a crack in the tie plate over the south girder which is arrested by the connection bolt hole. There have been no signs of crack propagation since the previous inspection. Sheared or missing connection bolts were observed at the North tie plate at Floorbeam 4 in Span 2 (1 of 8), the South tie plate at Floorbeam 2 in Span 3 (1 of 8), the North tie plate at Floorbeam 1 in Span 4 (1 of 8), the North tie plate at Floorbeam 6 in Span 5 (1 of 8), the North tie plate at Floorbeam 2 in Span 6 (2 of 8), and the North tie plate at Floorbeam 2 in Span 9 (3 of 8). Loose or sheared anchor bolts were observed at the stringer bearings at Span 4 S2 over Floorbeam 8 (1 of 2), Span 5 S2 over Floorbeam 1 (2 of 2), Span 7 S2 over Floorbeam 9 (2 of 4), and Span 9 S4 at end Floorbeam over Pier 8 (2 of 2). The girders show localized heavy rust and lamination adjacent to the pin / hanger systems. Several girder web stiffeners have holes with adjacent laminations and section loss. Light to moderate surface rust was noted in hangers and pin washers with minor isolated material losses arrested with paint in hanger plates. All structural steel members exhibit large areas of peeling paint and surface rust with minor material losses.

The substructure above the waterline is in good condition.

An underwater inspection was performed in November 2015 under Task Order Assignment No. C-628A-4. This inspection found the underwater components to be in good condition.

PENNSYLVANIA CANAL OVERPASS

(1 span, simply supported, steel multi-stringer)

The structure is in overall fair condition. Staging demolition to facilitate the relocation of the median barrier was underway at the time of inspection. Partial demolition of the structure has begun subsequent to the routine inspection.

The deck is in good condition.

The approach roadway is in satisfactory condition. Medium to wide cracks are common throughout the asphalt overlay.

The superstructure is in fair condition. Heavy laminar rust is typical at the stringer ends and bearings. Up to 1/4" material loss (1/2" remaining) was noted at the bottom flanges and 1/16" loss at the base of web at Stringers S1, and S7 through S15.

The substructure is in satisfactory condition. Areas of spalling with exposed reinforcement were noted on the abutments.

TAYLORSVILLE ROAD OVERPASS

(3 span, steel multi-stringer)

The structure is in overall fair condition. Staging demolition to facilitate the relocation of the median barrier was underway at the time of inspection. Partial demolition of the structure has begun subsequent to the routine inspection.

The deck is in satisfactory condition. The underside of deck exhibits areas of fine map cracking with efflorescence and water stains in all spans, and a large spall with exposed rusted rebar in the south deck overhang over Pier 1. The top of deck exhibits a large area of uneven asphalt patch repairs in the northbound lanes, and minor to moderate asphalt wearing with common longitudinal and transverse cracks throughout. Potholes in the asphaltic plug deck joints cause moderate traffic impact.

The approach roadway is in satisfactory condition. Medium to wide cracks are common throughout the asphalt overlay.

The superstructure is in fair condition. Stringers exhibit moderate to heavy laminar rust with material losses up to 1/8" at the bottom flange and base of web. Stringer S14 in Span 2 exhibits moderate impact damage (up to 3" out of plane bending) at the bottom flange over the right northbound lane. Heavy laminar rust is typical at the bearings with heavy debris accumulation surrounding the bearing seats. The fascia bay diaphragms at the piers exhibit heavy rust with section loss. Missing or sheared off anchor bolts were observed at the Pier 1 bearing of Span1 Stringer S7 (1 of 2), and at the east abutment bearing of Stringers S3 (2 of 2), S13 (2 of 2) and S14 (1 of 2).

The substructure is in fair condition. The east abutment backwall exhibits spalls with exposed reinforcement and hollow concrete at Bays 7 and 13. Failed concrete repairs with exposed rusted reinforcement was noted at the underside of Pier 2 cap, and cracked and unsound repair patches were observed at the south end of the Pier 1 cap and the corner of the south column of Pier 2. Spalls with partially undermined bearings were observed adjacent to the south stringer at Pier 1 and Pier 2. Repair recommendations were issued on May 2018 to install temporary shoring using timber blocking to the underside of the end diaphragms. Minor undermining of the Span 3, Stringer 1 bearing plate was also noted due to heavy spalling of the Pier 2 bridge seat.

CONCLUSIONS

Based on the findings of the 2018 inspections, the main river bridge and all approach structures are capable of safely supporting all legal loads.

SCUDDER FALLS TOLL-SUPPORTED BRIDGE

The structure is in overall fair condition.

Due to the bridge replacement project in progress and the expected demolition of this structure within the next two years, there is no recommended work to be included in a future repair contract. However, any significant or emergent conditions that arise prior to the bridge demolition would be performed by the direction of DRJTBC and the Scudder Falls Bridge Replacement Resident Engineer under Contract No. CM-669A: Scudder Falls Bridge Replacement, Construction Management – Main Construction.

The Scudder Falls Interim Deck Repairs Contract No. TS-677A will continue to perform concrete deck repairs on an as-needed basis until the Scudder Falls Bridge Replacement completely removes the existing bridge deck and is no longer in service, to maintain the safety and rideability of the roadway. Comprehensive deck spall repairs were completed under this contract in August 2015.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

PENNSYLVANIA CANAL OVERPASS

The structure is in overall fair condition.

Due to the bridge replacement project in progress and the expected demolition of this structure within the next two years, there is no recommended work to be included in a future repair contract. However, any significant or emergent conditions that arise prior to the bridge demolition would be performed under the direction of DRJTBC and the Scudder Falls Bridge Replacement Resident Engineer.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

TAYLORSVILLE ROAD OVERPASS

The structure is in overall fair condition.

Due to the bridge replacement project in progress and the expected demolition of this structure within the next two years, there is no recommended work to be included in a future repair contract. However, any significant or emergent conditions that arise prior to the bridge demolition would be performed under the direction of DRJTBC and the Scudder Falls Bridge Replacement Resident Engineer.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Scudder Falls Toll-Supported Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
660	Scudder Falls Bridge Replacement Project	\$570,361,629	\$130,137,213	\$130,053,500	\$260,190,713
BRIDGES SUB TOTAL		\$570,361,629	\$130,137,213	\$130,053,500	\$260,190,713
<u>Facilities and Grounds</u>					
SFTSB	Unforeseen Projects	\$1,216,232	\$100,000	\$103,400	\$203,400
707	Commission Administration Building at Scudder Falls	\$28,871,583	\$7,935,637	\$0	\$7,935,637
FACILITIES AND GROUNDS SUB TOTAL		\$30,087,815	\$8,035,637	\$103,400	\$8,139,037
TOTAL COST		\$600,449,444	\$138,172,850	\$130,156,900	\$268,329,750

WASHINGTON CROSSING
TOLL-SUPPORTED BRIDGE
(Structure No. 100)



WASHINGTON CROSSING TOLL-SUPPORTED BRIDGE

GENERAL

WASHINGTON CROSSING TOLL-SUPPORTED BRIDGE

(6 span, double Warren Truss)

The Washington Crossing Toll-Supported Bridge (Structure No. 100) connects Mercer County Route 546 in Hopewell Township, New Jersey with PA Route 532 (George Washington Memorial Boulevard) in the Township of Upper Makefield, Bucks County, Pennsylvania.

The structure is a six span double Warren Truss, with a total length of approximately 877 feet. The steel superstructure was built in 1904. The substructure units, composed of rubble stone faced masonry, are from the original construction in 1831. The open steel grid deck provides a curb to curb width of only 15 feet. The downstream side of the truss supports a cantilevered, wood planked sidewalk.

The structure is currently posted for a 3 ton weight limit restriction and a 15 mph speed limit. The structure is also posted for an 8 foot vertical clearance for the bridge roadway.

The deck joint support system was repaired under Contract No. TS-428A in 2005. This Contract consisted of repairing and replacing riser beams. High priority substructure repairs were also completed under this contract due to post flood damage.

The structure was rehabilitated under Contract No. TS-442A in 2010. This contract included drainage repairs to the Pennsylvania abutment, reconstruction of abutment backwalls and deck joints, miscellaneous substructure and superstructure repairs and re-facing of Pier 2 to match the historic appearance of the other piers, and pedestrian sidewalk repairs.

Contract No. T/TS-573A, Substructure Repair & Scour Remediation, Toll & Toll-Supported Bridges, Districts 1, 2 & 3 included underwater scour remediation around the aprons at Piers 3, 4 & 5 and masonry repointing and stone replacement at Pier 5. This contract work was completed in 2012.

WASHINGTON CROSSING TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

A Bridge Monitor shelter is located at the southeast approach corner of the New Jersey approach.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

WASHINGTON CROSSING TOLL-SUPPORTED BRIDGE

(6 span, double Warren Truss)

The structure is in overall fair condition.

The deck is in satisfactory condition. The open grid steel deck shows areas of peeling paint and corrosion.

The approach roadway is in good condition.

The superstructure is in fair condition. The lower chord exhibits impact damage at the north truss from panel points L2 to L4, and L7 to L8 in Span 3, L7 to L8 in Span 4, L1 to L5 in Span 5, and L1 to L3 in Span 6. The lower chord gusset plates typically exhibit areas of 1/8" thickness loss, with several exhibiting small holes and vertical bending / bowing. Moderate rust was noted at the floor system in all spans. The top flange of all floorbeams between Stringers S5 through S7 exhibit up to 1/8" pitting. Section loss with small holes was also noted at the web of Floorbeam 7 above the angle tie plate near the south truss and at Floorbeam 1 in Span 2 near the south truss. Other areas of floorbeam web section loss were noted at several other locations, but to a lesser extent. Missing bolts/rivets were noted in Span 1, Span 2, Span 4, over Pier 4, and Span 6.

The substructure above the waterline is in satisfactory condition. Areas of deteriorated pointing and stone masonry were noted at the abutments and the piers.

An underwater inspection was performed in 2016 under Contract No. C-628A-6. The substructure units below the waterline were noted to be in satisfactory condition.

WASHINGTON CROSSING TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The New Jersey Bridge Monitor shelter is in overall good condition.

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

WASHINGTON CROSSING TOLL-SUPPORTED BRIDGE

The structure is in overall fair condition.

- Items to be included in future repair contract:
 - Clean and paint the steel deck, superstructure, bearings and the sign structure at the west approach.
 - Straighten and strengthen the bent and bowed truss gusset plates.
 - Repair structural steel including floor system and truss diagonal and lower chord members, replace the missing bolts/rivets, and install shims at uplifted stringer bearings.
 - Replace concrete bag scour protection at substructure units.
 - Repoint the areas of deteriorated/missing mortar in the masonry abutments and piers, replacing deteriorated stones as needed.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

WASHINGTON CROSSING TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The New Jersey Bridge Monitor shelter is in overall good condition.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

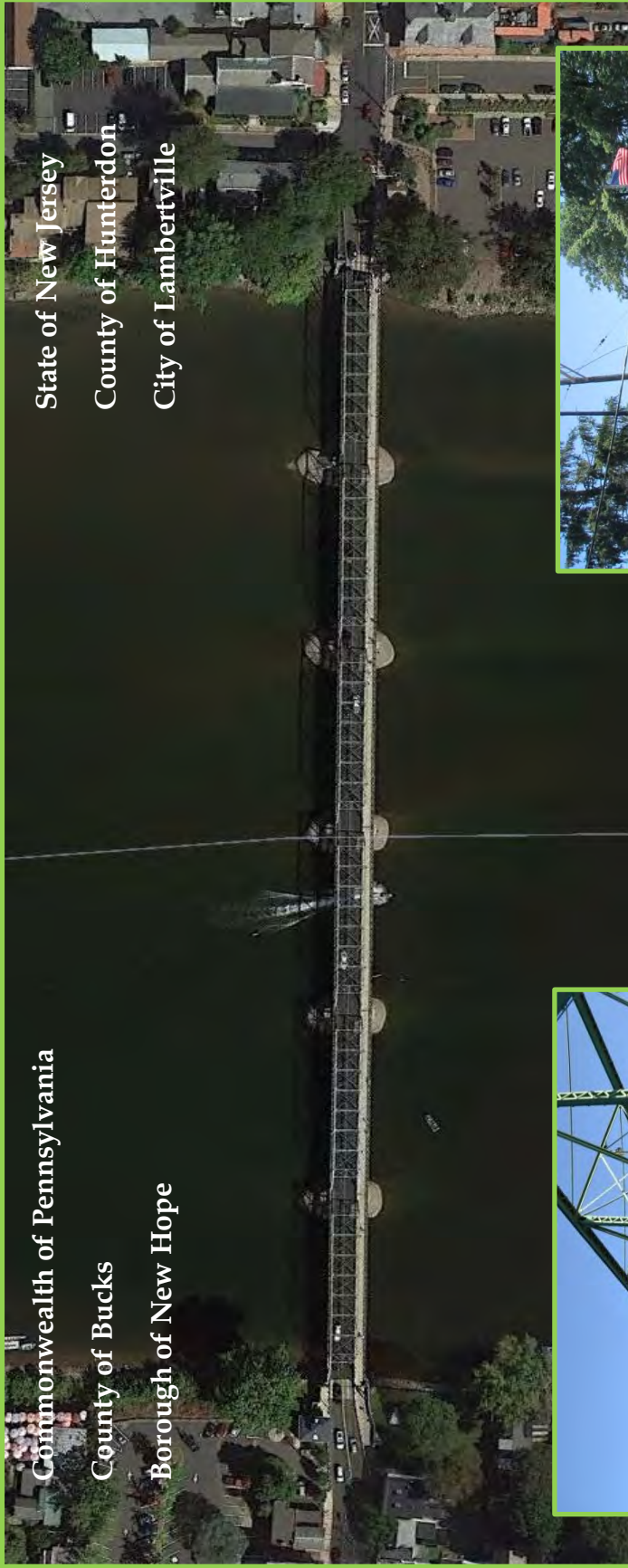
2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Washington Crossing Toll-Supported Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
Phase 1 rehabilitation was completed in 2010					
697	Washington Crossing Bridge Replacement	\$13,389,413	\$439,705	\$1,208,865	\$1,648,569
BRIDGES SUB TOTAL		\$13,389,413	\$439,705	\$1,208,865	\$1,648,569
<u>Facilities and Grounds</u>					
WCTSB	Unforeseen Projects	\$316,933	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$316,933	\$25,000	\$25,850	\$50,850
TOTAL COST		\$13,706,346	\$464,705	\$1,234,715	\$1,699,419

NEW HOPE - LAMBERTVILLE
TOLL-SUPPORTED BRIDGE
(Structure No. 120)



NEW HOPE - LAMBERTVILLE TOLL-SUPPORTED BRIDGE

GENERAL

NEW HOPE - LAMBERTVILLE TOLL-SUPPORTED BRIDGE

(6 span, pin connected Pratt Truss)

The New Hope-Lambertville Toll-Supported Bridge (Structure No. 120) connects Bridge Street (PA State Route 179) in New Hope, Pennsylvania to Bridge Street (NJ State Route 179) in Lambertville, New Jersey.

The structure, constructed in 1904, is a six span pin connected Pratt Truss with a total length of approximately 1,056 feet. The open steel grid deck provides a curb to curb width of 20 feet, 5 inches. A timber plank sidewalk, installed in 1982, and replaced in 2004 with fiberglass panels, is supported on the downstream side by steel cantilever brackets. Abutments, wingwalls and piers are ashlar faced masonry; the piers are stone filled. All substructure units are from original construction in 1814.

The structure is currently posted for a 4 ton weight limit restriction and a 15 mph speed limit.

The structure was rehabilitated under Contract No. TS-370A in 2004. Major work items performed under this contract included floor system, deck and sidewalk replacement, superstructure and substructure repairs and cleaning and painting of existing structural steel. Priority repairs to Pier 2 were completed in 2007 under Contract No. DB-457B.

Contract No. T/TS-476A-1 Substructure Repair & Scour Remediation - District 1, included above water repairs to all five (5) piers and both abutments including masonry repointing and replacement of stone masonry. Spall repairs were also completed at Pier 5. This work was completed in 2010. Contract No. T/TS-573A included replacement of stone masonry and repointing at the NJ abutment. This work was completed in 2012.

The west approach was resurfaced with asphalt under a PennDOT contract in 2015.

NEW HOPE - LAMBERTVILLE TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

Bridge Monitor shelters are located at the northwest and southeast corners of the Pennsylvania and New Jersey approaches, respectively, of the New Hope - Lambertville Toll-Supported Bridge. At the Pennsylvania side of the bridge, there is a Commission owned former firehouse that primarily functions as a storage facility for the Commission.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

NEW HOPE - LAMBERTVILLE TOLL-SUPPORTED BRIDGE

(6 span, pin connected Pratt Truss)

The structure is in overall satisfactory condition.

The deck is in good condition.

The approach roadway is in satisfactory condition. The east approach asphalt pavement shows light to moderate raveling and fine to medium random cracks.

The superstructure is in satisfactory condition. Several north and south truss lower chord member's exhibit impact damage in Spans 1 through 5. Many truss members exhibit minor section losses that have been arrested by paint and isolated areas of rust. Areas of active rust were noted throughout the floor system and lower panel points of the north and south trusses. A missing bolt exists on the north bottom chord between L0 and L1 in Span 4.

The substructure above the waterline is in satisfactory condition. Areas of loose stone masonry and missing pointing were noted at the pier stems and abutment breastwall and backwalls. The bridge seats and upstream noses have areas of concrete scaling, spalling and delamination.

An underwater inspection was performed in 2016 under Contract No. C-628A-6. The substructure units below the waterline were found to be in satisfactory condition.

NEW HOPE-LAMBERTVILLE TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania and New Jersey Bridge Monitor shelters are in overall good condition.

The firehouse is in overall fair condition. The masonry cracks throughout the building were being repaired at the time of inspection. The doors and windows have been replaced since the previous inspection. The eaves at the roof are rotting and the interior exhibits cracks in the walls around the windows (repairs underway during the inspection).

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

NEW HOPE - LAMBERTVILLE TOLL-SUPPORTED BRIDGE

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Perform structural steel repairs to superstructure members with section loss.
 - Spot clean and paint the steel superstructure and bearings.
 - Replace the deteriorated anchor bolts at the following locations:
 - North truss bearing over west abutment in Span 1 (1 total)
 - South truss bearing over west abutment in Span 1 (3 total)
 - North truss bearing over Pier 1 in Span 1 (2 total)
 - South truss bearing over Pier 1 in Span 2 (1 total)
 - South truss bearing over Pier 3 in Span 4 (1 total)
 - South truss bearing over Pier 4 in Span 5 (1 total)
 - Insert shim plates between stringer bottom flanges and bearing seats at each pier.
 - Repoint stone masonry at substructure units.
 - Remove flood debris at west abutment, Pier 1 and Pier 5.
 - Clean/Repair cracks in the concrete apron at all piers.
 - Fill voids/repair undermining under the apron at Pier 1 and Pier 3.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

NEW HOPE-LAMBERTVILLE TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania and New Jersey Bridge Monitor shelters are in overall good condition.

The firehouse is in overall fair condition and repairs were underway by Maintenance forces at the time of inspection. It is currently being used as a light equipment storage area.

- Items to be included in future repair contract:
 - Consideration should be given to replacing the roof and renovating the firehouse to bring it up to current code standards if the usage is to be changed.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

New Hope-Lambertville Toll-Supported Bridge

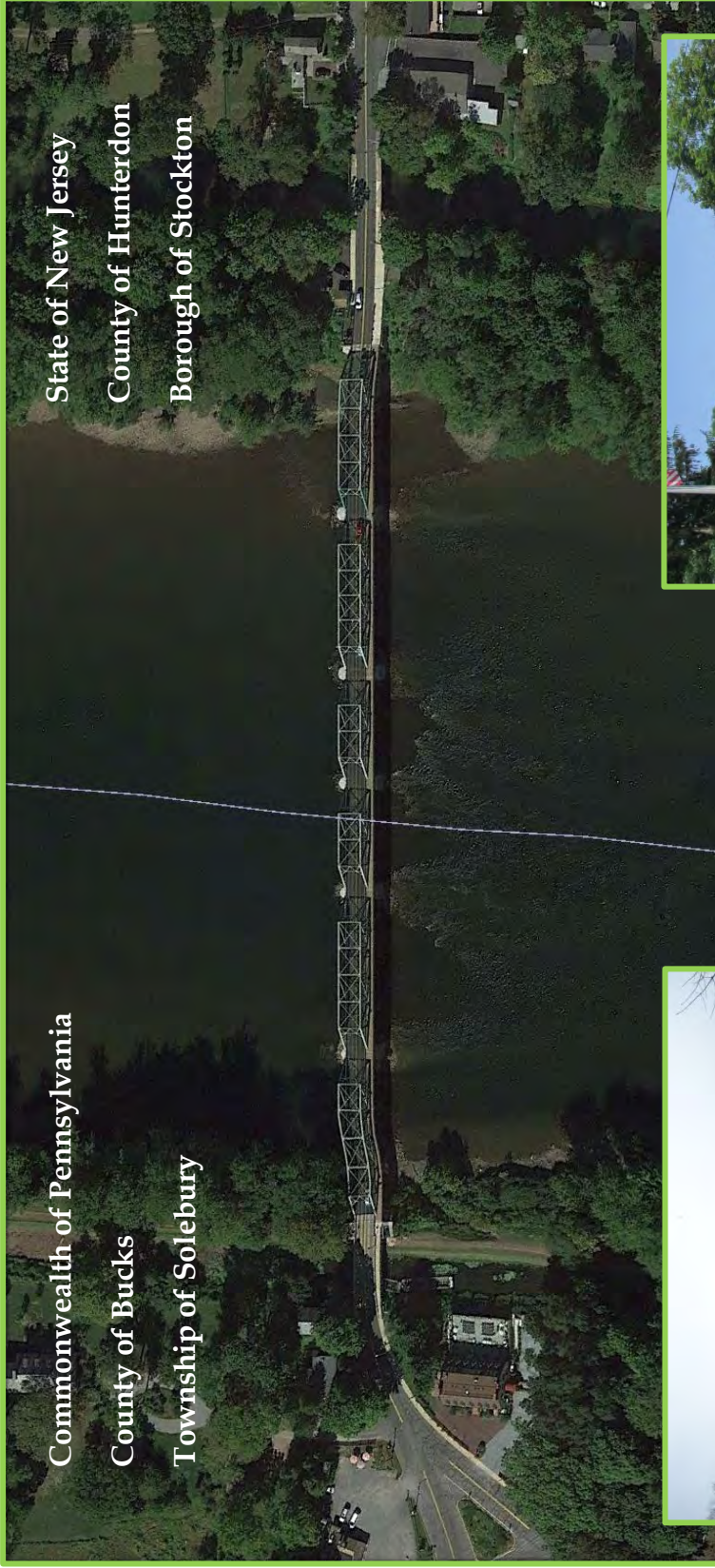
ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		
			2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2004					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
NHLTSB	Unforeseen Projects	\$316,933	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$316,933	\$25,000	\$25,850	\$50,850
TOTAL COST		\$316,933	\$25,000	\$25,850	\$50,850

CENTRE BRIDGE - STOCKTON

TOLL-SUPPORTED BRIDGES

(Structure Nos. 160 & 161)



CENTRE BRIDGE - STOCKTON TOLL-SUPPORTED BRIDGE

GENERAL

CENTRE BRIDGE - STOCKTON TOLL-SUPPORTED BRIDGE

(6 span, riveted steel Warren Truss)

The Centre Bridge - Stockton Toll-Supported Bridge (Structure No. 160) connects Upper York Road (PA Route 263) in Solebury Township, Pennsylvania to Bridge Street in Stockton, New Jersey, providing access between PA Route 32 and NJ Route 29.

The bridge, opened to traffic in 1927, is a six span, riveted steel Warren Truss structure, with a total length of approximately 825 feet. The open steel grid deck provides a curb to curb width of 20 feet. In addition, a six foot timber plank sidewalk is supported on the downriver truss on steel cantilever brackets. The piers and abutments originally constructed in 1814 from random ashlar masonry are stone filled and rest upon timber crib foundations. In 1926 portions of the piers were encased with reinforced concrete.

The structure is currently posted for a 5 ton weight limit restriction and a 25 mph speed limit. The structure is also posted for a 12 foot vertical clearance for the bridge roadway.

A comprehensive rehabilitation of the Centre Bridge - Stockton Toll-Supported Bridge was completed in 2007 under Contract No. TS-429A. Rehabilitation work included floor system replacement with galvanized steel stringers and floorbeams, deck replacement, sidewalk replacement, truss bearing replacement, cleaning and painting of truss members and substructure spall repairs.

Contract No. T/TS-476A-1 Substructure Repair & Scour Remediation - District 1, included underwater repairs to all five (5) piers including partially grouted riprap around and under portions of the pier aprons. This contract also included above water spall repairs at all five piers and both abutments. This work was completed in 2010.

Since the previous inspection, Maintenance forces have replaced the timber sidewalk planks on the main river bridge with composite timber (TREX) planks.

CENTRE BRIDGE - STOCKTON TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

A Bridge Monitor shelter is located at the northeast corner of the New Jersey approach.

PENNSYLVANIA CANAL OVERPASS

(1 span, prestressed concrete adjacent box beams)

The Pennsylvania Canal Overpass (Structure No. 161) carries Upper York Road (PA Route 263) over the Pennsylvania Canal in Solebury Township, PA. The structure is an approach bridge to the main Centre Bridge - Stockton Toll-Supported Bridge that crosses the Delaware River.

The Pennsylvania Canal Overpass is a simple span, prestressed concrete adjacent box beam structure. The curb to curb width is 20 feet and the span length is 63 feet.

The Pennsylvania Canal Overpass railing and stairway were replaced in 2007 under Contract No. TS-429A. The Canal Overpass was replaced in 1990 under Contract No. TS-303.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the main river bridge and the approach structure are capable of safely supporting the posted load.

CENTRE BRIDGE - STOCKTON TOLL-SUPPORTED BRIDGE

(6 span, riveted steel Warren Truss)

The structure is in overall fair condition.

The deck and approach roadway are in good condition. (The west approach consists of a short concrete transition slab to the adjacent PA Canal Overpass).

The superstructure has been downgraded from satisfactory condition to fair condition. Many of the lower chord gusset plates exhibit areas of 1/8" to 1/4" thickness losses, with knife edging and localized occurrences of small holes. The north truss lower chords typically exhibit up to 50% ± section loss to angle legs adjacent to connections with gusset plates. Vertical and diagonal members of both trusses typically show similar losses at or below the deck level. Section loss has mostly been arrested by paint, but areas of active rust were noted at multiple locations of previously documented section loss. A bolt is missing at the lower chord splice between L3 and L4 at the south truss in Span 5.

The substructure above the waterline is in fair condition. Deteriorated concrete patches, spalls and hollow sounding concrete were noted at the abutments and piers, primarily at bridge seats. Several of the spalls have exposed rusted reinforcement bars. Cracks with efflorescence exist adjacent to previously repaired areas and other random locations throughout.

An underwater inspection was performed in 2016 under Contract No. C-628A-6. The substructure units below the waterline were found to be in fair condition with undermining at the Pier 3 apron.

CENTRE BRIDGE - STOCKTON TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The New Jersey Bridge Monitor shelter is in overall good condition. The Pennsylvania approach roadway west of the PA Canal Overpass and numerous drainage inlets are in poor condition.

PENNSYLVANIA CANAL OVERPASS

(1 span, prestressed concrete adjacent box beams)

The structure is in overall satisfactory condition.

The deck and superstructure are in good condition.

The substructure is in satisfactory condition. Cracking with efflorescence and delaminated areas of concrete were noted at the concrete abutments.

The west (PA) approach roadway is in poor condition and shows wide cracks, and deteriorated pavement with patches and hot poured sealer throughout beginning 50' from bridge. The pavement is in satisfactory condition within 50' of the bridge and shows several wide longitudinal and random cracks.

CONCLUSIONS

Based on the findings of the 2018 inspections, the main river bridge and the approach structure are capable of safely supporting the posted load.

CENTRE BRIDGE - STOCKTON TOLL-SUPPORTED BRIDGE

The structure is in overall fair condition.

- Items to be included in future repair contract:
 - Replace the missing bolt at Member L3L4 splice plate at the south truss in Span 5 with an A325 high strength bolt.
 - Strengthen lower chord gusset plates and adjacent truss members.
 - Perform spall repairs at abutments and Piers 1, 3, 4, & 5.
 - Install grout bags and grout at undermined area of Pier 3.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

CENTRE BRIDGE - STOCKTON TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The New Jersey Bridge Monitor shelter is in overall good condition.

- Items to be included in a future repair contract:
 - None

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

PENNSYLVANIA CANAL OVERPASS

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Remove the unsound concrete from the north and south ends of the east and west abutment breastwalls and patch with concrete, and repair full height vertical crack at the east abutment.
 - Repair undermined concrete apron in front of the west abutment and uneven concrete patches at the towpath along the east abutment breastwall.
 - Clean and epoxy coat the bridge seats and base of access stairs.
 - Mill and resurface the PA approach roadway and replace the drainage inlets.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Centre Bridge-Stockton Toll-Supported Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	General Reserve Fund 2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2007					
685	CB-S TSB Approach Pavement & Stormwater Inlet Improvements	\$904,635	\$803,436	\$0	\$803,436
BRIDGES SUB TOTAL		\$904,635	\$803,436	\$0	\$803,436
<u>Facilities and Grounds</u>					
CBSTSB	Unforeseen Projects	\$322,823	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$322,823	\$25,000	\$25,850	\$50,850
TOTAL COST		\$1,227,458	\$828,436	\$25,850	\$854,286

LUMBERVILLE - RAVEN ROCK
TOLL-SUPPORTED PEDESTRIAN BRIDGE
(Structure No. 180)



LUMBERVILLE - RAVEN ROCK TOLL-SUPPORTED PEDESTRIAN BRIDGE

GENERAL

LUMBERVILLE - RAVEN ROCK TOLL-SUPPORTED PEDESTRIAN BRIDGE

(5 span, suspension)

The Lumberville - Raven Rock Toll-Supported Pedestrian Bridge (Structure No. 180) connects Solebury Township (Lumberville) in Pennsylvania with Delaware Township (Raven Rock) in New Jersey.

This pedestrian bridge is a five span suspension bridge with straight backstays and a precast waffle style concrete slab held together by longitudinal post tensioning web cables. The floor system is strengthened by cable trusses along each suspension cable. The width of the walkway is 7 feet, 7 inches and the structure length is approximately 693 feet.

The bridge was closed to vehicular traffic in February of 1944. In 1947, the superstructure was rebuilt on the original 1856 masonry substructure.

A major rehabilitation contract was completed in 1993 that included a new deck slab, pier and abutment repointing, approach sidewalks and bridge lighting. A comprehensive rehabilitation of the Lumberville Raven Rock Toll-Supported Bridge was completed in 2013 under Contract No. TS-443A. The rehabilitation work included structural steel repairs, cleaning and painting of all structural steel, substructure repairs and reconstruction of Pennsylvania retaining wall.

Contract No. T/TS-573A Substructure Repairs & Scour Remediation, Toll & Toll-Supported Bridges, Districts 1, 2 & 3 included underwater repairs to the aprons and footings at Piers 1, 2 and 3 including tremie concrete fill, toe wall and apron repairs. This contract also included above water work at Piers 1, 2, 3 and 4 including masonry repointing, spall repairs and replacement of stone masonry. This work was completed in 2012.

LUMBERVILLE - RAVEN ROCK TOLL-SUPPORTED BRIDGE FACILITY AND GROUNDS

A Commission owned house is located at the southwest corner of the Lumberville - Raven Rock Toll-Supported Bridge. Adjacent to this Commission owned house and property is a retaining wall along the Pennsylvania Canal. The retaining wall was rebuilt under Contract No. TS-443A and was completed in 2013.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting pedestrian loading.

LUMBERVILLE - RAVEN ROCK TOLL-SUPPORTED BRIDGE (5 span, suspension)

The structure is in overall satisfactory condition.

The deck has been downgraded from good condition to satisfactory condition due to several underdeck cracks and fractures.

The superstructure has been downgraded from good condition to satisfactory condition due to areas of section loss on the lower lateral bracing and areas of rust with minor section loss on the fascia beams.

The substructure above the waterline is in satisfactory condition. Loose and missing stones, voids in the masonry, and deteriorated pointing were noted. A large area of deep scaling with exposed reinforcement was noted at the concrete nose at Pier 2.

An underwater inspection was performed in 2016 under Contract No. C-628A-6. The substructure units below the waterline were found to be in good condition.

LUMBERVILLE - RAVEN ROCK TOLL-SUPPORTED BRIDGE FACILITY AND GROUND

The Lumberville – Raven Rock Facilities and grounds were last inspected on June 6, 2016. The following findings are from the 2016 inspection.

The house is in overall poor condition. The building is currently vacant and the electrical system does not meet current code; for example, the system is not grounded and electrical outlets near the sinks are not GFI. The exterior is in poor condition including peeling of paint on the wooden siding, deteriorated timber members on the front porch canopy, and missing and deteriorated chimney bricks. The windows do not close and seal properly. The rear porch concrete slab is fractured. The interior ceilings exhibit water damage.

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting pedestrian loading.

LUMBERVILLE - RAVEN ROCK TOLL-SUPPORTED BRIDGE

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Replace the deteriorated and missing stones, repoint areas of deteriorated mortar, and repair the concrete scaling at Pier 2, Pier 3, Pier 4, and the west abutment.
 - Place riprap at the scour holes at Piers 1 & 2.
 - Place grout bags along the apron undermining at Pier 2.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

LUMBERVILLE - RAVEN ROCK TOLL-SUPPORTED BRIDGE FACILITY AND GROUNDS

The house is in overall poor condition. The future use of the house should be evaluated.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Lumberville-Raven Rock Toll-Supported Pedestrian Bridge

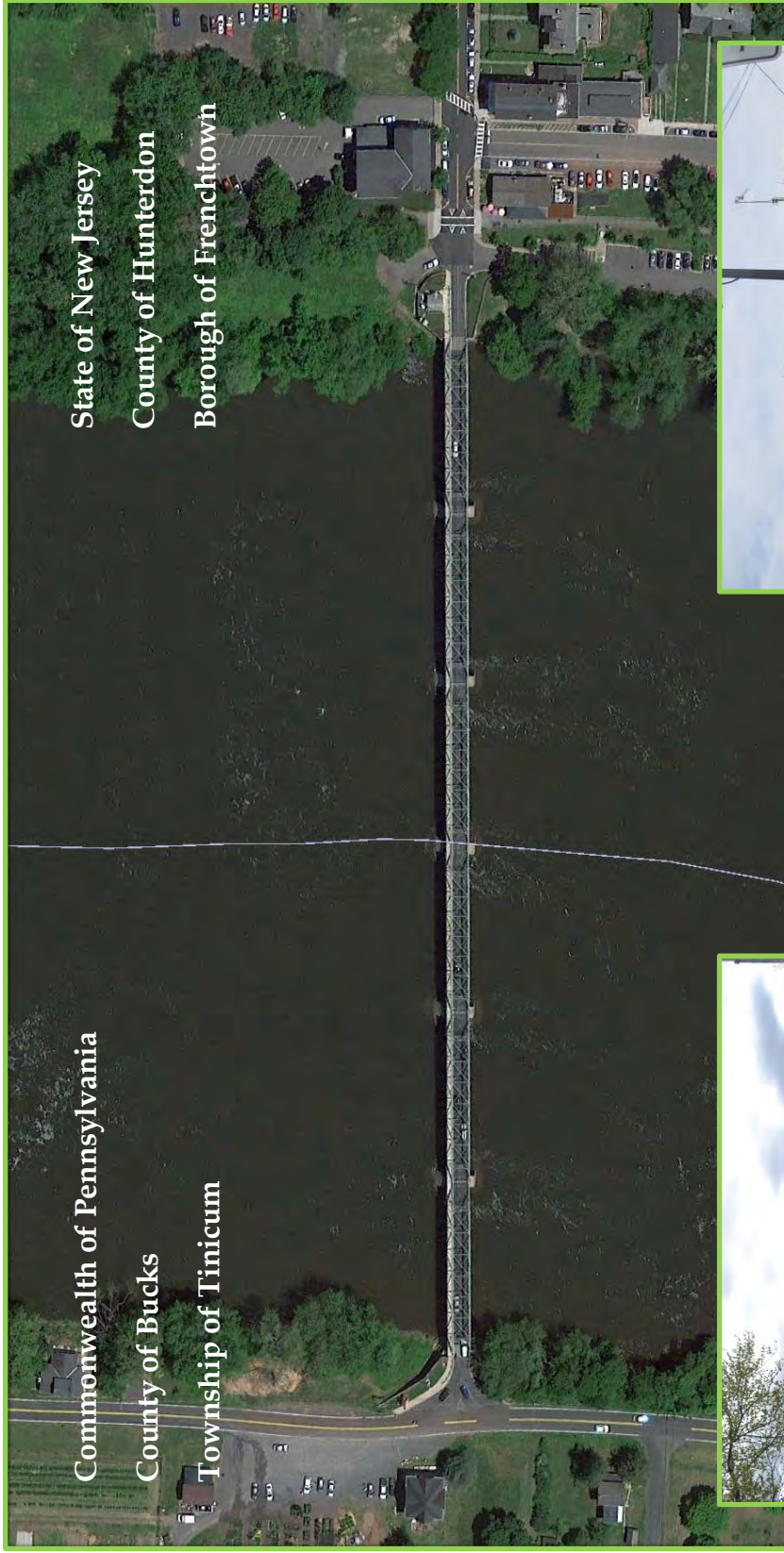
ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		
			2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2013					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
LRRTSB	Unforeseen Projects	\$316,933	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$316,933	\$25,000	\$25,850	\$50,850
TOTAL COST		\$316,933	\$25,000	\$25,850	\$50,850

UHLERSTOWN - FRENCHTOWN

TOLL-SUPPORTED BRIDGE

(Structure No. 220)



UHLERSTOWN - FRENCHTOWN TOLL-SUPPORTED BRIDGE

GENERAL

UHLERTOWN - FRENCHTOWN TOLL-SUPPORTED BRIDGE

(6 span, riveted steel Warren Truss)

The Uhlertown - Frenchtown Toll-Supported Bridge (Structure No. 220) connects PA Route 32 in Tinicum Township, Pennsylvania to Bridge Street (NJ Route 12) in Frenchtown Borough, New Jersey.

The bridge, which rests on the original masonry substructure built in 1843, consists of a six span riveted steel Warren Truss structure, built in 1931. An open steel grid deck, added in 2001, provides a curb to curb width of 16 feet 6 inches. The structure is approximately 951 feet in length. A concrete filled steel grid sidewalk is supported by the upstream truss on steel cantilever brackets.

The structure is currently posted for a 15 ton weight limit restriction, a 15 mph speed limit, and a 12 foot 6 inch vertical clearance for the bridge roadway.

The structure was rehabilitated in 2001 under Contract No. TS-363. Major work items included floor system, deck and sidewalk replacement, cleaning and painting of truss members and substructure repointing.

Contract No. T/TS-476A-2 Substructure Repair & Scour Remediation - Districts 2 & 3, included above water repairs to all five (5) piers and the NJ abutment including masonry repointing, epoxy injection crack sealing and replacement of stone masonry. Spall repairs were also completed at Piers 1 and 4. This work was completed in 2010.

UHLERTOWN - FRENCHTOWN TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

A Bridge Monitor shelter is located at the northeast corner of the New Jersey approach.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

UHLERSTOWN - FRENCHTOWN TOLL-SUPPORTED BRIDGE

(6 span, riveted steel Warren Truss)

The structure is in overall satisfactory condition.

The deck and superstructure are in good condition.

The approach roadway is in fair condition. Extensive cracking of the asphalt pavement was observed on east approach and the eastbound lane of the west approach.

The substructure above the waterline is in satisfactory condition. Areas of cracked and missing mortar were observed on the masonry portions of the substructure units. Scattered cracks and spalls were observed on the concrete bridge seats.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The substructure units below the waterline were found to be in satisfactory condition.

UHLERSTOWN - FRENCHTOWN TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The New Jersey Bridge Monitor shelter is in overall good condition.

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

UHLERSTOWN - FRENCHTOWN TOLL-SUPPORTED BRIDGE

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Adjust or modify the bearing assembly as needed to eliminate the gap between the load plate and polytetrafluoroethylene (PTFE) sliding surface on the elastomeric pad at the S2 stub stringer bearing over Pier 2.
 - Mill and resurface the extensively cracked bituminous concrete pavement in the eastbound lane of the west approach and the entire east approach.
 - Repoint deteriorated and missing mortar at masonry piers and repair wide crack at Pier 1 cap.
 - Place scour protection consisting of riprap or concrete bags at the West Abutment, the aprons at Piers 1 through 5, and in the scour holes at Piers 1 and 3.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

UHLERSTOWN - FRENCHTOWN TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The New Jersey Bridge Monitor shelter is in overall good condition.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Uhlerstown-Frenchtown Toll-Supported Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		
			2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2001.					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
UFTSB	Unforeseen Projects	\$316,933	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$316,933	\$25,000	\$25,850	\$50,850
TOTAL COST		\$316,933	\$25,000	\$25,850	\$50,850

UPPER BLACK EDDY - MILFORD
TOLL-SUPPORTED BRIDGE
(Structure No. 240)



UPPER BLACK EDDY - MILFORD TOLL-SUPPORTED BRIDGE

GENERAL

UPPER BLACK EDDY - MILFORD TOLL-SUPPORTED BRIDGE

(3 span, Warren Truss)

The Upper Black Eddy - Milford Toll-Supported Bridge (Structure No. 240) over the Delaware River connects PA Route 32 in Bridgeton Township, Pennsylvania and County Route 519 via Bridge Street in Milford Borough, New Jersey.

The bridge, constructed in 1933, is a three span Warren Truss structure, with a total length of approximately 700 feet. The deck, replaced in 2011, consists of concrete filled steel inverted “T’s” and provides a curb to curb width of 20 feet. Both abutments, recapped with reinforced concrete following flood damage, were originally built in 1842 with rubble faced masonry. The piers, built in 1842, are stone filled having also been recapped with reinforced concrete.

The structure is posted for a 15 mph speed limit.

In 1996, a new galvanized plate sidewalk was added to the bridge and is supported on the upriver truss on steel cantilever brackets. Substructure units were repointed in 1998 under Contract No. 347.

A comprehensive rehabilitation was completed in 2011 under Contract No. TS-444A. Major work items included floor system, deck (concrete filled steel grid) and sidewalk replacement, cleaning and painting of truss members and substructure repointing.

UPPER BLACK EDDY - MILFORD TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

A Bridge Monitor shelter is located at the northeast corner of the New Jersey approach.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting all legal loads.

UPPER BLACK EDDY - MILFORD TOLL-SUPPORTED BRIDGE (3 span, Warren Truss)

The structure is in overall good condition.

The deck is in very good condition.

The superstructure is in good condition. There are several minor areas of arrested pitting, localized corrosion, and pack rust throughout the truss members and gusset plates.

The substructure above the waterline and approach roadways are in good condition.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The substructure units below the waterline were found to be in good condition.

UPPER BLACK EDDY - MILFORD TOLL-SUPPORTED BRIDGE FACILITIES AND GROUND **OUNDS**

The New Jersey Bridge Monitor shelter is in overall good condition. The roof is nearing the end of its useful life.

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting all legal loads.

UPPER BLACK EDDY - MILFORD TOLL-SUPPORTED BRIDGE

The structure is in overall good condition.

- Items to be included in future repair contract:
 - Strengthen lateral bracing gusset plates between floorbeams and cross bracing.
 - Repoint deteriorated and missing mortar at piers, abutments, and wingwalls.
 - Repair cracks in the concrete aprons at Piers 1 and 2.
 - Remove flood debris at Pier 1.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

UPPER BLACK EDDY - MILFORD TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The New Jersey Bridge Monitor shelter is in overall good condition. However, consideration should be given to replacing the roof.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Upper Black Eddy-Milford Toll-Supported Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		
			2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2010.					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
UBEMTSB	Unforeseen Projects	\$316,933	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$316,933	\$25,000	\$25,850	\$50,850
TOTAL COST		\$316,933	\$25,000	\$25,850	\$50,850

RIEGELSVILLE
TOLL-SUPPORTED BRIDGE
(Structure No. 260)



Commonwealth of Pennsylvania
 County of Bucks
 Borough of Riegelsville

State of New Jersey
 County of Warren
 Township of Pohatcong



RIEGELSVILLE TOLL-SUPPORTED BRIDGE

GENERAL

RIEGELSVILLE TOLL-SUPPORTED BRIDGE

(3 span, suspension)

The Riegelsville Toll-Supported Bridge (Structure No. 260) connects PA Route 611 via Delaware Road (SR 1016) in Riegelsville Borough, Pennsylvania to Warren County Route 627 via River Road in Pohatcong Township, New Jersey.

The bridge, constructed in 1904, is a three span cable suspension bridge with straight backstays and a total length of approximately 581 feet. The open steel grid deck, supported by a king post floorbeam system, provides a curb to curb width of 15 feet 11 inches. A composite plank sidewalk rests on floorbeam cantilevers on both fascias. The flooring system is stiffened by steel trusses (Double Warren type) along the outside edges of the sidewalks. Stainless steel cables were added in 2010 to improve the trusses' functionality as pedestrian railings in addition to being primary superstructure members. The substructure, originally built in 1835, was raised and built up in 1904 to accommodate the present superstructure.

The structure is currently posted for a 3 ton weight limit restriction and a 15 mph speed limit.

Under Contract No. TS-391, bridge repairs were completed on this structure. Work consisted of strengthening towers on the river piers, replacement of hanger blocks connecting vertical hangers to the floorbeams, repair of floorbeam bearings at each end of the floorbeams of the three spans, concrete repair on Pier 2 and concrete crack repairs at the anchorages. The bridge was painted by contract in 1985. A cleaning and pointing contract was completed for the substructure in 1998. Contract No. TS-461A repaired the damaged concrete aprons and additional damage from the Flood of June 2006.

Contract No. T/TS-476A-2 Substructure Repair & Scour Remediation - Districts 2 & 3, included below water repairs to both piers including concrete apron repairs, epoxy injection crack sealing, tremie concrete and concrete bag remediation. This work was completed in 2010.

In 2010, the structure underwent a complete rehabilitation under Contract No. TS-445A. This rehabilitation included replacement of the floor system and sidewalks, full cleaning and painting of the superstructure members, substructure repairs and roadway approach work.

RIEGELSVILLE TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

A Bridge Monitor shelter is located at the southwest Pennsylvania and southeast New Jersey approach corners of the Riegelsville Toll-Supported Bridge.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

RIEGELSVILLE TOLL-SUPPORTED BRIDGE

(3 span, suspension)

The structure is in overall fair condition.

The deck, superstructure and approach roadways are in good condition.

The substructure above the waterline is in satisfactory condition. The substructure units exhibit medium to wide cracks and a few spalls in the concrete caps and scattered deterioration of mortar in the masonry pier stems and abutment wingwalls.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The substructure units below the waterline were found to be in fair condition.

RIEGELSVILLE TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania Bridge Monitor shelter is in overall good condition.

The New Jersey Bridge Monitor shelter is in overall poor condition. Temporary supports are being used to partially support the floor system and the floor system shows signs of rot and decay with settlement of the foundation. The wooden fascia, electrical connection to shelter, and vent gate are all deteriorated and need to be scraped and painted. Multiple roof shingles are broken or missing. The pavement surrounding the shelter is deteriorated and filled with multiple patches. The chain link fences along the approach embankments do not meet current code due to substandard height and gaps along the bottom of the fabric.

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

RIEGELSVILLE TOLL-SUPPORTED BRIDGE

The structure is in overall fair condition.

- Items to be included in future repair contract:
 - Replace the missing bolts at floor beam cross bracing connections.
 - Seal medium to wide cracks in concrete portions of the substructure units.
 - Patch spalls in concrete portions of the substructure units.
 - Repoint stone masonry at southeast retaining wall of the west abutment.
 - Place riprap around the concrete aprons at Piers 1 and 2.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

RIEGELSVILLE TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania Bridge Monitor shelter is in overall good condition.

The New Jersey Bridge Monitor shelter is in overall poor condition.

- Items to be included in future repair contract:
 - Replace the NJ Bridge Monitor shelter.
 - Replace fences on the NJ approach to meet current code.
 - Remove the abandoned scale near the NJ Bridge Monitor shelter and resurface surrounding pavement.
 - Investigate the need for overflow hose at the utility cabinet near the southeast wingwall.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Riegelsville Toll-Supported Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		
			2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2010.					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
RTSB	Unforeseen Projects	\$316,933	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$316,933	\$25,000	\$25,850	\$50,850
TOTAL COST		\$316,933	\$25,000	\$25,850	\$50,850

NORTHAMPTON STREET
TOLL-SUPPORTED BRIDGE
(Structure No. 280)



NORTHAMPTON STREET TOLL-SUPPORTED BRIDGE

GENERAL

NORTHAMPTON STREET TOLL-SUPPORTED BRIDGE

(3 span, cantilever)

The Northampton Street Toll-Supported Bridge (Structure No. 280), just south of the Easton - Phillipsburg Toll Bridge, connects Easton, Pennsylvania to Phillipsburg, New Jersey.

The bridge, although aesthetically resembling a suspension bridge, is a cantilever truss structure, adjoined by a center (main) suspended span. The three lane open steel grid deck provides a curb to curb width of 32 feet and a total bridge length of 550 feet.

The current bridge was constructed in 1896, with a major rehabilitation in 2002 under Contract No. TS-365. This contract involved the removal the existing paint and application of a new protective coating; replacement of the pedestrian railing, sidewalk support brackets, decking and stringers; steel repairs to the roadway stringers, floorbeams and vertical truss members; and concrete and masonry repairs to the substructure.

Lighting repairs were completed due to flood damages in 2005 (Contract No. TS-463A) and 2006 (Contract No. TS-467C-1).

The structure is currently posted for a 3 ton weight limit restriction and a 15 mph speed limit.

Contract No. T/TS-476A-2 Substructure Repair & Scour Remediation - Districts 2 & 3, included under water repairs to both piers including concrete apron repairs, epoxy injection crack sealing, tremie concrete and concrete bag remediation. This contract also included masonry repointing at both abutments. This work was completed in 2010.

Under Task Order Assignment No. C-715A-4, the Commission will be performing an in-depth inspection and developing a rehabilitation scoping study report.

NORTHAMPTON STREET TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

A Bridge Monitor shelter is located at the southwest Pennsylvania and northeast New Jersey approach corners of the Northampton Street Toll-Supported Bridge.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

NORTHAMPTON STREET TOLL-SUPPORTED BRIDGE

(3 span, double - cantilever truss)

The structure is in overall fair condition.

The deck and substructure above the waterline are in good condition.

The approach roadways are in satisfactory condition and exhibit medium to wide cracks in the asphalt pavement.

The superstructure is in fair condition. The floorbeams and stringers typically exhibit 1/8" material loss at the bottom flange and base of web. Several stringers exhibit minor impact damage. Stringer S9 at panel point L10 is bent up to 5" to the south due to impact damage, and the 3rd riser beam from the west exhibits a full length cracked weld at the east side with 3 of 4 missing connection bolts. There are numerous small holes throughout the stringers and the floorbeams (more prevalent at connection locations). Impact damage is present at the lower chord in several locations throughout the north and south trusses in Span 2. The upper chord eyebars are loose at both the north and south trusses at members U11U10' and U11U10. These eyebars move up to 1/16" under live load at panel point U11. During temperatures greater than 100 degrees, the north truss upper chord member U10'U11 exhibits bowing of up to 5 1/4" to the south. This bowing appears to be a result of thermal expansion of the bridge and is exaggerated due to possible corrosion at the pin nuts not allowing the eyebar movement to take place. Damaged conduits were noted at several locations above and below the sidewalks.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The substructure units below the waterline were found to be in satisfactory condition.

NORTHAMPTON STREET TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania Bridge Monitor shelter is in overall fair condition. The brick veneer at the corners above the windows exhibits cracks due to expansion and contraction of the framing. Water is penetrating the brick veneer and causing the relief angles to rust and expand, damaging the brick. There is evidence of water penetration through the windows and the walls.

The New Jersey Bridge Monitor shelter is in overall satisfactory condition. The foundation shows medium to wide cracks, and a temporary floor jack is in place under the floor joists.

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

NORTHAMPTON STREET TOLL-SUPPORTED BRIDGE

The structure is in overall fair condition.

- Items to be included in future repair contract:
 - Perform structural steel repairs, replace missing bolts/rivets, and repaint damaged, corroded and misaligned members throughout superstructure, including floor system and cross bracing.
 - Clean the eyebar pins in U10' and U11 to allow for free movement of upper chord members.
 - Place elastomeric shim pads under the stringer bearings with significant gaps.
 - Repair the damaged conduits above and below the sidewalks.
 - Replace the rusted access hatch doors throughout the top of sidewalk.
 - Remove vegetation and repair retaining wall at the east abutment.
 - Place riprap at the north nose of Pier 1.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

NORTHAMPTON STREET TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The Pennsylvania Bridge Monitor shelter is in overall fair condition.

- Items to be included in future repair contract:
 - Repair wide cracks in the brick above the windows.
 - Evaluate the slope of the sidewalk at north end of the west approach for ADA compliance and modify as required.

The New Jersey Bridge Monitor shelter is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Repair the wide crack in the foundation.
 - Repair or replace the floor joists to eliminate need for the temporary jack.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Northampton Street Toll-Supported Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2002.					
590	NHS TSB Floor System Replacement & Rehabilitation	\$10,737,495	\$817,250	\$9,845,245	\$10,662,495
BRIDGES SUB TOTAL		\$10,737,495	\$817,250	\$9,845,245	\$10,662,495
<u>Facilities and Grounds</u>					
NHSTSB	Unforeseen Projects	\$754,175	\$50,000	\$51,700	\$101,700
FACILITIES AND GROUNDS SUB TOTAL		\$754,175	\$50,000	\$51,700	\$101,700
TOTAL COST		\$11,491,670	\$867,250	\$9,896,945	\$10,764,195

RIVERTON - BELVIDERE
TOLL-SUPPORTED BRIDGE
(Structure No. 320)



RIVERTON - BELVIDERE TOLL-SUPPORTED BRIDGE

GENERAL

RIVERTON - BELVIDERE TOLL-SUPPORTED BRIDGE

(4 span, riveted steel, double Warren Truss)

The Riverton - Belvidere Toll-Supported Bridge (Structure No. 320) carries Water Street across the Delaware River and connects Riverton, Lower Mount Bethel Township, Pennsylvania with the Town of Belvidere, New Jersey.

The bridge, constructed in 1904, is a four span, riveted steel, double Warren Truss structure, with a total length of approximately 653 feet. The open steel grid deck provides a curb to curb width of 16 feet, 4 inches. In addition, a concrete filled steel grid sidewalk is supported on the upriver truss with steel cantilever brackets.

The piers and the Pennsylvania abutment are rough ashlar faced masonry and stone filled. The piers are supported on timber cribs and lower portions are concrete filled steel sheet piling (1929-32). The New Jersey abutment, including its wingwalls, is constructed of concrete on timber piles.

The bridge is currently posted for an 8 ton weight limit restriction and a 15 mph speed limit.

Comprehensive bridge rehabilitation was completed under Contract No. TS-371A in 2007. Major work items included floor system and sidewalk replacement, cleaning and painting of the superstructure, deck replacement, structural steel repairs, and substructure repairs and Pennsylvania approach repaving.

Contract No. T/TS-476A-2 Substructure Repair & Scour Remediation - Districts 2 & 3, included spall repairs and epoxy injection crack seal repairs to the aprons at all three (3) piers. Also included in this work was tremie concrete and concrete bag remediation to the footing at Pier 2 and partially grouted riprap around aprons at Piers 1 and 3. This work was completed in 2010.

In August 2016, work began for Contract No. TS-650A, the Riverton - Belvidere Toll-Supported Bridge Critical Member Strengthening Project. This project included repairs to the upper and lower chord gusset plate connections, heat-straightening of two (2) bottom chord members in Span 2, and repairs to the southwest end post in Span 1. The project also included slope stabilization improvements along both approaches. Work was completed prior to this year's inspection.

RIVERTON - BELVIDERE TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

A Commission owned storage garage and Bridge Monitor shelter is located at the southeast corner of the bridge. Commission maintenance forces rehabilitated the Bridge Monitor shelter in 2012.

Contract No. TS-505A on the New Jersey approach roadway included crack sealing and overlay of the existing concrete roadway, repair and/or replacement of the sidewalks and curbs and upgrade of the guide rail to current standards. This was completed in 2013. The storage garage roof was removed and replaced in 2014 under Contract No. T-437A.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

RIVERTON - BELVIDERE TOLL-SUPPORTED BRIDGE

(4 span, riveted steel, double Warren Truss)

The structure is in overall satisfactory condition.

The deck is in overall good condition.

The approaches are in overall good condition with sealable pavement cracks on the east approach. No curb or drainage inlets exist along the south side of the west approach.

The superstructure is in satisfactory condition. Several gusset plate connections on the upper and lower chords of both trusses exhibit out-of-plane bending (bowing) and minor section loss and pitting. Minor section loss and pitting were also observed on the truss members and floorbeams.

The substructure above the water line is in satisfactory condition. The east abutment exhibits a spall with exposed reinforcement at the centerline and a large fracture at the north end. Pier 1 and Pier 2 have spalls on the concrete nosing on the upstream side of the piers.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The substructure units below the waterline were found to be in satisfactory condition.

RIVERTON - BELVIDERE TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The New Jersey Bridge Monitor shelter is in overall good condition.

The storage garage was observed to be in overall satisfactory condition.

Since the previous inspection, doors and windows were replaced and a barn door on the west side of the building was removed and replaced with a solid wall. Several other maintenance level repairs were also observed. Section loss was noted at the car port columns

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting the posted load.

RIVERTON - BELVIDERE TOLL-SUPPORTED BRIDGE

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Install anchor bolts where missing at the bridge mounted guide rail base plates throughout the deck.
 - Repair the spall and fracture at the east abutment breastwall.
 - Place riprap along the east and west abutment footings.
 - Remove debris at all piers.
 - Patch spalls at all piers.
 - Consider drainage improvements on the south side of the west approach.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

RIVERTON - BELVIDERE TOLL-SUPPORTED BRIDGE FACILITIES AND GROUNDS

The New Jersey Bridge Monitor shelter is in overall good condition.

The storage garage is in overall satisfactory condition.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Riverton-Belvidere Toll-Supported Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund 2019	General Reserve Fund 2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
The bridge was rehabilitated in 2007					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
RBTSB	Unforeseen Projects	\$316,933	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$316,933	\$25,000	\$25,850	\$50,850
TOTAL COST		\$316,933	\$25,000	\$25,850	\$50,850

PORTLAND - COLUMBIA
TOLL-SUPPORTED PEDESTRIAN BRIDGE
(Structure No. 360)



PORTLAND - COLUMBIA TOLL-SUPPORTED PEDESTRIAN BRIDGE

GENERAL

PORTLAND - COLUMBIA TOLL-SUPPORTED BRIDGE

(4 span, continuous, steel thru - deck girder)

The Portland - Columbia Toll-Supported Pedestrian Bridge (Structure No. 360) connects Portland Borough, Pennsylvania with Knowlton Township, New Jersey, just north of the Portland - Columbia Toll Bridge.

This pedestrian bridge is a four span continuous, thru-deck steel girder system, with a concrete deck and built up girders with a total length of 774 feet. The width of the walkway is 9 feet, 6 inches between girder centers. The original structure, constructed in 1869 as a vehicular bridge, was a four-span timber bridge reinforced with wooden arches. The entire structure was protected from the weather by a wooden shed surmounted by a slate roof. On December 1, 1953, all vehicular traffic formerly using this structure was rerouted over the new Portland-Columbia Toll Bridge, constructed just south of the old bridge. The last of its kind on the Delaware River, three spans of this historical timber bridge floated off its piers during Hurricane Diane in August 1955. In 1957-58, the original stone masonry substructure units were modified with reinforced concrete caps and the present superstructure was constructed.

This bridge was last cleaned and painted in 1998 under Contract No. 346. In 2003, the construction of a handicap accessible ramp at the west approach and bridge deck modifications was completed under Contract No. TS-388. In 2004, drainage and deck modifications were done under Contract No. TS-388A to alleviate ponding of water and corrosion due to improper drainage.

Contract No. T/TS-476A-2 Substructure Repair & Scour Remediation, Toll & Toll-Supported Bridges, Districts 1, 2 & 3 included underwater repairs to all three (3) piers including tremie concrete and concrete bag remediation under the footings and aprons. This contract also included epoxy injection crack sealing of all 3 aprons, masonry repointing at Pier 1 and partially grouted riprap around the apron at Pier 3. This work was completed in 2010.

SIGNIFICANT FINDINGS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting pedestrian loading.

PORTLAND - COLUMBIA TOLL-SUPPORTED BRIDGE

(4 span, continuous, steel thru - deck girder)

The structure is in overall satisfactory condition.

The deck is in fair condition. The top of deck exhibits light to moderate scaling throughout with fine to medium transverse cracks (mainly at girder stiffener locations) and repeated sealing around deck drain inlets. Several incipient spalls and spalls with exposed rebar are present at the deck underside. The underside of deck also exhibits fine to medium transverse cracks with efflorescence and water stains.

The approach walkways and superstructure are in good condition.

The substructure above the waterline is in satisfactory condition. The north retaining wall is fractured adjacent to the west abutment breastwall and is displaced 2 1/2" towards the east. No movement was noted since the previous inspection. The top of the concrete headwall adjacent to the north end of the east abutment is displaced 8" towards the west. The east abutment breastwall exhibits spalled and hollow sounding concrete along the base. The east abutment backwall exhibits spalled and hollow sounding concrete patches with medium map cracking at several locations. Fine to wide cracks are typical throughout the concrete portions of the substructure units.

An underwater inspection was performed in 2016 under Contract No. C-628B-7. The substructure units below the waterline were found to be in good condition.

CONCLUSIONS

Based on the findings of the 2018 inspections, the bridge is capable of safely supporting pedestrian loading.

PORTLAND - COLUMBIA TOLL-SUPPORTED BRIDGE

The structure is in overall satisfactory condition.

- Items to be included in future repair contract:
 - Remove unsound concrete, clean exposed reinforcement, and patch areas of incipient spalling throughout the underdeck. *Consideration should be given to replacing the entire deck.*
 - Repoint deteriorated and missing mortar at Pier 2 and the east abutment.
 - Seal the wide crack at the south corner of the east abutment.
 - Reset the over expanded rocker bearings at the east abutment.
 - Remediate the displacement at the northeast headwall and the northwest wingwall.
 - Repair cracks in the concrete aprons at Piers 1 and 2.
 - Remove debris at Pier 3.
 - Seal the void in the stonework at Pier 3.
 - Place riprap in the scour holes at Piers 2 and 3.

For a list of maintenance repair items, see the *2018 Annual Maintenance Report*.

2019-2020 CAPITAL PLAN ESTIMATED EXPENDITURES

Portland-Columbia Toll-Supported Pedestrian Bridge

ESTIMATED COST OF RECOMMENDED IMPROVEMENTS FUNDED BY THE GENERAL RESERVE FUND

Contract No.	Bridge and Roadway Recommended Improvements	Program Cost	General Reserve Fund		
			2019	2020	2 Year Total
<u>Bridges, Roadways, Sidewalks, and Approaches</u>					
BRIDGES SUB TOTAL		\$0	\$0	\$0	\$0
<u>Facilities and Grounds</u>					
PCTSB	Unforeseen Projects	\$339,011	\$25,000	\$25,850	\$50,850
FACILITIES AND GROUNDS SUB TOTAL		\$339,011	\$25,000	\$25,850	\$50,850
TOTAL COST		\$339,011	\$25,000	\$25,850	\$50,850

VEHICLES AND EQUIPMENT
(2019 - 2020 CAPITAL PLAN)

2019-2020 CAPITAL PLAN
VEHICLES AND EQUIPMENT

2019 VEHICLES & EQUIPMENT
SUMMARY BY REGION

SOUTHERN REGION

Trenton-Morrisville	\$ 1,980,500
Scudder Falls	\$ 2,415,000
New Hope-Lambertville	\$ 1,018,000
Southern Region Toll-Supported	\$ 184,000
Subtotal	\$ 5,597,500

CENTRAL REGION

Interstate 78	\$ 1,279,000
Easton-Phillipsburg	\$ 1,010,000
Northern Region Toll-Supported	\$ 70,000
Subtotal	\$ 2,359,000

NORTHERN REGION

Portland-Columbia	\$ 597,500
Delaware Water Gap	\$ 487,000
Milford-Montague	\$ 441,000
Subtotal	\$ 1,525,500

TOTAL 2019 VEHICLES & EQUIPMENT \$ 9,482,000

**2019-2020 CAPITAL PLAN
VEHICLES AND EQUIPMENT**

TM 2019 VEHICLE AND EQUIPMENT INSPECTION REPLACEMENT REQUESTS

TRENTON-MORRISVILLE TOLL

NEW EQUIPMENT REQUESTS

2019 New Patrol Vehicle

Est Purchase Price

\$90,000.00

2018 IMPACT ATTENUATOR, TRAILER MOUNTED W/TRAFCON ARROW BOARD

Est Purchase Price

\$26,000.00

Items approved in prior years but not yet purchased

\$1,864,500.00

Estimated Total

\$1,980,500.00

**2019-2020 CAPITAL PLAN
VEHICLES AND EQUIPMENT**

SF 2019 VEHICLE AND EQUIPMENT INSPECTION REPLACEMENT REQUESTS

SCUDDER FALLS BRIDGE

NEW EQUIPMENT REQUESTS

2018 GATOR UTILITY VEHICLE W/ATTACHMENTS

Est Purchase Price

\$50,000.00

Items approved in prior years but not yet purchased

2,365,000.00

Estimated Total

\$2,415,000.00

**2019-2020 CAPITAL PLAN
VEHICLES AND EQUIPMENT**

SR 2019 VEHICLE AND EQUIPMENT INSPECTION REPLACEMENT REQUESTS

SOUTHERN REGION TOLL SUPPORTED

Items approved in prior years but not yet purchased

\$184,000.00

Estimated Total

\$184,000.00

2019-2020 CAPITAL PLAN VEHICLES AND EQUIPMENT

I78 2019 VEHICLE AND EQUIPMENT INSPECTION REPLACEMENT REQUESTS

INTERSTATE 78 TOLL

Item To Be Replaced, Sold, or Transferred

2008 **ALL TERRAIN VEHICLE**

JOHN DEERE

850D

Location **210**

Department **DRJTBC**

Commission ID No. **52052**

Serial VIN Number **MOXUVDX921498**

Hours **1,760.00**

License Number



Replacement Item **John Deer Gator (ATV)**

Est Purchase Price

\$35,000.00

Item To Be Replaced, Sold, or Transferred

2011 **MOWER, TURF -0- TURN RADIUS**

FERRIS

5,900,945.00

Location **210**

Department **DRJTBC**

Commission ID No. **52061**

Serial VIN Number **2,014,699,916.00**

Hours **620.00**

License Number



Replacement Item **FERRIS ZERO TURN LAWN MOWER**

Est Purchase Price

\$19,000.00

Total Equipment

2

Estimated Total

\$54,000.00

NEW EQUIPMENT REQUESTS

2019 New Patrol Vehicle

Est Purchase Price

\$90,000.00

9ft. AVALANCHE SNOW PUSHER

Est Purchase Price

\$11,000.00

Items approved in prior years but not yet purchased

\$1,124,000.00

Estimated Total

\$1,279,000.00

**2019-2020 CAPITAL PLAN
VEHICLES AND EQUIPMENT**

EP 2019 VEHICLE AND EQUIPMENT INSPECTION REPLACEMENT REQUESTS

EASTON-PHILLIPSBURG TOLL

NEW EQUIPMENT REQUESTS

2019 New Patrol Vehicle

Est Purchase Price

\$90,000.00

DELCO POWER WASHER/EXTRA 50' HOSE ROTARY SURFACE CLEANER

Est Purchase Price

\$7,000.00

Items approved in prior years but not yet purchased

\$913,000.00

Estimated Total

\$1,010,000.00

***2019-2020 CAPITAL PLAN
VEHICLES AND EQUIPMENT***

NR 2019 VEHICLE AND EQUIPMENT INSPECTION REPLACEMENT REQUESTS
NORTHERN REGION TOLL SUPPORTED

Items approved in prior years but not yet purchased

\$70,000.00

Estimated Total

\$70,000.00

**2019-2020 CAPITAL PLAN
VEHICLES AND EQUIPMENT**

PC 2019 VEHICLE AND EQUIPMENT INSPECTION REPLACEMENT REQUESTS

PORTLAND-COLUMBIA TOLL

NEW EQUIPMENT REQUESTS

2019 New Patrol Vehicle

Est Purchase Price

\$90,000.00

PORTABLE LIGHT TOWER

Est Purchase Price

\$13,500.00

Items approved in prior years but not yet purchased

\$494,000.00

Estimated Total

\$597,500.00

2019-2020 CAPITAL PLAN VEHICLES AND EQUIPMENT

DWG 2019 VEHICLE AND EQUIPMENT INSPECTION REPLACEMENT REQUESTS

DELAWARE WATER GAP TOLL

Item To Be Replaced, Sold, or Transferred

2016 ATTENUATOR, TRUCK MOUNTED

SCORPION C TMA

Location **320**
Department **DRJTBC**
Commission ID No. **61574**
Serial VIN Number **M51505164PSV643**
Hours
License Number



Replacement Item	TOW BEHIND ARROW BOARD, TRAILER MOUNTED SOLAR	Est Purchase Price	\$33,000.00
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Item To Be Replaced, Sold, or Transferred

2004 PORTABLE LIGHT TOWER

MAGNUM MLT 5060

Location **320**
Department **DRJTBC**
Commission ID No. **20139**
Serial VIN Number **5AJLS161448005290**
Hours **2,004.00**
License Number **NJ-SG24453**



Replacement Item	PORTABLE LIGHT TOWER	Est Purchase Price	\$17,000.00
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Total Equipment	2	Estimated Total	\$50,000.00
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NEW EQUIPMENT REQUESTS

2019 New Patrol Vehicle	Est Purchase Price	\$90,000.00
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Items approved in prior years but not yet purchased	\$347,000.00
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Estimated Total	\$487,000.00
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2019-2020 CAPITAL PLAN VEHICLES AND EQUIPMENT

MM 2019 VEHICLE AND EQUIPMENT INSPECTION REPLACEMENT REQUESTS

MILFORD-MONTAGUE TOLL

Item To Be Replaced, Sold, or Transferred

1991 **SHAMPOOER, CARPET HIGH PRESSURE PORTABLE** **HYDROTEX** **200-12**

Location 330

Department DRJTBC

Commission ID No. 40031

Serial VIN Number A6622

Hours N/A

License Number



Replacement Item	ARROW BOARD, TRAILER MOUNTED SOLAR	Est Purchase Price	\$13,000.00
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Total Equipment	1	Estimated Total	\$13,000.00
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NEW EQUIPMENT REQUESTS

2019 New Patrol Vehicle	Est Purchase Price	\$90,000.00
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Items approved in prior years but not yet purchased	\$338,000.00
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Estimated Total	\$441,000.00
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ESTIMATED EXPENDITURES
(2019 - 2020 CAPITAL PLAN)

**2019-2020 CAPITAL PLAN
ESTIMATED EXPENDITURES SUMMARY**



CAPITAL PROGRAM ESTIMATED EXPENDITURES

	<i>2019</i>	<i>2020</i>	<i>2 YR. TOTAL</i>
Toll Bridge Facilities	\$163,257,040	\$153,901,822	\$317,158,862
Toll-Supported Bridge Facilities	\$2,385,391	\$11,390,160	\$13,775,551
Commission Initiatives & System-Wide Projects	\$13,808,913	\$4,058,315	\$17,867,228
<i>Subtotal</i>	<i>\$179,451,344</i>	<i>\$169,350,298</i>	<i>\$348,801,642</i>

VEHICLE / EQUIPMENT GROSS PURCHASES

	<i>2019</i>	<i>2020</i>	<i>2 YR. TOTAL</i>
Vehicles and Maintenance Equipment	\$9,482,000	\$4,500,000	\$13,982,000
<i>Subtotal</i>	<i>\$9,482,000</i>	<i>\$4,500,000</i>	<i>\$13,982,000</i>

	<i>2019</i>	<i>2020</i>	<i>2 YR. TOTAL</i>
<i>TOTAL 2019 - 2020 CAPITAL PLAN</i>	<i><u>\$188,933,344</u></i>	<i><u>\$173,850,298</u></i>	<i><u>\$362,783,642</u></i>

**2019-2020 CAPITAL PLAN
ESTIMATED EXPENDITURES SUMMARY**



<u>TOLL BRIDGES</u>	<u>2019</u>	<u>2020</u>	<u>2 YR. TOTAL</u>
<u>Trenton-Morrisville</u>	\$15,032,474	\$15,876,276	\$30,908,750
<u>Scudder Falls</u>	\$138,172,850	\$130,156,900	\$268,329,750
<u>New Hope-Lambertville</u>	\$2,694,221	\$77,550	\$2,771,771
<u>Interstate 78</u>	\$4,270,000	\$155,100	\$4,425,100
<u>Easton-Phillipsburg</u>	\$2,682,627	\$168,050	\$2,850,677
<u>Portland-Columbia</u>	\$50,000	\$51,700	\$101,700
<u>Delaware Water Gap</u>	\$304,867	\$7,364,547	\$7,669,414
<u>Milford-Montague</u>	\$50,000	\$51,700	\$101,700
<i>Subtotal</i>	<i>\$163,257,040</i>	<i>\$153,901,822</i>	<i>\$317,158,862</i>
<u>TOLL-SUPPORTED BRIDGES</u>	<u>2019</u>	<u>2020</u>	<u>2 YR. TOTAL</u>
<u>Lower Trenton</u>	\$25,000	\$25,850	\$50,850
<u>Calhoun Street</u>	\$25,000	\$25,850	\$50,850
<u>Washington Crossing</u>	\$464,705	\$1,234,715	\$1,699,419
<u>New Hope-Lambertville</u>	\$25,000	\$25,850	\$50,850
<u>Centre Bridge-Stockton</u>	\$828,436	\$25,850	\$854,286
<u>Lumberville-Raven Rock</u>	\$25,000	\$25,850	\$50,850
<u>Uhlerstown-Frenchtown</u>	\$25,000	\$25,850	\$50,850
<u>Upper Black Eddy-Milford</u>	\$25,000	\$25,850	\$50,850
<u>Riegelsville</u>	\$25,000	\$25,850	\$50,850
<u>Northampton Street</u>	\$867,250	\$9,896,945	\$10,764,195
<u>Riverton-Belvidere</u>	\$25,000	\$25,850	\$50,850
<u>Portland-Columbia</u>	\$25,000	\$25,850	\$50,850
<i>Subtotal</i>	<i>\$2,385,391</i>	<i>\$11,390,160</i>	<i>\$13,775,551</i>
	<u>2019</u>	<u>2020</u>	<u>2 YR. TOTAL</u>
<i>COMMISSION INITIATIVES & SYSTEM-WIDE PROJECTS</i>	<i>\$13,808,913</i>	<i>\$4,058,315</i>	<i>\$17,867,228</i>
<i>VEHICLES & EQUIPMENT</i>	<i>\$9,482,000</i>	<i>\$4,500,000</i>	<i>\$13,982,000</i>
<i>TOTAL</i>	<i>\$188,933,344</i>	<i>\$173,850,298</i>	<i>\$362,783,642</i>

**2019-2020 CAPITAL PLAN
ESTIMATED EXPENDITURES SUMMARY**



BRIDGES, ROADWAYS, SIDEWALKS, & APPROACHES SUMMARY

<u>SOUTHERN REGION</u>	2019	2020	2 YR. TOTAL
<u>Trenton-Morrisville Toll Bridge</u>	\$250,000	\$0	\$250,000
<u>Lower Trenton Toll-Supported Bridge</u>	\$0	\$0	\$0
<u>Calhoun Street Toll-Supported Bridge</u>	\$0	\$0	\$0
<u>Scudder Falls Toll Bridge</u>	\$130,137,213	\$130,053,500	\$260,190,713
<u>Washington Crossing Toll-Supported Bridge</u>	\$439,705	\$1,208,865	\$1,648,569
<u>New Hope-Lambertville Toll-Supported Bridge</u>	\$0	\$0	\$0
<u>New Hope Lambertville Toll Bridge</u>	\$5,000	\$0	\$5,000
<u>Centre Bridge-Stockton Toll-Supported Bridge</u>	\$803,436	\$0	\$803,436
<u>Lumberville-Raven Rock Toll-Supported Bridge</u>	\$0	\$0	\$0
<i>District I Total</i>	<i>\$131,635,354</i>	<i>\$131,262,365</i>	<i>\$262,897,718</i>

<u>CENTRAL REGION</u>	2019	2020	2 YR. TOTAL
<u>Uhlerstown-Frenchtown Toll-Supported Bridge</u>	\$0	\$0	\$0
<u>Upper Black Eddy-Milford Toll-Supported Bridge</u>	\$0	\$0	\$0
<u>Riegelsville Toll-Supported Bridge</u>	\$0	\$0	\$0
<u>Interstate 78 Toll Bridge</u>	\$4,120,000	\$0	\$4,120,000
<u>Northampton Street Toll-Supported Bridge</u>	\$817,250	\$9,845,245	\$10,662,495
<u>Easton-Phillipsburg Toll Bridge</u>	\$0	\$0	\$0
<u>Riverton-Belvidere Toll-Supported Bridge</u>	\$0	\$0	\$0
<i>District II Total</i>	<i>\$4,937,250</i>	<i>\$9,845,245</i>	<i>\$14,782,495</i>

<u>NORTHERN REGION</u>	2019	2020	2 YR. TOTAL
<u>Portland-Columbia Toll Bridge</u>	\$0	\$0	\$0
<u>Portland-Columbia Toll-Supported</u>	\$0	\$0	\$0
<u>Delaware Water Gap Toll Bridge</u>	\$229,867	\$7,286,997	\$7,516,864
<u>Milford-Montague Toll Bridge</u>	\$0	\$0	\$0
<i>District III Total</i>	<i>\$229,867</i>	<i>\$7,286,997</i>	<i>\$7,516,864</i>

	2019	2020	2 YR. TOTAL
<i>BRIDGES, ROADWAYS, SIDEWALKS & APPROACHES TOTAL</i>	<i>\$136,802,471</i>	<i>\$148,394,607</i>	<i>\$285,197,077</i>

**2019-2020 CAPITAL PLAN
ESTIMATED EXPENDITURES SUMMARY**



FACILITIES AND GROUNDS SUMMARY

<u>SOUTHERN REGION</u>	2019	2020	2 YR. TOTAL
<u>Trenton-Morrisville Toll Bridge</u>	\$14,782,474	\$15,876,276	\$30,658,750
<u>Lower Trenton Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<u>Calhoun Street Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<u>Scudder Falls Toll Bridge</u>	\$8,035,637	\$103,400	\$8,139,037
<u>Washington Crossing Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<u>New Hope-Lambertville Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<u>New Hope Lambertville Toll Bridge</u>	\$2,689,221	\$77,550	\$2,766,771
<u>Centre Bridge-Stockton Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<u>Lumberville-Raven Rock Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<i>District I Total</i>	\$25,657,332	\$16,212,326	\$41,869,658
<u>CENTRAL REGION</u>	2019	2020	2 YR. TOTAL
<u>Uhlerstown-Frenchtown Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<u>Upper Black Eddy-Milford Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<u>Riegelsville Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<u>Interstate 78 Toll Bridge</u>	\$150,000	\$155,100	\$305,100
<u>Northampton Street Toll-Supported Bridge</u>	\$50,000	\$51,700	\$101,700
<u>Easton-Phillipsburg Toll Bridge</u>	\$2,682,627	\$168,050	\$2,850,677
<u>Riverton-Belvidere Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<i>District II Total</i>	\$2,982,627	\$478,250	\$3,460,877
<u>NORTHERN REGION</u>	2019	2020	2 YR. TOTAL
<u>Portland-Columbia Toll Bridge</u>	\$50,000	\$51,700	\$101,700
<u>Portland-Columbia Toll-Supported Bridge</u>	\$25,000	\$25,850	\$50,850
<u>Delaware Water Gap Toll Bridge</u>	\$75,000	\$77,550	\$152,550
<u>Milford-Montague Toll Bridge</u>	\$50,000	\$51,700	\$101,700
<i>District III Total</i>	\$200,000	\$206,800	\$406,800
	2019	2020	2 YR. TOTAL
<i>FACILITIES AND GROUNDS TOTAL</i>	\$28,839,960	\$16,897,376	\$45,737,336

**2019-2020 CAPITAL PLAN
ESTIMATED EXPENDITURES SUMMARY**



VEHICLES & EQUIPMENT PURCHASES

2019 VEHICLE & EQUIPMENT PURCHASES

<u>Facility</u>	<u>Estimated Purchase Price of New Units</u>
Trenton-Morrisville	\$1,980,500
Scudder Falls	\$2,415,000
New Hope-Lambertville	\$1,018,000
Interstate Route 78	\$1,279,000
Easton-Phillipsburg	\$1,010,000
Portland-Columbia	\$597,500
Delaware Water Gap	\$487,000
Milford-Montague	\$441,000
Southern District - Toll-Supported Bridges	\$184,000
Northern District - Toll-Supported Bridges	\$70,000

TOTAL 2019 GROSS VEHICLE & EQUIPMENT PURCHASES

\$9,482,000

ESTIMATED 2020 GROSS VEHICLE & EQUIPMENT PURCHASES*

\$4,500,000

**The 2019 V & E purchases above are based upon the "actual" estimates listed in the "Vehicle & Equipment" section of the 2018 General Engineering Annual Inspection Report. The 2020 V & E purchases of \$4.5M above are estimates of anticipated replacements/cost of new items for 2020.*

SCHEDULE OF INSURANCE

SCHEDULE OF INSURANCE

I. CURRENT SCHEDULE OF INSURANCE (2018)

The Delaware River Joint Toll Bridge Commission currently has in effect the following principle types and amounts of insurance coverage. This list may not be all inclusive, but provides the more significant coverages.

A. General Liability

\$	2,000,000	General Aggregate Limit
\$	2,000,000	Products/Completed Operations Aggregate Limit
\$	1,000,000	Personal/Advertising Injury Limit
\$	1,000,000	Each Occurrence Limit
\$	300,000	Damage to Premises Rented to You
\$	15,000	Medical Expense Limit, Any One Person

The above General Liability limits apply for all bridges (Toll and Toll-Supported Bridges).

The above General Liability aggregate limits apply per each location to the bridges. The each occurrence aggregate limit applies to the other locations.

Coverage includes Independent Contractors, Medical Payments, Contractual Liability, Fire Damage, Legal Liability, Employees as Additional Insured, Host Liquor Liability, Incidental Medical Malpractice, Broad Form Property Damage Liability, Non-owned Watercraft Liability (under 25ft), Products Liability and Extended Bodily Injury Liability.

B. Commercial Automobile Liability

\$	1,000,000	Bodily Injury/Property Damage Combined Single Limit, Each Accident
\$	35,000	Uninsured/Underinsured Motorist Coverage (PA & NJ)
\$	100,000	Garagekeepers Liability
\$	5,000	Medical Payments
\$	50,000	Hired Car Physical Damage Coverage
ACV or Cost of Repair		Comprehensive & Collision (Stated Amount - \$100,000 maximum)

Deductible on Comprehensive and Collision

\$	1,000	PPTs & Light Trucks
\$	3,000	Medium Trucks
\$	5,000	Heavy & Extra Heavy Trucks

C. Umbrella Liability

\$	25,000,000	Each Occurrence, Annual Aggregate
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There is an excess umbrella policy with a \$25,000,000 limit. The total coverage of \$50,000,000 is inclusive of all Bridges, Vehicles, and Operations Liability.

SCHEDULE OF INSURANCE

D. Building & Contents Insurance

\$	111,239,778	Blanket Limit
\$	5,000,000	Business Interruption & Extra Expense
\$	250,000	Debris Removal, Additional Expense
\$	1,000,000	Off Premise Utility Interruption
\$	Policy Limit	Fire Department Service Charge
\$	5,000,000	Flood (Locations: 1-36; 45) (excludes Flood Zones A or V)
\$	1,000,000	Flood (Locations: 42-44) (excludes Flood Zones A or V)
\$	10,000,000	Earthquake
\$	10,000	All Perils Deductible except flood and earthquake
\$	100,000	Flood and Earthquake Deductible

Coverage extensions include: Debris Removal, Pollutant Cleanup and Removal, Newly Acquired Buildings and Personal Property, Personal Property of Others/Employees, Valuable papers-Cost of Research, Property Off Premises within 1,000 feet, Outdoor Property - Trees, Shrubs and Plants, Property in Transit (Special Form Only) and Signs (various sublimits apply).

Boiler & Machinery Coverage insured under separate policy

E. Equipment Floater Limits (Separate from Building Policy)

\$	2,456,066	Specific Limits Apply Per Schedule
\$	90,000	Miscellaneous Unscheduled Tools, limited to \$2,500 per item
\$	50,000	Leased/Rented Equipment – per occurrence
\$	2,500	Deductible except flood and earthquake

F. Bridge Property Coverage

Loss Limits:

\$	200,000,000	Loss Limit – Primary
\$	275,000,000	Loss Limit – Excess of \$200,000,000 per Occurrence

All Perils Deductible except Flood and Earth Movement - 1% of the value of the structure (bridge is separate structure from approach as scheduled) subject to a minimum of \$50,000 and 5 day Waiting period for Loss of Revenue.

Flood Coverage - \$250,000,000 Annual Aggregate - Multiple Policies

Earthquake Coverage – \$250,000,000 Annual Aggregate - Multiple Policies

Sublimits apply to Debris Removal, Contamination, & Pollution Clean-Up/Removal – Land/Water –.

SCHEDULE OF INSURANCE

G. Public Officials / Employment Practices Liability

\$ 10,000,000 Each Loss
\$ 10,000,000 Aggregate

Retention

\$ 0 Non-Indemnifiable Loss
\$ 50,000 Corporate Reimbursement and Organization Coverage
\$ 35,000 Employment Practices Liability Coverage

Excess policy provides additional \$10,000,000 Per Claim/Annual Aggregate

H. Workers Compensation and Employers Liability Coverage

Workers Compensation – Statutory Limits

Employers Liability

\$ 1,000,000	Each Accident	Bodily Injury, \$250,000 deductible
\$ 1,000,000	Policy Limit by Disease	Bodily Injury, \$250,000 deductible
\$ 1,000,000	Each Employee by Disease	Bodily Injury, \$250,000 deductible

I. Commercial Crime Coverage

\$ 10,000 Forgery or Alteration, \$1,000 deductible
\$ 250,000 Money In-Out for Theft, Disappearance and Destruction, \$10,000 deductible
\$ 250,000 Money Order and Counterfeit Currency & Credit, Debit, Charge Card Forgery,
\$1,000 Deductible
\$ 5,000,000 Employee Dishonesty, \$50,000 Deductible
\$ 5,000,000 Computer Fraud Including Wire Transfer Fund, \$50,000 Deductible

Coverage includes all locations.

J. Professional Architects and Engineers

\$ 1,000,000 per Occurrence/Aggregate

Retention

\$ 50,000 Each Claim

K. Pollution Legal Liability (3 Year Policy)

\$ 3,000,000 per Occurrence/Aggregate

Retention

\$ 25,000 Each Incident

SCHEDULE OF INSURANCE

L. Cyber Liability

\$ 5,000,000 Policy Aggregate Limit

\$ 100,000 eCrime (Fraudulent Instruction, Regulatory Defense, Payment Card)

Retention

\$ 25,000 Each and Every Loss

Coverage includes item such as: Business Interruption (security breach or system failure), Cyber Extortion, Data Recovery, and other liabilities for Data/Network, Regulatory Defense, Payment Card, Fraudulent Instruction, and Media.

SCHEDULE OF INSURANCE

II. INSURANCE REQUIREMENTS FOR 2019

In accordance with Section 708 of the Bridge System Revenue Bonds, Series 2007, the following types of insurance are required to be maintained by the Commission to the extent as reasonably obtainable:

MULTI-RISK INSURANCE

The Commission currently maintains insurance for full replacement of all twenty (20) Toll and Toll-Supported Bridges and their approach structures (viaducts). In 1999 the Commission supplemented the full insurance coverage for the thirteen (13) Toll-Supported Bridges. The full replacement costs are reviewed annually and updated accordingly to follow current inflation and construction costs.

Van Cleef Engineering Associates, LLC has re-assessed each of the twenty (20) Toll and Toll-Supported Bridges and their associated approach structures (viaducts) with respect to the structures replacement costs. Most of the bridges, when and if replaced, will be replacement in kind. A simple cost per square foot (the overall bridge length multiplied by its overall width) was used in the development of the replacement costs for all of the Toll and Toll-Supported Bridges and their approach structures (viaducts). Square foot unit costs may vary between bridges due to specific characteristics such as the need for deep foundations, feature crossed and aesthetics. The Engineering News Record (ENR) Construction Cost Index (CCI) is utilized to update the replacement costs on a yearly basis due to inflation.

The 2019 Estimated Replacement Costs for the twenty (20) Toll and Toll-Supported Bridges and their approach structures are listed below:

<u>TOLL FACILITY STRUCTURES</u>	<u>BRIDGE</u>	<u>APPROACH</u>
Trenton-Morrisville	\$57,200,000	\$28,900,000
New Hope-Lambertville	\$56,200,000	\$12,600,000
Interstate Route 78	\$66,200,000	\$45,800,000
Easton-Phillipsburg	\$22,400,000	\$17,000,000
Portland-Columbia	\$23,500,000	\$ 5,000,000
Delaware Water Gap	\$92,100,000	\$ 0
Milford-Montague	\$22,000,000	\$ 0
<i>SUBTOTALS</i>	<i>\$339,600,000</i>	<i>\$109,300,000</i>

SCHEDULE OF INSURANCE

<u>TOLL-SUPPORTED FACILITY STRUCTURES</u>	<u>BRIDGE</u>	<u>APPROACH</u>
Lower Trenton	\$23,500,000	\$ 0
Calhoun Street	\$13,900,000	\$ 0
Scudder Falls	\$58,000,000	\$ 7,400,000
Washington Crossing	\$ 7,300,000	\$ 0
New Hope-Lambertville	\$12,100,000	\$ 0
Centre Bridge-Stockton	\$ 9,600,000	\$ 900,000
Lumberville-Raven Rock *	\$ 3,300,000	\$ 0
Uhlerstown-Frenchtown	\$ 9,300,000	\$ 0
Upper Black Eddy-Milford	\$ 8,300,000	\$ 0
Riegelsville	\$ 5,300,000	\$ 0
Northampton Street	\$ 9,700,000	\$ 0
Riverton-Belvidere	\$ 6,400,000	\$ 0
Portland-Columbia *	\$ 4,500,000	\$ 0
<i>SUBTOTALS</i>	<i>\$ 171,200,000</i>	<i>\$8,300,000</i>

*Pedestrian Bridge

Total Replacement Cost (All Bridges) for 2019 = \$ 628,400,000

USE AND OCCUPANCY INSURANCE

The Commission currently maintains Use and Occupancy Insurance for all of its seven (7) Toll Facilities. The Commission has provided the anticipated 2019 revenues presented below.

<u>TOLL FACILITY</u>	<u>2019 ANTICIPATED REVENUE</u>
Trenton-Morrisville	\$ 17,624,383
New Hope-Lambertville	\$ 3,185,331
Interstate Route 78	\$ 62,799,217
Easton-Phillipsburg	\$ 9,014,856
Portland-Columbia	\$ 2,740,897
Delaware Water Gap	\$ 33,404,630
Milford-Montague	\$ 1,648,488
Scudder Falls	\$ 9,460,000
(Total Toll Revenue)	\$ 139,877,803
Interest on Investments	\$ 3,977,758
Toll Violation Enforcement Revenue	\$ 0
EZ Pass Account Service Fee	\$ 1,528,374
Other Income	\$ 425,000
(TOTAL PROJECTED REVENUE - 2019)	\$ 145,808,934

SCHEDULE OF INSURANCE

WAR-RISK INSURANCE

The Commission does not maintain this type of insurance for any of its bridges, as it is not reasonably obtainable due to its excessive cost. However the Commission does maintain coverage for terrorism.

PUBLIC LIABILITY – PROPERTY DAMAGE – BODILY INJURY

Public Liability and Property Damage are maintained by the Commission under its General Liability and Auto Liability insurance coverage, which provides a maximum coverage of \$1,000,000. In addition the Commission carries \$50,000,000 maximum coverage in Excess Liability Insurance on all Bridges, Vehicles and Operations and \$5,000,000 per accident in Business Travel Accident Insurance.

BLANKET REAL AND PERSONAL PROPERTY INSURANCE- ADMINISTRATIVE & MAINTENANCE BUILDINGS, CONTENTS, TOLL BOOTHS, ETC.

The Commission currently maintains Building and Contents Insurance in the amount of \$111,458,469. Estimated replacement costs for all Toll Facility Administration Buildings, Maintenance Buildings and Garages and Toll Plazas were calculated based upon the overall square-foot area of each facility and includes personal property, electronic surveillance system and EZPass equipment at each facility. The Engineering News Record (ENR) Construction Cost Index (CCI) is utilized to update the replacement costs on a yearly basis due to inflation. The estimated replacement costs for 2019 are as follows:

<u>LOCATION</u>	<u>2019 ESTIMATED REPLACEMENT VALUE</u>
Trenton-Morrisville	\$ 14,141,000
New Hope-Lambertville	\$ 11,453,000
Interstate 78	\$ 11,801,000
Easton-Phillipsburg	\$ 11,455,000
Portland-Columbia	\$ 5,996,000
Delaware Water Gap	\$ 8,525,000
Milford-Montague	\$ 3,848,000
Riverton-Belvidere (Storage Shed)	\$ 218,000
New Hope-Lambertville Toll-Supported (Garage)	\$ 908,000
Lumberville-Raven Rock (Bridge Tender House)	\$ 350,000
13 Toll-Supported Bridge Officer Shelters	\$ 579,000
Scudder Falls (Storage Garage, Field Offices, etc.)	\$ 1,357,000
TOTAL	\$ 73,631,000

OTHER INSURANCE

Following good business practice and conforming to the laws of the State of New Jersey and the Commonwealth of Pennsylvania, the Commission carries additional insurance to that which is required by the Bridge System Revenue Bond Resolution. Among this additional coverage is a \$20 million Public Officials Liability insurance including excess coverage.

SCHEDULE OF INSURANCE

III. CONCLUSIONS AND RECOMMENDATIONS FOR 2019

In general the Commission's overall insurance coverage is adequately provided; however, the amounts of the following coverage's should be adjusted:

- The Use and Occupancy Insurance should be adjusted to reflect the estimated 2019 anticipated revenues in conformance with the Bridge System Revenue Bond Resolutions.
- The Blanket Building and Contents Insurance should be adjusted as necessary to reflect the 2019 estimated property replacement values published above.

GLOSSARY OF TERMS

PAINT CONDITION RATINGS

- EXCELLENT** - No problems noted.
- GOOD** - Some minor problems, but paint is sound and functioning as intended to protect the metal surfaces.
- SATISFACTORY** - Surface or freckled rust has formed or is forming. The paint system may be chalking, peeling or showing signs of paint distress, but there is no exposure of metal.
- FAIR** - Surface or freckled rust is prevalent. There may be exposed metal and/or beginning signs of active corrosion, but there is little to no section loss of steel members.
- POOR** - The overall paint system has failed which has consequently caused corrosion and significant section loss to steel members. Exposed metal and/or corrosion are typical throughout the bridge. A new paint system is required.

NOTE: Paint system ratings for a bridge will be an overall condition. Although localized areas may exhibit a better or worse condition, the rating encompasses the majority of the bridge paint system for the entire bridge.

BRIDGE CONDITION RATINGS

<u>EXCELLENT</u> -	New bridge.
<u>VERY GOOD</u> -	No problems noted.
<u>GOOD</u> -	Some minor problems.
<u>SATISFACTORY</u> -	Some minor deterioration of structural elements.
<u>FAIR</u> -	Minor section loss, deterioration, spalling and/or scour of primary structural elements.
<u>POOR</u> -	Advanced section loss, deterioration, spalling and/or scour of primary structural elements.
<u>SERIOUS</u> -	Seriously deteriorated primary structural elements.
<u>CRITICAL</u> -	Facility should be closed until repairs are performed.
<u>IMMINENT FAILURE</u> -	Facility is closed. Study of repairs is feasible.
<u>FAILED</u> -	Facility is closed and beyond repair.

NOTE: The condition ratings above are used to describe the existing, in-place bridge as compared to its as-built condition or its posted weight restriction. These ratings provide an overall characterization of the general condition of the entire bridge. These ratings do not describe a localized or nominally occurring instance of deterioration or disrepair or reflect structural or geometric adequacy.

FUNCTIONALLY OBSOLETE A functionally obsolete bridge is one that was built to standards that are not used today. These bridges are not automatically rated as structurally deficient, nor are they inherently unsafe. Functionally obsolete bridges are those that do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demand, or those that may be occasionally flooded.

STRUCTURALLY DEFICIENT A highway bridge is classified as structurally deficient if the deck, superstructure or substructure is rated in “poor” condition. A bridge can also be classified as structurally deficient if deterioration of its primary members reduces its load carrying capacity or if a waterway opening below the bridge overtops the bridge during floods.

COST ESTIMATING

The costs associated with the repairs and rehabilitation for various elements at the bridge facilities are estimated based upon the following criteria as applicable or available:

- 1) **BID PRICES**: Quantities are developed during routine inspections for the appropriate repair (square foot, cubic yard, etc.). A unit cost is developed using standard bid items most resembling the repair. Inflation, if required, is used to increase unit costs for repair next year.
- 2) **COMMISSION PERSONNEL/HISTORY**: Maintenance staff are interviewed about the materials and length of time required for certain repairs. Maintenance staff are also asked about previous work relating to the proposed work and the costs relating to them. Depending on the year and extent of the previous work, the proposed costs are adjusted accordingly.
- 3) **EXPERIENCE**: Some of the proposed repairs/rehabilitation cannot be accurately quantified and no previous related work is available. Costs are then developed based upon experience of similar tasks. A length of time to complete the job is assumed and costs are approximated.

NOTE: Cost Estimates for major rehabilitation work include a 20% increase in cost to account for engineering services to prepare the contract documents and supervise construction.

BRIDGE LIST

DRJTBC Bridge List (56 Structures)

Bridge Name	DRJTBC Bridge ID Number	Structure Type	Municipality		Structurally Deficient	Functionally Obsolete	No. Of Spans	Structure Length (FT - IN)
Trenton - Morrisville Toll Bridge	20	Steel Multi-Girder	PA	NJ	No	No	12	1324'-6"
US Route 1 over Washington Street (PA)	28	Steel Multi-Girder		Trenton City	No	No	1	56'-9"
US Route 1 over South Pennsylvania Avenue (PA)	29	Steel Multi-Girder		-	No	Yes	1	67'-7"
Ramp IV over Bridge Street (NJ)	23	Steel Multi-Girder	-	-	No	No	3	137'-2"
US Route 1 over Union Street (NJ)	25	Steel Multi-Girder	-	-	No	No	1	78'-8 1/4"
Ramp N over Union Street (NJ)	30	Steel Multi-Girder	-	-	No	No	2	183'-2"
Centre Street over US Route 1 (NJ)	26	P/S Concrete Girder	-	-	No	Yes	3	172'-0"
Broad Street over US Route 1 (NJ)	27	Riveted Steel Plate Girder	-	-	No	Yes	1	95'-3"
US Route 1 over Ramp N (NJ)	22	Steel Multi-Girder	-	-	No	No	1	82'-0"
US Route 1 over NJ Route 29 Northbound (NJ)	21	Steel Multi-Girder	-	-	No	Yes	1	81'-1"
Ramp Y over NJ Route 29 (NJ)	24	P/S Concrete Spread Box Beams	-	-	No	Yes	3	118'-0"
Ramp C over NJ Route 29 Northbound (NJ)	31	Steel Multi-Girder	-	-	No	No	4	286'-0"
Lower Trenton Toll-Supported Bridge	40	Subdivided Warren Truss	Morrisville Boro	Trenton City	No	No	5	1021'-7"
Calhoun Street Toll-Supported Bridge	60	Iron Phoenix Truss	Morrisville Boro	Trenton City	No	Yes	7	1273'-3"
Scudder Falls Toll-Supported Bridge	80	Riveted Steel 2 Girder/Floorbeam/Stringer	Lower Makefield Twp	Ewing Twp	No	Yes	10	1744'-0"
I-295 over Taylorsville Road (PA)	82	Steel Multi-Stringer		-	No	No	3	138'-0"
I-295 over Pennsylvania Canal (PA)	81	Steel Multi-Stringer		-	No	No	1	65'-10"
Washington Crossing Toll-Supported Bridge	100	Double Warren Truss	Upper Makefield Twp	Hopewell Twp	Yes	Yes	6	876'-7"
New Hope - Lambertville Toll-Supported Bridge	120	Pratt Truss	New Hope Boro	Lambertville City	No	Yes	6	1055'-9"
New Hope - Lambertville Toll Bridge	140	Steel 2 Girder/Floorbeam/Stringer	Solebury Twp	Delaware Twp	No	No	10	1690'-0"
US Route 202 over PA Route 32 (PA)	142	Concrete Rigid Frame		-	No	No	1	93'-0"
US Route 202 over NJ Route 29 (NJ)	141	Steel Multi-Stringer	-	-	No	No	3	187'-0"
Centre Bridge - Stockton Toll-Supported Bridge	160	Riveted Steel Warren Truss	Solebury Twp	Stockton Boro	Yes	Yes	6	824'-10"
Upper York Road over Pennsylvania Canal (PA)	161	P/S Concrete Adjacent Box Beams		-	No	Yes	1	67'-0"
Lumberville - Raven Rock Toll-Supported Pedestrian Bridge	180	Suspension	Solebury Twp	Delaware Twp	N/A	N/A	4	692'-3"
Uhlerstown - Frenchtown Toll-Supported Bridge	220	Riveted Steel Warren Truss	Tinicum Twp	Frenchtown Boro	No	Yes	6	950'-10"
Upper Black Eddy - Milford Toll-Supported Bridge	240	Warren Truss	Bridgeton Twp	Milford Boro	No	Yes	3	699'-9 1/4"
Riegelsville Toll Supported Bridge	260	Suspension	Durham Twp	Pohatcong Twp	No	Yes	3	580'-10"

DRJTBC Bridge List (56 Structures)

Bridge Name	DRJTBC Bridge ID Number	Structure Type	Municipality		Structurally Deficient	Functionally Obsolete	No. Of Spans	Structure Length (FT - IN)
			PA	NJ				
Interstate 78 Toll Bridge Westbound	275	Steel Multi-Girder	Williams Twp	Phillipsburg Twp	No	No	7	1226'-0"
Interstate 78 Toll Bridge Eastbound	270	Steel Multi-Girder	Williams Twp	Phillipsburg Twp	No	No	7	1226'-0"
Morgan Hill Road over I-78 (PA)	273	P/S Concrete Spread Box Beams		-	No	No	2	214'-0"
Cedarville Road over I-78 (PA)	274	P/S Concrete I-Beams		-	No	No	4	314'-0"
I-78 over PA Route 611 Westbound (PA)	276	P/S Concrete Spread Box Beams		-	No	No	3	201'-6"
I-78 over PA Route 611 Eastbound (PA)	277	P/S Concrete Spread Box Beams		-	No	No	3	203'-9"
Carpentersville Road over I-78 (NJ)	278	Steel Multi-Stringer	-		No	No	2	207'-0"
Edge Road over I-78 (NJ)	279	Steel Multi-Stringer	-		No	No	2	276'-0"
I-78 Westbound over NJ Route 519 (NJ)	271	Steel Multi-Stringer	-		No	No	2	237'-10"
I-78 Eastbound over NJ Route 519 (NJ)	281	Steel Multi-Stringer	-		No	No	2	236'-5"
I-78 Westbound over Ramp C (NJ)	282	Steel Multi-Stringer	-		No	No	1	112'-6"
I-78 Eastbound over Ramp C (NJ)	283	Steel Multi-Stringer	-		No	No	1	116'-11"
Ramp A over Service Road (PA)	272	P/S Concrete Adjacent Box Beams		-	N/A	N/A	1	47'-0"
Northampton Street Toll-Supported Bridge	280	Cantilever Truss	Easton City	Phillipsburg Twp	Yes	Yes	3	556'-0"
Easton - Phillipsburg Toll Bridge	300	Petit Thru-Truss	Easton City	Phillipsburg Twp	No	Yes	1	543'-8"
US Route 22 over Broad Street (NJ)	301	Riveted Steel 3 Girder/Floorbeam/Stringer	-		No	Yes	5	431'-4"
US Route 22 over Third Street (PA)	303	Steel Multi-Stringer		-	No	Yes	1	86'-0"
US Route 22 over Pedestrian Tunnel (PA)	305	Reinforced Concrete Box Culvert		-	N/A	N/A	1	10'-0"
US Route 22 over Bank Street (PA)	304	Steel Multi-Stringer		-	No	Yes	3	123'-7"
US Route 22 over PA Route 611 (PA)	302	Steel Multi-Stringer		-	No	Yes	1	43'-4"
Riverton - Belvidere Toll-Supported Bridge	320	Riveted Steel Double Warren Truss	Lower Mount Bethel Twp	Belvidere Twp	No	Yes	4	652'-5"
Portland - Columbia Toll Bridge	340	Riveted Steel Multi-Girder	Portland Boro	Knowlton Twp	No	No	10	1309'-0"
Ramp over US Route 46 (NJ)	341	Riveted Steel Multi-Girder	-		No	Yes	1	100'-1"
Locust Street over US Route 46 (NJ)	342	Steel Multi-Stringer	-		No	No	4	173'-0"
Portland - Columbia Toll-Supported Pedestrian Bridge	360	Steel Thru-Deck Girder	Portland Boro	Knowlton Twp	N/A	N/A	4	774'-0"
Delaware Water Gap Toll Bridge Eastbound	380	Riveted Steel Multi-Girder	Delware Water Gap Boro	Hardwick Twp	No	Yes	17	2466'-10"
Delaware Water Gap Toll Bridge Westbound	390	Riveted Steel Multi-Girder	Delware Water Gap Boro	Hardwick Twp	No	Yes	16	2402'-6"
Milford - Montague Toll Bridge	400	Steel Deck Truss	Dingman Twp	Montague Twp	No	Yes	4	1154'-0"

Legend:

Main River Bridge Crossings