

CAPE MAY COUNTY BRIDGE COMMISSION

Carol Brand, *Chairman*
Scott Halliday, *Vice-Chairman*
Maryanne K. Murphy, *Secretary/Treasurer*



Karen Coughlin, *Executive Director*
Lewis T. Donofrio, Jr., PE, *Chief Engineer*

Memorandum

DATE: March 9, 2022
TO: Carol Brand, Chairman (email)
Scott Halliday, Vice-Chairman (email)
Maryanne K. Murphy, Secretary/Treasurer (email)
Karen Coughlin, Executive Director, CMC Bridge Commission (email)
FROM: Lewis T. Donofrio Jr., P.E., Chief Engineer, CMC Bridge Commission
RE: Bridge Commission Capital Spending and Projects - 2 Year Plan 2022-2023

*YTD
e-sign*

Herein is the Capital Spending plan (aka “2 Year Plan”) for the Bridge Commission’s 5 highway bridges and ancillary building structures. Last year’s plan explained the interruption of the County’s budget and bonding process due to COVID-19 causing significant disruption to County operations and Bridge Commission operations. As a result of this interruption, the Commission’s capital spending program relied upon remaining monies allocated to the Bridge Commission from the County’s 2018-1B bond ordinance and Bridge Commission funds. Sufficient bond money was available to keep the Middle Thorofare Rehabilitation Project, Miscellaneous Priority Repair Project, and Middle Thorofare Toll Booth projects moving forward through construction, as well as other projects in the design phase. Two major projects proposed herein, Corsons Inlet Rehabilitation and Grassy Sound Rehabilitation still require County bonding due to the estimated construction costs and schedule for bidding.

As the Bridge Commission is proposing a toll adjustment scheduled for the first quarter of 2022, funding for capital projects will slowly shift from reliance upon County bonding toward the Bridge Commission once again bonding for construction projects. Switching funding back towards a user-based fee system and removing the burden on County taxpayers not using the Commission’s bridge system. The last Bridge Commission project which was fully bonded was the Corsons Inlet New Railing project in 2011.

The proposed toll adjustment will also be used to fund smaller maintenance/repair type projects on the bridges as well as several ancillary building structures which are listed below. Since the first Shared Services Agreement with the County in 1990, routine maintenance and small repair projects have been performed by the County’s Public Works Department. The 2018 Interim Shared Services Agreement clarified the inclusion of other County Departments such as Facilities & Services and, Information Technology. With continued reduction in County resources the Commission’s direction will pivot to manage these routine maintenance and smaller repairs utilizing outside contracts. There is still need a need for a Shared Services Agreement with the County for partial reliance on one or more Departments for the immediate future. As our bridges continue to age maintenance costs will far outpace revenues derived from tolling. This is especially true for the 3 oldest structures constructed in 1939 and one in 1947.

Physical Assets:

The Commission owns and operates the following 5 highway bridge structures totaling 8,431 linear feet of structure (approximately 1.6 miles):

| Structure Number | Name | Municipality | Opened to Traffic | Length (ft) |
|------------------|-----------------------|------------------------------------|-------------------|-------------|
| 3100-001 | Ocean City - Longport | Ocean City and Egg Harbor Township | 2002 | 3,456 |



| | | | | |
|----------|------------------|-------------------------------------|------|-------|
| 3100-002 | Corson Inlet | Upper Township | 1949 | 1,485 |
| 3100-003 | Townsend's Inlet | Borough of Avalon and Sea Isle City | 1940 | 1,373 |
| 3100-005 | Grassy Sound | Middle Township | 1940 | 1,073 |
| 3100-006 | Middle Thorofare | Lower Township | 1940 | 1,044 |

In addition, the Commission owns and operates a 490 ft. long pedestrian bridge adjacent to the Ocean City-Longport highway bridge which serves as a fishing pier which opened to the public in July 2002.

The following ancillary building structures are owned and maintained by the Bridge Commission:

1. Ocean City Longport - 2 toll booths on the south approach.
2. Ocean City Longport - administration building at south approach.
3. Ocean City Longport - Generator Building at south approach.
4. Corsons Inlet Bridge - toll booth on Span 29.
5. Corsons Inlet Bridge - control house /electrical & machinery rooms bascule Pier 29.
6. Townsends Inlet Bridge - toll booth on Span 9.
7. Townsends Inlet Bridge - control house /electrical & machinery rooms bascule Pier 8.
8. Grassy Sound Bridge - toll booth on Span 12.
9. Grassy Sound Bridge - control house /electrical & machinery rooms bascule Pier 11.
10. Grassy Sound Bridge - Abandoned carpentry shop at south approach, 2 structures.
11. Middle Thorofare Bridge - toll booth on Span 12.
12. Middle Thorofare Bridge - control house /electrical & machinery rooms bascule Pier 11.
13. Middle Thorofare Bridge - toll collectors' garage on south approach.
14. Administration Building (unoccupied) at 153 Crest Haven Road.
15. Garage & Shop (occupied by County Public Works T&E) at 153 Crest Haven Road.

Listed below are the planned capital spending and 12 capital projects for the 2022-23 construction years with a brief description of each project and total *estimated* project costs. The total estimated project cost includes, but is not limited to, consultant design service fees, permitting, construction, construction engineering (consultant inspection service fees), and design engineer service fees during construction (shop drawing reviews, RFI's, meeting attendance), in addition these costs would also include any labor and/or equipment for preparation work associated with a project.

2022-23 Capital Spending & Capital Projects by Priority:

A1. 2021-22 NBIS Engineering Consultant: The Commission as bridge owner is mandated by Federal law to inspect the bridges at intervals not exceeding 24 months and report the findings to the New Jersey Department of Transportation which oversees the data collection. NJDOT is also responsible for reporting to the Federal Highway Administration. In September 2021 the biennial bridge inspection program contract was awarded to JMT of Trenton, NJ. This consulting firm is responsible for all program activities which include; field inspections, underwater inspections, report preparation and submissions, and coordination with NJDOT and the Commission. The contract also includes specialty inspection equipment rentals and maintenance and protection of traffic during inspections.



- a. 2021-2023 expense ceiling (actual) \$341,676

A2. Staff Augmentation Engineering Consultant: In 2019 the Commission procured an engineering consultant to serve as staff augmentation to assist the Chief Engineer with emergency situations, smaller capital projects, as needed field inspections, as needed engineering investigations & reports, and preparation of repair contracts. The expenditure is set at \$200,000 annually for a 3 year period, however a reserve amount of money is held back for emergency situations. The consultant RVE is currently on purchase order no. 2 of a possible 3 year contract.

- a. 2022 expense ceiling (year 3) \$150,000

A3. Movable Bridge Electrical/Control Systems Engineering Consultant: The Commission’s 4 movable bridges (MT, GS, TI, and CI) electrical and movable span control systems are currently maintained by the County’s Traffic & Electric Department. They routinely trouble shoot and repair limit switches, gates, lights, bridge control circuitry, electrical power to operating machinery, toll booths, and the operator’s control house. In July 2020 a contract was awarded to Total Control Systems of Delaware. The engineering firm provides engineering assistance to the Commission and T&E Department for any complex trouble shooting and has designed the upgrades to the electrical drive & control systems for 2 movable bridges. We will continue this contract to make improvements to the electrical drive & control systems for a 3rd bridge as well as other system wide improvements to the electrical systems.

- a. 2022 expense ceiling (year 2) \$150,000

A4. Mechanical Systems Engineering Consultant: New in 2022 is a proposed engineering contract for mechanical engineering consultant to design repairs and improvements to the mechanical systems for the Commissions 3 active movable bridges and 1 dormant movable bridge. These systems include; machinery & motor brakes, shafting and gearing, gear reducers, shaft couplings, all machinery mechanical bearings and bascule trunnion bearings.

- a. 2022 expense ceiling..... \$50,000

1. Corsons Inlet Bridge Rehabilitation (LBFN):* This project will address two Priority 1 repairs which have been identified during past NBIS biennial inspections. The trunnion column repair is a steel repair to supporting members of the bascule span and span 32 deck replacement addresses deteriorated concrete deck reinforcing steel and strengthening of existing stringers. In addition, the project addresses steel repairs to the south end of the toll span girders which are severely deteriorated due to water intrusion. The design phase is fully funded under the 2018 Bond. \$1,664,165 has been allotted from NJDOT Local Bridge Future Needs (LBFN) grant program FY2019 & FY2021. Construction costs are being requested from a County’s bond ordinance.

- a. Project estimate (construction & CE services) \$4,500,000
- b. Schedule: Construction 2022-2023

2. Substructure Rehabilitation/Scour Abatement at Grassy Sound and Middle Thorofare Bridges (LBFN):* This project address erosion and scour problems to the substructure elements as identified during the 2019 NBIS inspections. Recent inspections upgraded the defects to a priority 1 repairs, therefore design has been moved up in the Commission’s priority order. Work includes bin abutment and embankment fortification at Grassy and Middle Thorofare, steel sheeting at the undermined Pier 13 caisson at Middle Thorofare. Design consultant will be selected from County’s bridge engineering consultant pool. If the County seeks state funding, this project has strong potential to receive NJDOT LBFN grant funding due the scour defect. The design will be funded with 2018 bond. Construction will be funded under future County bond ordinances.



- a. Project estimate (design phase)..... \$350,000
 (construction & CE Services) \$4,000,000
- b. Schedule: Design 2022, construction 2022-2023.

3. Grassy Sound Superstructure Rehabilitation (LBFN):* This project addresses low inventory ratings of the steel approach spans by adding supplemental steel. The severely deteriorated bascule span stringers were addressed in the Miscellaneous Priority Bridge Repair project in spring 2021. Michael Baker International’s design is approximately 60% complete. This project has strong potential to receive NJDOT LBFN grant funding and should be considered for FY 2023 application by the County. The design is fully funded under the 2018 bond. Estimated construction and construction engineering costs are being sought under a future County bond ordinance.

- a. Project estimate (construction & CE services) \$4,000,000
- b. Schedule: Construction 2022.

4. Townsends Inlet Electrical Projects: These are 2 separate projects. The grounding project addresses the poor grounding found when the ACE transformer caught fire in July 2019. The power feed upgrade project is identical to the 2017 power feeder upgrade at Middle Thorofare Bridge where ACE’s transformers are removed from the bascule pier vault and installed on pole at the base of the bridge. The voltage is stepped down from 4160 VAC to 240VAC running up the bridge. Installation of permanent gas fired generator at the Sea Isle side of the bridge is also included in the power feed upgrade. The design for the Grounding project is 90% complete. The funding for the design and construction of both projects is under the 2018 bond.

- a. Project estimate Electrical Grounding (construction)..... \$250,000
 Project estimate Power Feeder Upgrade & New Generator (design & constr)..... \$650,000
- b. Schedule Electrical Grounding Project: Construction 2022.
- c. Schedule Power Feed Upgrade Project: Design & Construction 2022-2023

5. Fender Rehabilitation at Ocean City Longport, Corsons Inlet, Townsends Inlet, and Grassy Sound Bridges: This combined project addresses the remaining fender repairs needed at the Commission bridges. The priority order of fender rehabilitation is; TI, GS, CI, OCLP to be completed over a 2-3 year period 2021-2023. A prototype fender design will be funded using 2018 Bond money with permitting and construction funded with a new bond ordinance.

- a. Project estimate (design, construction & CE services) \$5,200,000
- b. Tentative Schedule: Design & Construction 2022-2024

6. Ocean City Fishing Pier Inspection, Repairs, and Safety Upgrades: The fishing pier was constructed in 2001 as a repurposing of the old Ocean City Longport highway bridge with a new super structure. The pier was inspected in 2020 concurrently with the NBIS inspection and will receive an underwater inspection in October 2022. The structure is in satisfactory condition however the railing system is heavily weathered and the pier is in need of upgrades to handicap accessibility, seating, waste receptacles, and signage. Design will be completed by the Commission’s on call consultant RVE. Design and construction is fully funded under the 2018 bond.

- a. Project estimate (construction & CE services) \$350,000
- b. Schedule: Design & Construction 2022.

7. Middle Thorofare Bridge Electrical Rehabilitation Projects: Projects include installation of auxiliary motor to allow movement of the bascule span in the event of a main motor failure. Also included is main motor rehabilitation or replacement, warning gate replacements, new span locks, generator replacement, PLC & drive controls. These projects will likely be bid as smaller subprojects to minimize impacts to the bridge’s operating schedule. This scope may be reduced based on the



progress of the bridge replacement plan. Design and construction will need to be funded under new bond ordinance.

- a. Project estimate (design, construction & CE services) \$550,000
- b. Tentative Schedule: Design and Construction 2022-2023.

8. Miscellaneous Construction Contract (Bridge): This new contract would allow bridge repairs to be completed using an annually bid repair contract and small individual contracts to perform miscellaneous repairs to all Commission bridges on an as needed task order based system. Contracts will address smaller repairs (concrete patching, bridge railings, and steel repairs) and will include snooper and maintenance & protection of traffic services. The contract will be structured for heavy highway/ bridge construction contractors and based on labor, equipment, materials, and overhead & profit factors. The Commission is currently working with South Jersey Transportation Authority on access to their task order contractor. This fund will also be used for any emergency repairs during the 2022 year. Funding through toll revenues.

- a. Project estimates (design, construction & CE services) \$1,000,000
- b. Schedule: Construction 2022-2023.

9. Miscellaneous Contract (Buildings): This new annually bid construction contract would be used to perform miscellaneous repairs to all Commission ancillary buildings on an as needed task order-based system. Building repairs to include doors, windows, roofing, siding, interior shelving, flooring, electrical, HVAC, demolition, etc. Staff augmentation engineer RVE will be used to prepare small contracts to hire local builder to complete the work or prepare a miscellaneous repair contract. Construction will be funded using residual 2018 bond money and increased revenues from toll adjustments.

- a. Project Estimate (design, construction, and CE services)..... \$275,000
- b. Tentative Schedule: Design & Construction 2022-2023

10. Ocean City Longport Bridge Sand Dune Management Program: This project addresses the sand dune encroachment on the southern spans of the bridge, administration building, and generator buildings. Sand is building up against the buildings and bridge beams as well as continuously drifting onto the sidewalks and roadway. NJDEP permitting will likely be required due to CAFRA rules. The goal of the project is to develop a long term management plan for sand migration in and around the site.

- a. Project Estimate (design, construction & CE services) \$750,000
- b. Tentative Schedule: Design & Construction 2023-24

11. Ocean City Longport Bridge Generator Replacement: Project replaces the failed generator which will power the bridge’s navigation lighting, toll plaza, administration & generator building, EZPass system.

- a. Project Estimate (design, construction & CE services) \$275,000
- b. Tentative Schedule: Design & Construction 2023.

12. Bridge Maintenance Painting (CI, TI, GS, MT): Townsends and Grassy Sound bridges were coated in 2010-11, Corsons Inlet in 2007, and Middle Thorofare circa 2005. The recoating projects will protect the bridge’s steel components from further corrosion, thus preserving the structure for continued use until replacement.

- a. Project Estimate (design, construction & CE services) \$3,000,000
- b. Tentative Schedule: Design & Construction 2023-2025.



2022-2023 Maintenance Projects by Priority:

The projects below are included in Capital Project no. 9 “*Miscellaneous Construction Contract (Buildings)*”. Below are budget estimates for the work to be completed using outside contractors.

- a. *Townsend Inlet Toll Booth Exterior*: New roofing, flashing, and trim, install roof mounted RV AC unit..... \$25,000
- b. *Grassy Sound & Corsons Toll Booths*: Replacement of broken windows, , doors, new roofing, flashing, trim, new roof mounted AC Units..... \$40,000
- c. *Control House Upgrades*: Windows, doors, and interior \$50,000
- d. *OCLP toll booths (2) window & door seals*: New seals throughout toll booths and spare HVAC-RV unit for booth..... \$15,000
- e. *OCLP Generator Building and Administration Building Repairs*: Includes doors, windows, and new HVAC unit for administration building \$40,000
- f. *Middle Thorofare Garage Roof & Door*: Roof repairs and new roofing membrane, new man-door, garage door repairs, electric service cable replacement \$30,000
- g. *Grassy Sound Demolition of Carpentry building & garage*. This is the old carpentry shops for bridge commission’s maintenance crew pre-1990. NJDEP permitting may be required (includes engineering for permits)..... \$25,000

Total = \$225,000



2022-23 Bridge Commission Capital Projects 2 Year Plan Summary

L. Donofrio 3-9-22

Funded by 2018 bond
 Funded by Bridge Commission tolls
 Unfunded - request in new County bond ordinance

| | | | | | | | | Remarks |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------|----------------|------------------|--------------|------------------|-----------------|--------------------------------------------------------------------------|
| Total Project Budget | Phase (1) | Ocean City-Longport | Corson's Inlet | Townsend's Inlet | Grassy Sound | Middle Thorofare | *All BC Bridges | *Represents costs common to multiple BC bridges. |
| A1. 2021-22 NBIS Inspection Consultant - JMT | I | | | | | | \$341,676 | Bridge Commission Resolution no. 21-3488 |
| A2. Staff Augmentation Engineer Remington & Vernick Engineers | D | | | | | | \$150,000 | RVE PO _____ (yr 3) |
| A3. Movable Bridge Electrical/Control Systems Engineer, Total Control Systems | D | | | | | | \$150,000 | TCS PO _____ (yr 2) |
| A4. Movable Bridge Mechanical Systems Engineer, (to be determined) | D | | | | | | \$50,000 | |
| 1. Corson's Inlet Trunnion Column & Span 32 Deck Repair | D | | \$202,771 | | | | | MBI Design PO 20-00956 change order #2 21-02767 (\$45,000 permitting) |
| | C | | \$4,500,000 | | | | | |
| 2. Substructure Rehabilitation/ Scour Abatement at Grassy Sound & Middle Thorofare Bridges | D | | | | \$100,000 | \$250,000 | | |
| | C | | | | \$500,000 | \$3,500,000 | | |
| 3. Grassy Sound Superstructure Rehabilitation | D | | | | \$156,634 | | | MBI Design PO 20-00956 |
| | C | | | | \$4,000,000 | | | |
| 4. Townsends Inlet Electrical Projects: a) Electrical Grounding b) Power Feeder Upgrade/Transformer Removal c) New Generator Installation | D | | | \$100,000 | | | | |
| | C | | | \$800,000 | | | | |
| 5. Fender Rehabilitation at OCLP, Corsons Inlet, Townsends Inlet, Grassy Sound Bridges | D | | | | | | \$200,000 | |
| | C | | | | | | \$5,000,000 | |
| 6. Ocean City Longport Fishing Pier Inspection, Repairs, Safety Upgrades | D | \$75,000 | | | | | | |
| | C | \$275,000 | | | | | | |
| 7. Middle Thorofare Bridge Electrical: a) Drive Control & PLC Upgrades (TCS contract) b) New diesel generator c) New warning gates on toll span d) New span lock (single) | D | | | | | \$125,000 | | |
| | C | | | | | \$425,000 | | |
| 8. Miscellaneous Construction Contract (Bridge) a) Corsons Inlet Deck Patching b) All bridges misc. concrete patching c) All bridges misc. Steel Repairs d) Corson's safety fencing e) Emergency repairs | D | | | | | | \$150,000 | |
| | C | | | | | | \$850,000 | |

2022-23 Bridge Commission Capital Projects 2 Year Plan Summary

L. Donofrio 3-9-22

| | |
|--|-------------------------------------------------|
| | Funded by 2018 bond |
| | Funded by Bridge Commission tolls |
| | Unfunded - request in new County bond ordinance |

| Total Project Budget | | Phase (1) | Ocean City-Longport | Corson's Inlet | Townsend's Inlet | Grassy Sound | Middle Thorofare | *All BC Bridges | Remarks |
|----------------------------------------------------|--|-----------|---------------------|----------------|------------------|--------------|------------------|-----------------|---------|
| 9. Miscellaneous Construction Contract (Buildings) | | D | | | | | | \$50,000 | |
| a) MT garage roof & doors | | | | | | | | | |
| b) GS building demolition | | | | | | | | | |
| c) TI toll booth roof, flashings, doors | | | | | | | | | |
| d) OCLP booth floor & seals | | | | | | | | | |
| e) GS & CI Booth windows, doors, roofing | | | | | | | | | |
| f) OCLP Admin & Generator Bldg doors & windows | | | | | | | | | |
| g) Control House upgrades (MT, GS, TI, CI) | | C | | | | | | \$225,000 | |
| 10. OCLP Sand Dune Maintenance Program | | D | \$100,000 | | | | | | |
| | | C | \$650,000 | | | | | | |
| 11. OCLP Generator Replacement | | D | \$25,000 | | | | | | |
| | | C | \$250,000 | | | | | | |
| 12. Bridge Maintenance Painting (CI, TI, GS, MT) | | D | | | | | | \$200,000 | |
| | | C | | \$800,000 | \$800,000 | \$800,000 | \$400,000 | | |
| Total Estimated Costs = | | | \$1,375,000 | \$5,502,771 | \$1,700,000 | \$5,556,634 | \$4,700,000 | \$7,366,676 | |

Footnotes:

(1) Phase column indicates:

I-NBIS Inspection Costs (consultant labor, subconsultants, snooper & MPT, reimbursable expenses, subsistence)

D-Design Phase Costs (consultants design and bid package preparation, permitting, materials or work needed in preparation for project, easements or ROW, field inspection)

C-Construction Phase Costs (construction, consultant inspection, construction engineering, design engineer services, shop dwgs, RFI's, meetings)