

Delaware River and Bay Authority



Five Year (2019-2023) Strategic Plan and 2019 Capital Improvement Program

February 2019

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Introduction

The Delaware River and Bay Authority (DRBA) is an agency created by a Congressionally sanctioned interstate compact between the States of New Jersey and Delaware and enacted pursuant to 53 Laws of Delaware, Chapter 145 (17 Del. C.S. 1701) and P.L. 1961, C.66 (C.32:11E-1 et. seq. of the Pamphlet Laws of New Jersey). The Mission of the DRBA is to provide safe, efficient and modern terminals, crossings, vessels and related transportation while participating in controlled economic development opportunities supported by a technically proficient and professionally motivated workforce dedicated to providing high quality customer service.

The DRBA has an extensive network of structures and facilities designed to provide the public with safe and efficient means of transportation as well as providing economic development and opportunities in the region. This transportation network includes the Delaware Memorial Bridge (DMB), the Cape May-Lewes Ferry (CMLF), and the Forts Ferry (FF). The Authority also operates and maintains through the auspices of long-term leases with a municipality, county or the state, five (5) Airport facilities in Delaware and New Jersey. These facilities include New Castle Airport, Delaware Airpark and Civil Air Terminal in Delaware and Millville and Cape May Airports in New Jersey.

The DRBA has developed five goals in support of its mission against which Capital projects are evaluated. These goals include:

- Asset Preservation – The responsible stewardship of critical regional infrastructure through the preservation of the asset. Preservation of the asset is necessary to retain its existing value and maximize its useful life.
- Efficiency and Sustainability - Increase operating efficiencies through the construction of sustainable infrastructure utilizing best available technologies and management practices.
- Safety - Maintain or enhance safe and reliable infrastructure for our customers.
- Security - Enhance the security of critical regional infrastructure in coordination with regional security agencies.
- Economic Development - Support revenue producing growth through controlled investment in economic development opportunities.

Capital improvement projects generally occur in phases over multiple years. This Strategic Plan serves as a planning tool for directing resources to address the goals over the next five years to consistently maintain and enhance the Authority's facilities and address the increasing demands associated with an aging infrastructure. Implementation of this Strategic Plan will assure the public continues to enjoy quality transportation services in a safe and efficient manner as well as intelligently maintain and enhance facilities as necessary.

Included in the following pages are the identified multi-year capital improvement projects organized by asset class (DMB, CMLF, FF and each of the five Airports). Within each asset class, individual projects are further organized into the following classifications:

- Continuing Projects – Projects which were previously authorized in the Capital Improvement Program, which are scheduled to continue in 2019.
- Annual – Projects which require yearly authorization to continue.
- New Projects – Projects which have not been authorized in a prior Capital Improvement Program and are seeking authorization in 2019.
- Out Year Projects – Projects which will be seeking authorization in a future Capital Improvement program.

Airport projects which are contributed to by the Federal Aviation Administration are subject to grant approval and funding allocation.

This information, provided in tabular format, identifies the financial resources for each project. Descriptions for each project follow the tables and are keyed to the table by the project's rank number (projects are ranked in order of priority by the Authority, with a total of 100 projects). The Capital Improvement Program budget for 2019 is shown as the highlighted column within the table.

2019 Capital Improvement Program - \$104,075,000 Authority and External Funds

Capital Asset	2019		
<u>CONTINUING PROJECTS</u>	DRBA	External	Total
Delaware Memorial Bridge	\$ 28,347,000	\$ 2,000,000	\$ 30,347,000
Cape May-Lewes Ferry	\$ 13,038,000	\$ 3,000,000	\$ 16,038,000
Forts Ferry	-	-	-
New Castle Airport	\$ 2,950,000	\$ 6,990,000	\$ 9,940,000
Millville Airport	\$ 1,091,000	\$ 1,699,000	\$ 2,790,000
Cape May Airport	\$ 3,645,000	\$ 2,018,000	\$ 5,663,000
Delaware Air Park	\$ 230,000	\$ 315,000	\$ 545,000
Civil Air Terminal	-	-	-
Subtotal	<u>\$ 49,301,000</u>	<u>\$ 16,022,000</u>	<u>\$ 65,323,000</u>
<u>ANNUAL PROJECTS</u>			
Delaware Memorial Bridge	\$ 11,578,000	\$ -	\$ 11,578,000
Cape May-Lewes Ferry	\$ 9,675,000	\$ -	\$ 9,675,000
Forts Ferry	\$ 39,000	\$ -	\$ 39,000
New Castle Airport	\$ 3,951,000	\$ 840,000	\$ 4,791,000
Millville Airport	\$ 1,439,000	\$ 266,000	\$ 1,705,000
Cape May Airport	\$ 1,644,000	\$ 66,000	\$ 1,710,000
Delaware Air Park	\$ 552,000	\$ 45,000	\$ 597,000
Civil Air Terminal	\$ 70,000	\$ -	\$ 70,000
Subtotal	<u>\$ 28,948,000</u>	<u>\$ 1,217,000</u>	<u>\$ 30,165,000</u>
<u>NEW PROJECTS</u>			
Delaware Memorial Bridge	\$ 4,200,000	\$ -	\$ 4,200,000
Cape May-Lewes Ferry	\$ 575,000	\$ -	\$ 575,000
Forts Ferry	-	-	-
New Castle Airport	\$ 841,000	\$ 2,026,000	\$ 2,867,000
Millville Airport	\$ -	\$ -	\$ -
Cape May Airport	\$ 945,000	\$ -	\$ 945,000
Delaware Air Park	\$ -	\$ -	\$ -
Civil Air Terminal	-	-	-
Subtotal	<u>\$ 6,561,000</u>	<u>\$ 2,026,000</u>	<u>\$ 8,587,000</u>
Grand Total All Projects	<u>\$ 84,810,000</u>	<u>\$ 19,265,000</u>	<u>\$ 104,075,000</u>

Authority-Wide Five Year (2019-2023) Strategic CIP Summary Authority Funds Only

Capital Asset	2019	2020-2023	5 Year Totals
<u>CONTINUING PROJECTS</u>			
Delaware Memorial Bridge	\$ 28,347,000	\$ 48,695,000	\$ 77,042,000
Cape May-Lewes Ferry	\$ 13,038,000	\$ 34,621,000	\$ 47,659,000
Forts Ferry	\$ -	\$ -	\$ -
New Castle Airport	\$ 2,950,000	\$ 5,709,000	\$ 8,659,000
Millville Airport	\$ 1,091,000	\$ 703,000	\$ 1,794,000
Cape May Airport	\$ 3,645,000	\$ 1,166,000	\$ 4,811,000
Delaware Air Park	\$ 230,000	\$ 1,915,000	\$ 2,145,000
Civil Air Terminal	\$ -	\$ -	\$ -
Subtotal	<u>\$ 49,301,000</u>	<u>\$ 92,809,000</u>	<u>\$ 142,110,000</u>
<u>ANNUAL PROJECTS</u>			
Delaware Memorial Bridge	\$ 11,578,000	\$ 88,695,000	\$ 100,273,000
Cape May-Lewes Ferry	\$ 9,675,000	\$ 29,609,000	\$ 39,284,000
Forts Ferry	\$ 39,000	\$ 80,000	\$ 119,000
New Castle Airport	\$ 3,951,000	\$ 6,675,000	\$ 10,626,000
Millville Airport	\$ 1,439,000	\$ 6,924,000	\$ 8,363,000
Cape May Airport	\$ 1,644,000	\$ 4,600,000	\$ 6,244,000
Delaware Air Park	\$ 552,000	\$ 268,000	\$ 820,000
Civil Air Terminal	\$ 70,000	\$ 36,000	\$ 106,000
Subtotal	<u>\$ 28,948,000</u>	<u>\$ 136,887,000</u>	<u>\$ 165,835,000</u>
<u>NEW PROJECTS</u>			
Delaware Memorial Bridge	\$ 4,200,000	\$ 26,800,000	\$ 31,000,000
Cape May-Lewes Ferry	\$ 575,000	\$ 200,000	\$ 775,000
Forts Ferry	\$ -	\$ -	\$ -
New Castle Airport	\$ 841,000	\$ 10,969,000	\$ 11,810,000
Millville Airport	\$ -	\$ 1,000,000	\$ 1,000,000
Cape May Airport	\$ 945,000	\$ 4,650,000	\$ 5,595,000
Delaware Air Park	\$ -	\$ 20,000	\$ 20,000
Civil Air Terminal	\$ -	\$ -	\$ -
Subtotal	<u>\$ 6,561,000</u>	<u>\$ 43,639,000</u>	<u>\$ 50,200,000</u>
<u>OUT-YEAR PROJECTS</u>			
Delaware Memorial Bridge	\$ -	\$ 30,730,000	\$ 30,730,000
Cape May-Lewes Ferry	\$ -	\$ 1,348,000	\$ 1,348,000
Forts Ferry	\$ -	\$ -	\$ -
New Castle Airport	\$ -	\$ 3,273,000	\$ 3,273,000
Millville Airport	\$ -	\$ 2,676,000	\$ 2,676,000
Cape May Airport	\$ -	\$ 3,631,000	\$ 3,631,000
Delaware Air Park	\$ -	\$ -	\$ -
Civil Air Terminal	\$ -	\$ -	\$ -
Subtotal	<u>\$ -</u>	<u>\$ 41,658,000</u>	<u>\$ 41,658,000</u>
Grand Total All Projects	<u>\$ 84,810,000</u>	<u>\$ 314,993,000</u>	<u>\$ 399,803,000</u>

Delaware Memorial Bridge - Continuing Projects

Crossings Strategic Capital Improvement Plan

Ranking	Project	2018 \$ Spent (EST.)	2019	External Funding 2019	2020	External Funding 2020	2021	External Funding 2021	2022	External Funding 2022	2023	External Funding 2023
Continuing Projects												
1	I 295 Southbound Reconstruction	\$ 10,000,000	\$ 1,200,000	\$ 2,000,000	\$ (3,000,000)	\$ 3,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2	Electronic Toll Collection Equipment Upgrades	\$ -	\$ 1,500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	Pin & Link Replacement	\$ 1,200,000	\$ 15,063,000	\$ -	\$ 4,786,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Bridge Tower Elevator Retrofit	\$ 700,000	\$ 1,500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15	Suspender Rope Replacements	\$ 3,000,000	\$ 4,900,000	\$ -	\$ 4,900,000	\$ -	\$ 4,900,000	\$ -	\$ 4,900,000	\$ -	\$ 4,900,000	\$ -
17	Ship Collision Protection	\$ -	\$ 1,203,000	\$ -	\$ 10,875,000	\$ 11,125,000	\$ 10,875,000	\$ 11,125,000	\$ -	\$ -	\$ -	\$ -
23A	Roof and Building Envelope Rehabilitation (DM)	\$ 110,000	\$ 641,000	\$ -	\$ 234,000	\$ -	\$ 100,000	\$ -	\$ 25,000	\$ -	\$ 25,000	\$ -
35	Catwalk Repairs	\$ 250,000	\$ 650,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
41	Replace Chillers in Administration Building	\$ -	\$ 715,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
46	Bridge Management and Monitoring System	\$ -	\$ 300,000	\$ -	\$ 3,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
52	Eight Bay Maintenance Garage	\$ -	\$ 500,000	\$ -	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
67	Tower LED Lighting Improvements	\$ -	\$ 175,000	\$ -	\$ 175,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
91	Cable Preservation (Both Structures)	\$ 2,500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,000,000	\$ -	\$ -	\$ -
Grand Total		\$ 17,760,000	\$ 28,347,000	\$ 2,000,000	\$ 21,970,000	\$ 14,125,000	\$ 15,875,000	\$ 11,125,000	\$ 5,925,000	\$ -	\$ 4,925,000	\$ -

1 **I 295 Southbound Reconstruction - Safety**

This is the final phase of safety improvements along I-295 in New Jersey and Delaware which began in 1999. The southbound I-295/US13 interchange experiences traffic congestion where four through lanes decrease to two lanes and the condition is further complicated by weaving patterns. This project includes removal of five (5) existing bridges, replacement of one (1) existing bridge, and elimination of the weaving patterns for increased traffic capacity and safety. This project has an estimated DRBA cost of \$1.2 million in 2019 and \$-3,000,000 in the out years. The project is partially funded in the amount of approximately \$5.0 million by the Delaware Department of Transportation. This effort has no anticipated annual operating cost impact.

2 **Electronic Toll Collection Equipment Upgrades - Efficiency and Sustainability**

The existing electronic toll collection (ETC) system is at the end of its useful life. The project includes replacement of system hardware and software with a new advanced ETC system that will safeguard against unplanned interruptions and provide more reliable toll collection. This project has an estimated DRBA cost of \$1.5 million in 2019. The project has an option for ongoing maintenance and support services at an annual operating cost of \$317,000 per year starting in 2020.

3 **Pin & Link Replacement - Asset Preservation**

The pin and link assemblies that connect the suspended span trusses to the towers are showing signs of severe deterioration. This project aims to replace the pin and links with new state of the art sliding bearings on brackets. This project has an estimated DRBA cost of \$15.1 million in 2019 and \$4.8 million in the out years. This effort has an anticipated annual maintenance and monitoring cost impact of \$54,000.

5 **Bridge Tower Elevator Retrofit - Safety**

The elevators on the towers of the twin spans have provided unreliable service and are in need of repairs and retrofit. This project will engage a specialist contractor to perform needed repairs to restore the functionality and performance of the elevators and improve their ability to withstand the weather conditions they experience. This project has an estimated DRBA cost of \$1.5 million in 2019. This effort has an anticipated annual warranty and maintenance agreement cost of \$200,000.

Delaware Memorial Bridge - Continuing Projects

- 15 **Suspender Rope Replacements - Asset Preservation**
Several suspender ropes and their connection brackets were found to show corrosion in the last annual inspection. Through this project, the corroded suspender ropes and brackets will be removed and replaced with new ropes and brackets. This project has an estimated DRBA cost of \$4.9 million in 2019 and \$19.6 million in the out years. This effort has no anticipated annual operating cost impact.
- 17 **Ship Collision Protection - Safety**
This is a project to develop and implement a ship collision protection system for the Delaware Memorial Bridge. This project will include risk assessment, investigation of modern ship collision protection systems, environmental impacts, design details and construction of the system. This project has an estimated DRBA cost of \$1.2 million in 2019 and \$21.8 million in the out years. The project is partially funded in the amount of approximately \$22.25 million by the US Department of Transportation.
- 23A **Roof and Building Envelope Rehabilitation (DMB) - Asset Preservation**
The Authority is still in the early stages of a healthy roof management program having over 150 roof systems throughout its facilities. Each year, annual inspections and capital investments are strategically placed to provide a 30-year solution to establish a consistent and manageable replacement plan in the future. This project has an estimated DRBA cost of \$641,000 in 2019 and \$384,000 in the out years. This effort has no anticipated annual operating cost impact.
- 35 **Catwalk Repairs - Safety**
The steel framework of the catwalks on the Delaware Memorial Bridge are aging and showing signs of severe corrosion and section loss. This project aims to remove and replace deteriorated members of the catwalks and install new members. This project has an estimated DRBA cost of \$650,000 in 2019. This effort has no anticipated annual operating cost impact.
- 41 **Replace Chillers in Administration Building - Efficiency and Sustainability**
Several existing HVAC chiller units are at the end of their service life and operate on obsolete R-22 refrigerant, which is being phased out by the EPA. This project will begin the process of replacement with high efficiency units that operate on modern, environmentally-friendly refrigerant. This project has an estimated DRBA cost of \$715,000 in 2019. This effort has no anticipated annual operating cost impact.
- 46 **Bridge Management and Monitoring System - Asset Preservation**
The concrete deck, the steel supporting the deck, the main cables, as well as the suspender ropes on the Delaware Memorial Bridges are showing signs of aging and deterioration. A bridge monitoring system has the capability to monitor the health of these structural bridge elements and provide early warnings of excessive displacements and vibrations on these elements, thereby facilitating appropriate prioritization of corrective measures, while a bridge management system will help document and track data from multiple annual inspections and contracts. This project has an estimated DRBA cost of \$300,000 in 2019 and \$3 million in the out years. This effort has an anticipated annual maintenance and monitoring cost \$50,000.
- 52 **Eight Bay Maintenance Garage - Efficiency and Sustainability**
There is a need for an additional equipment storage capacity for maintenance operations. This will serve to preserve expensive equipment such as heavy highway dump/plow trucks and increase operating efficiencies in the maintenance complex. This project programs the design and construction of an eight bay maintenance garage. This project has an estimated DRBA cost of \$500,000 in 2019 and \$1 million in the out years. This effort has an anticipated annual operating cost impact of \$5,000.

Delaware Memorial Bridge - Continuing Projects

67 **Tower LED Lighting Improvements - Efficiency and Sustainability**

The existing metal halide Delaware Memorial Bridge tower structure lights were decommissioned during the tower painting project two years ago. The installation of color programmable tower lights will allow for security enhancement, navigable channel illumination and the ability for the Authority to recognize special causes and requests by changing the colors of the four Delaware Memorial Bridge towers to represent the cause. This project has an estimated DRBA cost of \$175,000 in 2019 and \$175,000 in the out years. This effort has no anticipated annual operating cost impact.

91 **Cable Preservation (Both Structures) - Asset Preservation**

As a result of the cable investigation it was determined that preventive measures are necessary to maintain the service life and capacity of the Delaware Memorial Bridge structures. This project installed a dehumidification system to preserve the main suspension cables in 2018 and maintains an active maintenance and monitoring program as part of the contract. This project has an estimated DRBA cost of \$1 million in the out years. This effort has an anticipated annual maintenance and monitoring cost of \$54,000.

Delaware Memorial Bridge - Annual Projects

Crossings Strategic Capital Improvement Plan

Ranking	Project	2019	External Funding 2019	2020	External Funding 2020	2021	External Funding 2021	2022	External Funding 2022	2023	External Funding 2023
	Annual Projects										
14	Annual Bridge Steelwork Repairs	\$ 6,500,000	\$ -	\$ 10,000,000	\$ -	\$ 8,000,000	\$ -	\$ 8,000,000	\$ -	\$ 8,000,000	\$ -
22A	Annual Minor Capital Maintenance (DMB)	\$ 1,703,000	\$ -	\$ 845,000	\$ -	\$ 350,000	\$ -	\$ 55,000	\$ -	\$ 45,000	\$ -
24A	Annual Minor Capital Equipment (DMB)	\$ 1,846,000	\$ -	\$ 758,000	\$ -	\$ 642,000	\$ -	\$ -	\$ -	\$ -	\$ -
25A	Annual Automation/Telecom Upgrades (DMB)	\$ 1,529,000	\$ -	\$ 1,705,000	\$ -	\$ 805,000	\$ -	\$ 1,215,000	\$ -	\$ 50,000	\$ -
74	Annual Maintenance Bridge Span Painting	\$ -	\$ -	\$ 13,225,000	\$ -	\$ 12,000,000	\$ -	\$ 12,000,000	\$ -	\$ 11,000,000	\$ -
	Grand Total	\$ 11,578,000	\$ -	\$ 26,533,000	\$ -	\$ 21,797,000	\$ -	\$ 21,270,000	\$ -	\$ 19,095,000	\$ -

14 **Annual Bridge Steelwork Repairs - Asset Preservation**

This project programs miscellaneous steelwork repairs found to be necessary as a result of comprehensive annual inspections. These repairs are necessary to preserve the bridge's steelwork while maintaining safety and operational service levels. Work typically includes replacement of worn bearing assemblies, access platforms, maintenance of steel connections, installing new safety features, and other items. This project has an estimated DRBA cost of \$6.5 million in 2019 and \$34 million in the out years. This effort has no anticipated annual operating cost impact.

22A **Annual Minor Capital Maintenance (DMB) - Asset Preservation**

This project programs annual work activities necessary to accommodate changing regulations and to preserve existing infrastructure. Minor capital maintenance may include, but not be limited to: interior renovations, building upgrades, electrical/lighting improvements, installation of oil/water separators, fencing, guiderail replacement, signage replacement, HVAC upgrades, chiller upgrades, emergency generator improvements, miscellaneous office space improvements, miscellaneous toll booth improvements, as well as utility and general infrastructure improvements. This project has an estimated DRBA cost of \$1.7 million in 2019 and \$1.3 million in the out years.

24A **Annual Minor Capital Equipment (DMB) - Efficiency and Sustainability**

This project programs annual capital equipment purchases which may include but are not limited to: vehicles, trucks, specialty equipment, emergency generators, trailers, and other equipment that are utilized to preserve existing infrastructure assets. Purchases are based on established replacement guidelines considering useful life and condition. This project has an estimated DRBA cost of \$1.8 million in 2019 and \$1.4 million in the out years.

25A **Annual Automation/Telecom Upgrades (DMB) - Efficiency and Sustainability**

Automation upgrades and equipment enhancements are needed to maintain sustainable and efficient facilities. This yearly project includes but is not limited to: automation master planning, computer hardware replacement purchases, local and wide area network upgrades, software and hardware upgrades, file back-up system maintenance and upgrades, video teleconference system upgrades, document management storage systems, server replacements, business continuity hardware/software, network replacement/upgrades, storage area network upgrades, and various hardware/software installations or upgrades as necessary. This project has an estimated DRBA cost of \$1.5 million in 2019 and \$3.8 million in the out years.

Delaware Memorial Bridge - Annual Projects

74 **Annual Maintenance Bridge Span Painting - Asset Preservation**

The annual bridge report recommends repairs to the coating system of the Delaware Memorial Bridge to protect the structural steel on specific spans. This project programs funds to have deficient areas within cleaned to bare metal and subsequently a 4- layer protective overcoat system applied. This project has an estimated DRBA cost of \$48.2 million in the out years. This effort has no anticipated annual operating cost impact.

Delaware Memorial Bridge - New Projects

Crossings Strategic Capital Improvement Plan

Ranking	Project	2019	External Funding 2019	2020	External Funding 2020	2021	External Funding 2021	2022	External Funding 2022	2023	External Funding 2023
New Projects											
16	Advance Steel Repair	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -
18	DMB Deck Repairs and UHPC Evaluation (NB Structure)	\$ 1,500,000	\$ -	\$ 5,000,000	\$ -	\$ 5,000,000	\$ -	\$ 10,000,000	\$ -	\$ -	\$ -
26	Approach Pavement Repairs	\$ 700,000	\$ -	\$ 700,000	\$ -	\$ 700,000	\$ -	\$ 700,000	\$ -	\$ 700,000	\$ -
32	DMB High Voltage Lines Design	\$ 150,000	\$ -	TBD	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
48	Julia Building Server & Evidence HVAC Improvements	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
49	Toll Booth HVAC Replacement	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
72	Asset Management Study	\$ 350,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total		\$ 4,200,000	\$ -	\$ 6,700,000	\$ -	\$ 6,700,000	\$ -	\$ 11,700,000	\$ -	\$ 1,700,000	\$ -

16 **Advance Steel Repair - Asset Preservation**

There are known steel deficiencies in areas of the Delaware Memorial Bridge superstructure where the steel will be blast cleaned and painted from bare steel. This project aims to identify and correct these deficiencies in advance of planned painting projects. This project has an estimated DRBA cost of \$1 million in 2019 and \$4 million in the out years. This effort has no anticipated annual operating cost impact.

18 **DMB Deck Repairs and UHPC Evaluation (NB Structure) - Asset Preservation**

Both structures exhibit minor deck cracking and delamination as well as potholes due to age and heavy truck volumes. This project aims to demonstrate a proof of concept for Ultra High Performance Concrete (UHPC) overlays on the decks of the Delaware Memorial Bridge. As part of this project, areas will be identified on the bridge where UHPC overlays can be installed and cores taken for testing and evaluation. This project has an estimated DRBA cost of \$1.5 million in 2019 and \$2.6 million in the out years. This effort has anticipated annual operating cost impact of \$5,000 for emergency repairs.

26 **Approach Pavement Repairs - Asset Preservation**

Large sections of hot mix pavement in the northbound direction are 12 or more years old, showing signs of distress, and have reached the end of their useful life. This project will remove the wearing surface and install a fresh wearing course in sections over a three year period. This project has an estimated DRBA cost of \$700,000 in 2019 and \$2.8 million in the out years. Until complete, an estimated annual operational cost of \$10,000 is expected for emergency patching.

32 **DMB High Voltage Lines Design - Asset Preservation**

There are high voltage lines traversing the Delaware Memorial Bridge that are experiencing excessive wear due to the bridge's vibrations. The project programs the design and implementation to address this issue. This project has an estimated DRBA cost of \$150,000 in 2019. This effort has no anticipated annual operating cost impact.

48 **Julia Building Server & Evidence HVAC Improvements - Safety**

The HVAC systems in the server room and the evidence room of the Julia building are no longer appropriate for their usage. This project programs the design and construction for replacement of these systems. This project has an estimated DRBA cost of \$250,000 in 2019. This effort has no anticipated annual operating cost impact.

49 **Toll Booth HVAC Replacement - Asset Preservation**

The HVAC units for the Tolls building are at the end of their service life and operate on obsolete R-22 refrigerant, which is being phased out by the EPA. This project will begin the process of replacement with high efficiency units that operate on modern, environmentally-friendly refrigerant. This project has an estimated DRBA cost of \$250,000 in 2019. This effort has no anticipated annual operating cost impact.

72 **Asset Management Study - Efficiency and Sustainability**

There are multiple systems tracking asset data for specific purposes within individual departments of the Authority. An asset management study is proposed to define the data needs for all stakeholders and recommend solutions which maximize data sharing, minimize redundancy, and improve efficiency. This project has an estimated DRBA cost of \$350,000 in 2019. This effort has no anticipated annual operating cost impact.

Delaware Memorial Bridge - Out Year Projects

Crossings Strategic Capital Improvement Plan

Ranking	Project	2019	External Funding		External Funding		External Funding		External Funding		
		2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
	Out Year Projects										
75	Route 9 Bridge Repairs	\$ -	\$ -	\$ 3,200,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
76	Norfolk RR Backwall Replacement	\$ -	\$ -	\$ 2,500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
77A	Facility Utility Survey (DMB)	\$ -	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
78	Fall Prevention Fencing	\$ -	\$ -	\$ 2,000,000	\$ -	\$ 10,000,000	\$ -	\$ 10,000,000	\$ -	\$ -	\$ -
83	1st Structure Safety Walk & Curb Drainage Retrofit	\$ -	\$ -	\$ 150,000	\$ -	\$ 2,000,000	\$ -	\$ -	\$ -	\$ -	\$ -
84	Administration Building Second Floor Renovations	\$ -	\$ -	\$ 30,000	\$ -	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ -
96	Vietnam War Memorial	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 450,000	\$ -
	Grand Total	\$ -	\$ -	\$ 7,980,000	\$ -	\$ 12,300,000	\$ -	\$ 10,000,000	\$ -	\$ 450,000	\$ -

75 Route 9 Bridge Repairs - Asset Preservation

The Route 9 bridge slabs are showing signs of deterioration near the bridge joints. This project aims to remove and replace existing bridge joints with new joints and repair and rebuild deteriorated portions of the bridge slabs. This project has an estimated DRBA cost of \$3.2 million in the out years.

76 Norfolk RR Backwall Replacement - Asset Preservation

The backwall of west abutment of the bridge over the Norfolk Southern Railroad has developed a large longitudinal crack that extends through the length of the backwall. The project aims to replace this backwall and the expansion joint above with a jointless backwall that will be designed to perform better and eliminate leakages from the joint. This project has an estimated DRBA cost of \$2.5 million in the out years. This effort has no anticipated annual operating cost impact.

77A Facility Utility Survey (DMB) - Efficiency and Sustainability

Utility records and location services are not provided by the local utility companies for the majority of the Authority's properties and historical records are difficult to track without a common GIS platform. This project programs a field utility survey to include preliminary development of a GIS platform to record this data and track future changes. This project has an estimated DRBA cost of \$100,000 in the out years. This effort has no anticipated annual operating cost impact.

78 Fall Prevention Fencing - Safety

This project aims to install anti-climb mesh fencing along both spans of the Delaware Memorial Bridges. This project has an estimated DRBA cost of \$22 million in the out years. This effort has no anticipated annual operating cost impact.

83 1st Structure Safety Walk & Curb Drainage Retrofit - Safety

The 1st structure currently has an open grate safety walk which allows water, road salts, and sand to corrode the structural steel beneath the road level. This project programs the design and construction necessary to convert from an open grate safety walk to a solid surface. This project has an estimated DRBA cost of \$2.2 million in the out years. This effort has no anticipated annual operating cost impact.

84 Administration Building Second Floor Renovations - Efficiency and Sustainability

Extensive renovations have been performed throughout the east wing of the Delaware Memorial Bridge Administrative Building with exception of the upper foyer. This project programs renovations to the flooring, stairwells, and other features throughout this space. This project has an estimated DRBA cost of \$330,000 in the out years. This effort has no anticipated annual operating cost impact.

Delaware Memorial Bridge - Out Year Projects

96 **Vietnam War Memorial - Asset Preservation**

The memorial park hosts veterans' events and Vietnam Veterans have expressed concerns because the memorial names WWII and Korean War fatalities, but not Vietnam fatalities. The addition of a Vietnam Veterans memorial will preserve the intent of the park, and requires communication with various veterans groups. This project has an estimated DRBA cost of \$450,000 in the out years. This effort has no anticipated annual operating cost impact.

Cape May Lewes Ferry - Continuing Projects

Crossings Strategic Capital Improvement Plan

Ranking	Project	2018 \$ Spent	External Funding		External Funding		External Funding		External Funding		External	
		(EST.)	2019	2019	2020	2020	2021	2021	2022	2022	2022	Funding 2023
	Continuing Projects											
4	Cape May Vessel Fueling System Replacement	\$ 130,000	\$ 1,400,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
23B	Roof and Building Envelope Rehabilitation (CMLF)	\$ -	\$ 401,000	\$ -	\$ 220,000	\$ -	\$ 126,000	\$ -	\$ 25,000	\$ -	\$ 25,000	\$ -
30	Transfer Bridge Replacements	\$ -	\$ 1,050,000	\$ -	\$ 3,225,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
34	Dredge Disposal Site Improvements	\$ -	\$ 1,700,000	\$ -	\$ 1,700,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
38	Fender Replacements	\$ 55,000	\$ 50,000	\$ -	\$ 850,000	\$ -	\$ 850,000	\$ -	\$ 850,000	\$ -	\$ 850,000	\$ -
39	Freeman Highway Repaving	\$ -	\$ 100,000	\$ -	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
43	Lewes Terminal Master Plan Phase 1: Utility Corridor	\$ -	\$ 200,000	\$ -	\$ 1,750,000	\$ -	\$ 1,750,000	\$ -	\$ -	\$ -	\$ -	\$ -
47	Cape May Master Plan Phase 1: Utility Corridor	\$ -	\$ 550,000	\$ -	\$ 3,150,000	\$ -	\$ 3,600,000	\$ -	\$ -	\$ -	\$ -	\$ -
51	Main Engine Repower and Dry Docking	\$ -	\$ 3,682,000	\$ 3,000,000	\$ 4,500,000	\$ 3,000,000	\$ 1,300,000	\$ -	\$ -	\$ -	\$ -	\$ -
54	Cape May Approach Roads Rehabilitation Phase 2	\$ -	\$ 65,000	\$ -	\$ -	\$ -	\$ 3,500,000	\$ -	\$ 3,550,000	\$ -	\$ -	\$ -
56	Freeman Highway Storage Building	\$ -	\$ 500,000	\$ -	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
58	Bank Stabilization and Slip No. 6 Rehabilitation	\$ -	\$ 310,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
65	Electrical Signage - Cape May and Lewes	\$ -	\$ 600,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
69	Cape May Kitchen Renovations	\$ -	\$ 230,000	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
70	Lewes "On the Rocks" Kitchen Expansion	\$ 20,000	\$ 1,100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
71	Motor Vessel Replacement Program	\$ -	\$ 1,100,000	\$ -	\$ 700,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ 205,000	\$ 13,038,000	\$ 3,000,000	\$ 18,195,000	\$ 3,000,000	\$ 11,126,000	\$ -	\$ 4,425,000	\$ -	\$ 875,000	\$ -

4 **Cape May Vessel Fueling System Replacement - Asset Preservation**

The existing underground fueling system is over 25+ years old and is reaching the end of its service life. This project proposes the design and construction of a new above ground fueling system, which will allow for easier inspection. This project has an estimated DRBA cost of \$1.4 million in 2019. This project has an anticipated annual operational cost impact of \$20,000 per year.

23B **Roof and Building Envelope Rehabilitation (CMLF) - Asset Preservation**

The Authority is still in the early stages of a healthy roof management program having over 150 roof systems throughout its facilities. Each year, annual inspections and capital investments are strategically placed to provide a 30-year solution to establish a consistent and manageable replacement plan in the future. This project has an estimated DRBA cost of \$401,000 in 2019 and \$396,000 in the out years. This effort has no anticipated annual operating cost impact.

30 **Transfer Bridge Replacements - Safety**

The transfer bridges in Cape May and Lewes are in need of updates pertaining to the age of the structures, deteriorated concrete, and structurally deficient supports. This project incorporates the design and construction of new transfer bridges. This project has an estimated DRBA cost of \$1.1 million in 2019 and \$3.2 million in the out years. This effort has no anticipated annual operating cost impact.

34 **Dredge Disposal Site Improvements - Efficiency and Sustainability**

The existing dredge disposal site in Cape May is nearing capacity and future dredging costs will increase significantly if off-site disposal of the wet dredge material is necessary. This project provides renewed storage capacity through excavation of the dewatered material for general fill at a compatible site at Cape May Airport. This project has an estimated DRBA cost of \$1.7 million in 2019 and \$1.7 million in the out years. This project has an anticipated annual operational cost impact of \$7,500 per year for mowing of the vegetated disposal area.

Cape May Lewes Ferry - Continuing Projects

- 38 **Fender Replacements - Asset Preservation**
High strength fiberglass fender panels were installed during the late 1990s at both terminals to resist vessel impact along the bulkhead. These panels have reached their lifespan and are being replaced with steel panels similar in shape and size. This project has an estimated DRBA cost of \$50,000 in 2019 and \$3.4 million in the out years. This effort has no anticipated annual operating cost impact.
- 39 **Freeman Highway Repaving - Asset Preservation**
Roadway improvements are necessary for maintaining expected levels of service for Freeman Highway, approaching the Lewes Terminal. This project includes the repaving, joint repairs, and restriping of the existing roadway. This project has an estimated DRBA cost of \$100,000 in 2019 and \$1 million in the out years. This effort has no anticipated annual operating cost impact.
- 43 **Lewes Terminal Master Plan Phase 1: Utility Corridor - Efficiency and Sustainability**
This is the first phase of implementing the Lewes Master Plan, which addresses the aging utility infrastructure. This project proposes the design and installation of a centralized utility corridor, which allows for easier access to perform maintenance and repairs. This project has an estimated DRBA cost of \$200,000 in 2019 and \$3.5 million in the out years. This effort has no anticipated annual operating cost impact.
- 47 **Cape May Master Plan Phase 1: Utility Corridor - Efficiency and Sustainability**
This is the first phase of implementing the Cape May Master Plan, which addresses the aging utility infrastructure. This project proposes the design and installation of a centralized utility corridor, which allows for easier access to perform maintenance and repairs. This project has an estimated DRBA cost of \$550,000 in 2019 and \$6.8 million in the out years. This effort has no anticipated annual operating cost impact.
- 51 **Main Engine Repower and Dry Docking - Asset Preservation**
This project involves the replacement of the engines and reduction gears on two (2) vessels. Engines and reduction gears will be installed in 2019-2020 and 2020-2021. This project has an estimated DRBA cost of \$3.7 million in 2019 and \$5.8 million in the out years. The project is partially funded in the amount of approximately \$6.0 million by the Environmental Protection Agency.
- 54 **Cape May Approach Roads Rehabilitation Phase 2 - Asset Preservation**
Roadway improvements are necessary for maintaining expected levels of service for the approach roads to the Cape May Terminal. This project proposes the design and construction for roadway reconfigurations at the terminal entrance, improvements to the approach roads, and the replacement of Cape May highway signage. This project has an estimated DRBA cost of \$65,000 in 2019 and \$7.1 million in the out years. This effort has no anticipated annual operating cost impact.
- 56 **Freeman Highway Storage Building - Efficiency and Sustainability**
The Freeman Highway Facility is in need of a permanent storage building for highway equipment. The project proposes the design and construction of a conditioned storage building. This project has an estimated DRBA cost of \$500,000 in 2019 and \$1 million in the out years. This effort has an anticipated annual operating cost impact of \$5,000.
- 58 **Bank Stabilization and Slip No. 6 Rehabilitation - Asset Preservation**
This project involves bank stabilization, soil erosion and sediment control, and wetland mitigation in accordance with the U.S. Army Corps of Engineers and New Jersey Department of Environmental Protection requirements. This project has an estimated DRBA cost of \$310,000 in 2019. This effort has no anticipated annual operating cost impact.

Cape May Lewes Ferry - Continuing Projects

65 **Electrical Signage - Cape May and Lewes - Efficiency and Sustainability**

The current ferry facilities do not have modern indicators for toll lane status or advertisement boards. This project involves the supply and installation of both toll lane indicators and variable message signs for advertisement of terminal facilities. This project has an estimated DRBA cost of \$600,000 in 2019. This effort has an anticipated annual operating cost impact of \$5,000.

69 **Cape May Kitchen Renovations - Efficiency and Sustainability**

The food service operations at the Cape May Ferry Terminal are aiming to improve customer service experience and improve operational efficiency. The project plans for improvements to the kitchen, including purchasing of new equipment and improvements for more efficient and safer cooking operations. This project has an estimated DRBA cost of \$230,000 in 2019 and \$100,000 in the out years. This effort has no anticipated annual operating cost impact.

70 **Lewes "On the Rocks" Kitchen Expansion - Efficiency and Sustainability**

The food service operations at the Lewes Terminal are aiming to improve customer service experience and improve operational efficiency. This project proposes a new "On the Rocks" outdoor kitchen, replacing the existing open-air grilling area, improving efficiency and promoting safer working conditions. This project has an estimated DRBA cost of \$1.1 million in 2019. This effort has an anticipated annual operating cost impact of \$3,000.

71 **Motor Vessel Replacement Program - Efficiency and Sustainability**

A marine master plan was completed in 2008 which recommended construction of new vessels as compared to renovating the existing vessels, primarily due to the age of the existing fleet. A new vessel is estimated to cost in the \$40 million range or more. This plan supports replacing the three (3) existing vessels with three (3) new vessels and specifies the sale of the existing fleet. The construction of these vessels falls outside of this five year strategic plan. Federal funding is requested for this project, but not committed at this time. This project has an estimated DRBA cost of \$1.1 million in 2019 and \$700,000 in the out years.

Cape May - Lewes Ferry - Annual Projects

Crossings Strategic Capital Improvement Plan

Ranking	Project	2019	External Funding 2019	2020	External Funding 2020	2021	External Funding 2021	2022	External Funding 2022	2023	External Funding 2023
	Annual Projects										
13	Annual Vessel Maintenance & Dry Docking	\$ 5,313,000	\$ -	\$ 4,400,000	\$ -	\$ 8,000,000	\$ -	\$ 3,900,000	\$ -	\$ 5,200,000	\$ -
19	Annual Maintenance Dredging (CM)	\$ 650,000	\$ -	\$ 650,000	\$ -	\$ 650,000	\$ -	\$ 650,000	\$ -	\$ 650,000	\$ -
22B	Annual Minor Capital Maintenance (CMLF)	\$ 1,739,000	\$ -	\$ 1,405,000	\$ -	\$ 275,000	\$ -	\$ 275,000	\$ -	\$ 200,000	\$ -
24B	Annual Minor Capital Equipment (CMLF)	\$ 1,003,000	\$ -	\$ 507,000	\$ -	\$ 338,000	\$ -	\$ -	\$ -	\$ -	\$ -
25B	Annual Automation/Telecom Upgrades (CMLF)	\$ 970,000	\$ -	\$ 870,000	\$ -	\$ 864,000	\$ -	\$ 270,000	\$ -	\$ 505,000	\$ -
	Grand Total	\$ 9,675,000	\$ -	\$ 7,832,000	\$ -	\$ 10,127,000	\$ -	\$ 5,095,000	\$ -	\$ 6,555,000	\$ -

13 **Annual Vessel Maintenance & Dry Docking - Efficiency and Sustainability**

This project programs annual capital expenditures for the three (3) vessels, particularly in areas that preserve these assets and improve passenger safety and operational reliability. Planned projects include but are not limited to: vessel shipyard dry-dockings, purchase of life saving equipment, seating replacements, systems efficiency upgrades, generator overhauls, and miscellaneous improvements. This project has an estimated DRBA cost of \$5.3 million in 2019 and \$21.5 million in the out years.

19 **Annual Maintenance Dredging (CM) - Safety**

Cape May requires dredging annually as areas are prone to siltation. This project programs hydrographic surveys for planning and scheduling of annual maintenance dredging at the ferry terminals. Scheduling of dredging at Lewes is on an as-needed basis. This project has an estimated DRBA cost of \$650,000 in 2019 and \$2.6 million in the out years. This effort has no anticipated annual operating cost impact.

22B **Annual Minor Capital Maintenance (CMLF) - Asset Preservation**

These land-side projects include, but not be limited to: HVAC improvements, roofing, terminal improvements, electrical improvements, security enhancements, building and workshop improvements, fencing and signage improvements, and carpet replacement. This project programs annual work activities necessary to accommodate changing regulations and to preserve existing infrastructure. This project has an estimated DRBA cost of \$1.7 million in 2019 and \$2.2 million in the out years.

24B **Annual Minor Capital Equipment (CMLF) - Efficiency and Sustainability**

This project programs annual capital equipment purchases which may include but are not limited to: vehicles, trucks, specialty equipment, emergency generators, trailers, and other equipment that are utilized to preserve existing infrastructure assets. Purchases are based on established replacement guidelines considering useful life and condition. This project has an estimated DRBA cost of \$1 million in 2019 and \$845,000 in the out years.

25B **Annual Automation/Telecom Upgrades (CMLF) - Efficiency and Sustainability**

Automation upgrades with equipment enhancements are required for maintaining sustainable and efficient facilities. This project includes but is not limited to: automation master planning, computer hardware replacement purchases, network upgrades, software and hardware upgrades, uninterruptible power supply improvements, camera installations, fire detection systems upgrades, and other miscellaneous upgrades or installations. This project has an estimated DRBA cost of \$970,000 in 2019 and \$2.5 million in the out years.

Cape May - Lewes Ferry - New Projects

Crossings Strategic Capital Improvement Plan

Ranking	Project	2019	External Funding		External Funding		External Funding		External Funding	
			2019	2020	2020	2021	2021	2022	2022	2023
	New Projects									
53	Cape May Fuel Tank Reduction Modifications	\$ 400,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
66	Police Dispatch Center Upgrades	\$ 175,000	\$ -	\$ 200,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ 575,000	\$ -	\$ 200,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

53 Cape May Fuel Tank Reduction Modifications - Efficiency and Sustainability

The Cape May ferry facility currently has a fuel and oil storage capacity reaching a categorical classification reporting limit. This project proposes modifications to reduce the fuel storage capacity, lowering the reporting classification, which will allow for increased operational efficiencies. This project has an estimated DRBA cost of \$400,000 in 2019. This effort has no anticipated annual operating cost impact.

66 Police Dispatch Center Upgrades - Efficiency and Sustainability

The existing monitoring equipment and console are obsolete. The purpose of the upgrade is to replace the outdated console and legacy systems to improve functionality, ergonomics, and monitoring capabilities. This project has an estimated DRBA cost of \$175,000 in 2019 and \$200,000 in the out years. This effort has an anticipated annual operating cost impact of \$10,000.

Cape May - Lewes Ferry - Out Year Projects

Crossings Strategic Capital Improvement Plan

Ranking	Project	External Funding		External Funding		External Funding		External Funding		External Funding	
		2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
	Out Year Projects										
77B	Facility Utility Survey (CM and LW)	\$ -	\$ -	\$ 88,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
79	Generator Switchgear Replacement - Cape May	\$ -	\$ -	\$ 60,000	\$ -	\$ 600,000	\$ -	\$ 600,000	\$ -	\$ -	\$ -
99	Cape May Master Plan Phases: 2 through 6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
100	Lewes Master Plan Phases 2 through 6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ -	\$ -	\$ 148,000	\$ -	\$ 600,000	\$ -	\$ 600,000	\$ -	\$ -	\$ -

77B Facility Utility Survey (CM and LW) - Efficiency and Sustainability

Utility records and location services are not provided by the local utility companies for the majority of the Authority's properties and historical records are difficult to track without a common GIS platform. This project programs a field utility survey to include preliminary development of a GIS platform to record this data and track future changes. This project has an estimated DRBA cost of \$88,000 in the out years. This effort has no anticipated annual operating cost impact.

79 Generator Switchgear Replacement - Cape May - Asset Preservation

The Cape May Terminal's switchgear for emergency power is reaching the end of its life cycle. This projects proposes the design and installation of a new switch gear for the emergency power system. This project has an estimated DRBA cost of \$1.3 million in the out years. This effort has no anticipated annual operating cost impact.

99 Cape May Master Plan Phases: 2 through 6 - Efficiency and Sustainability

These are the remaining phases for implementing the Cape May Master Plan. This includes multiple projects to address the site's aging infrastructure and aims to optimize the facility's operations. Costs for the construction of these phases of the Master Plan fall outside of the five year strategic plan.

100 Lewes Master Plan Phases 2 through 6 - Efficiency and Sustainability

These are the remaining phases for implementing the Lewes Master Plan. This includes multiple projects to address the site's aging infrastructure and aims to optimize the facility's operations. Costs for the construction of these phases of the Master Plan fall outside of the five year strategic plan.

Forts Ferry - Annual Projects

Crossings Strategic Capital Improvement Plan

Ranking	Project	2019		External Funding 2019		2020		External Funding 2020		2021		External Funding 2021		2022		External Funding 2022		2023		External Funding 2023	
	Annual Projects																				
22H	Annual Minor Capital Maintenance (FF)	\$	39,000	\$	-	\$	20,000	\$	-	\$	20,000	\$	-	\$	20,000	\$	-	\$	20,000	\$	-
	Grand Total	\$	39,000	\$	-	\$	20,000	\$	-	\$	20,000	\$	-	\$	20,000	\$	-	\$	20,000	\$	-

22H Annual Minor Capital Maintenance (FF) - Asset Preservation

This project programs annual work activities necessary to accommodate changing regulations and to preserve existing infrastructure. These land-side projects include, but not be limited to: HVAC improvements, roofing, terminal improvements, electrical improvements, security enhancements, building and workshop improvements, fencing and signage improvements, and carpet replacement. This project has an estimated DRBA cost of \$39,000 in 2019 and \$80,000 in the out years.

New Castle Airport - Continuing Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2018 \$ Spent (EST.)	2019	External Funding 2019	2020	External Funding 2020	2021	External Funding 2021	2022	External Funding 2022	2023	External Funding 2023
Continuing Projects												
6	Master Plan (ILG)	\$ 50,000	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7	Obstruction Removal	\$ 80,000	\$ 50,000	\$ 550,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
8	Taxiway B and E Phase 3	\$ 840,000	\$ 690,000	\$ 4,770,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20	Rehabilitate 1-19	\$ -	\$ 75,000	\$ 670,000	\$ 300,000	\$ 2,700,000	\$ 550,000	\$ 4,950,000	\$ -	\$ -	\$ -	\$ -
23C	Roof and Building Envelope Rehabilitation (ILG)	\$ 1,200,000	\$ 400,000	\$ -	\$ 1,113,000	\$ -	\$ 246,000	\$ -	\$ 25,000	\$ -	\$ 25,000	\$ -
31	North Cargo Apron Rehabilitation	\$ -	\$ 60,000	\$ 1,000,000	\$ 150,000	\$ 1,500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
37	Perimeter Road Rehabilitation	\$ -	\$ 350,000	\$ -	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
44	Facility Utility Survey	\$ -	\$ 840,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
55	Authority Wide Airport Building Assessments	\$ -	\$ 225,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
64	Terminal Architectural Improvements	\$ -	\$ 250,000	\$ -	\$ 3,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total		\$ 2,170,000	\$ 2,950,000	\$ 6,990,000	\$ 4,863,000	\$ 4,200,000	\$ 796,000	\$ 4,950,000	\$ 25,000	\$ -	\$ 25,000	\$ -

6 **Master Plan (ILG) - Efficiency and Sustainability**

The current master plan is outdated and is eligible for update in accordance with the federal Airport Improvement Program. The Authority intends to develop a dynamic master plan to set goals and plan the future development of the airport. The plan will reflect current industry trends and incorporate feedback from all stakeholders. This project has an estimated DRBA cost of \$10,000 in 2019. There are no anticipated annual operating cost impacts for this project.

7 **Obstruction Removal - Safety**

This project programs the removal of obstructions on airport property and on properties within the airport's immediate surroundings. The effort includes easement acquisition over the affected off-airport properties and brings the airport into compliance with federal airspace safety standards. This project has an estimated DRBA cost of \$50,000 in 2019. The project is partially funded in the amount of approximately \$550,000 by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

8 **Taxiway B and E Phase 3 - Safety**

This project programs the reconstruction and extension of Taxiways "B" and "E" including miscellaneous lighting, signage, and drainage improvements. The project brings the offset distance between these pavements and Runway 1-19 into compliance with FAA standards and provides a full length parallel taxiway to the airport's primary runway. Phase I was completed in 2015, and Phase II was completed in 2018. This project has an estimated DRBA cost of \$690,000 in 2019. The project is partially funded in the amount of approximately \$4.8 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

20 **Rehabilitate 1-19 - Efficiency and Sustainability**

The Runway 1-19 pavement area is in need of rehabilitation based on FAA pavement life cycles and the State of Delaware's pavement management study. This project programs for rehabilitation of the runway pavement, and any modifications to signage, markings, lighting or infrastructure which may be necessary. This project has an estimated DRBA cost of \$75,000 in 2019 and \$850,000 in the out years. The project is partially funded in the amount of approximately \$8.3 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

23C **Roof and Building Envelope Rehabilitation (ILG) - Asset Preservation**

The Authority is still in the early stages of a healthy roof management program having over 150 roof systems throughout its facilities. Each year, annual inspections and capital investments are strategically placed to provide a 30-year solution to establish a consistent and manageable replacement plan in the future. This project has an estimated DRBA cost of \$400,000 in 2019 and \$1.4 million in the out years. This effort has no anticipated annual operating cost impact.

New Castle Airport - Continuing Projects

- 31 **North Cargo Apron Rehabilitation - Efficiency and Sustainability**
The Cargo Apron has been rated in poor condition by the State of Delaware's pavement management study. This project programs the design and construction of this rehabilitation, to include demolition and reconstruction of existing asphalt pavement. This project has an estimated DRBA cost of \$60,000 in 2019 and \$150,000 in the out years. The project is partially funded in the amount of approximately \$2.5 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.
- 37 **Perimeter Road Rehabilitation - Efficiency and Sustainability**
The perimeter roads are exhibiting signs of damage from heavy vehicle loading. This project programs the design and construction of this rehabilitation, to include demolition and reconstruction of existing asphalt pavement. This project has an estimated DRBA cost of \$350,000 in 2019 and \$300,000 in the out years. There are no anticipated annual operating cost impacts for this project.
- 44 **Facility Utility Survey - Efficiency and Sustainability**
Utility records and location services are not provided by the local utility companies for the majority of the Authority's properties and historical records are difficult to track without a common GIS platform. This project programs a field utility survey to include preliminary development of a GIS platform to record this data and track future changes. This project has an estimated DRBA cost of \$840,000 in 2019. There are no anticipated annual operating cost impacts for this project.
- 55 **Authority Wide Airport Building Assessments - Asset Preservation**
Buildings throughout all three airports are aging and many of are in need of upgrades and repairs. This project aims to assess these buildings and program prioritization for repairs. This project has an estimated DRBA cost of \$225,000 in 2019. There are no anticipated annual operating cost impacts for this project.
- 64 **Terminal Architectural Improvements - Asset Preservation**
The terminal facility is dated and has not had a unified visual update in its service life, as well as experiencing a modified usage case on the interior. This project programs funds to design and implement a consistent system of visual improvements to the exterior of the building, and to modify the interior of the building to suit current and future needs. This project has an estimated DRBA cost of \$250,000 in 2019 and \$3 million in the out years. There are no anticipated annual operating cost impacts for this project.

New Castle Airport - Annual Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	External Funding		External Funding		External Funding		External Funding		External Funding	
		2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
	Annual Projects										
22C	Annual Minor Capital Maintenance (ILG)	\$ 1,368,000	\$ 140,000	\$ 335,000	\$ -	\$ 285,000	\$ -	\$ 260,000	\$ -	\$ 260,000	\$ -
24C	Annual Minor Capital Equipment (ILG)	\$ 413,000	\$ 700,000	\$ 435,000	\$ -	\$ 360,000	\$ -	\$ -	\$ -	\$ -	\$ -
25C	Annual Automation/Telecom Upgrades (ILG)	\$ 170,000	\$ -	\$ 180,000	\$ -	\$ 270,000	\$ -	\$ 195,000	\$ -	\$ 95,000	\$ -
40C	Reserve for Economic Development/Tenant Improvement	\$ 2,000,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -
	Grand Total	\$ 3,951,000	\$ 840,000	\$ 1,950,000	\$ -	\$ 1,915,000	\$ -	\$ 1,455,000	\$ -	\$ 1,355,000	\$ -

22C **Annual Minor Capital Maintenance (ILG) - Asset Preservation**

This project programs repairs, renovations, and improvements to Authority owned and occupied facilities and infrastructure to include, but not be limited to: site grading, lighting, signage, utility upgrades, storm water, fire suppression, pavement, airfield security/safety, planning, permitting, and record document updates. The project is necessary to protect the facilities, maintain good repair, and provide for public safety. This project has an estimated DRBA cost of \$1.4 million in 2019 and \$1.1 million in the out years. The project is partially funded in the amount of approximately \$140,000 by the Federal Aviation Administration.

24C **Annual Minor Capital Equipment (ILG) - Efficiency and Sustainability**

This project programs annual capital equipment purchases which may include but are not limited to: vehicles, trucks, specialty equipment, emergency generators, trailers, and other equipment that are utilized to preserve existing infrastructure assets. Purchases are based on established replacement guidelines considering useful life and condition. This project has an estimated DRBA cost of \$413,000 in 2019 and \$795,000 in the out years. The project is partially funded in the amount of approximately \$700,000 by the Federal Aviation Administration.

25C **Annual Automation/Telecom Upgrades (ILG) - Efficiency and Sustainability**

Automation upgrades with equipment enhancements are required for maintaining sustainable and efficient facilities. This project includes but is not limited to: automation master planning, computer hardware replacement purchases, network upgrades, software and hardware upgrades, uninterruptible power supply improvements, camera installations, fire detection systems upgrades, and other miscellaneous upgrades or installations. This project has an estimated DRBA cost of \$170,000 in 2019 and \$740,000 in the out years.

40C **Reserve for Economic Development/Tenant Improvements (ILG) - Economic Development**

The Authority needs to program substantial capital infrastructure improvements to meet external needs. This project programs building repairs and site improvements for the airport tenants as needed per lease agreements with the Authority, as well as programming for proposed economical development efforts. This project has an estimated DRBA cost of \$2 million in 2019 and \$4 million in the out years. There are no anticipated annual operating cost impacts for this project.

New Castle Airport - New Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	External Funding		External Funding		External Funding		External Funding		External Funding	
		2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
	New Projects										
21	Improve RSA Runway 14-32	\$ 20,000	\$ 135,000	\$ 75,000	\$ 645,000	\$ 150,000	\$ 1,250,000	\$ 250,000	\$ 2,200,000	\$ 500,000	\$ -
60	Taxiway B & K Fillet Improvements	\$ 187,000	\$ -	\$ 1,088,000	\$ -	\$ 1,088,000	\$ -	\$ -	\$ -	\$ -	\$ -
61	Taxiway J & L Improvements	\$ 20,000	\$ 380,000	\$ 140,000	\$ 2,160,000	\$ 140,000	\$ 2,160,000	\$ -	\$ -	\$ -	\$ -
62	South Cargo Apron Development	\$ 89,000	\$ 1,511,000	\$ 1,388,000	\$ 26,363,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
63	Cargo Fuel Farm	\$ 525,000	\$ -	\$ 3,075,000	\$ -	\$ 3,075,000	\$ -	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ 841,000	\$ 2,026,000	\$ 5,766,000	\$ 29,168,000	\$ 4,453,000	\$ 3,410,000	\$ 250,000	\$ 2,200,000	\$ 500,000	\$ -

21 **Improve RSA Runway 14-32 - Safety**

There are several locations adjacent to Runway 14-32 where the pavement geometry is not ideal for aircraft traffic. This project programs for the design and construction of modifications to the pavement and associated lighting systems to address pavement geometry. This project has an estimated DRBA cost of \$20,000 in 2019 and \$975,000 in the out years. The project is partially funded in the amount of approximately \$4.2 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

60 **Taxiway B & K Fillet Improvements - Economic Development**

There is an interest in accommodating mid-to-large cargo aircraft operations at the airport. This project programs the construction of pavement fillets at critical intersections needed to serve larger cargo aircraft. Given the level of federal funding scheduled for other associated projects this effort will be funded by the Authority. This project has an estimated DRBA cost of \$187,000 in 2019 and \$2.2 million in the out years. There are no anticipated annual operating cost impacts for this project.

61 **Taxiway J & L Improvements - Economic Development**

There is an interest in accommodating mid-to-large cargo aircraft operations at the airport. This project programs the realignment of Taxiways J & L to better serve these larger aircraft. This project has an estimated DRBA cost of \$20,000 in 2019 and \$280,000 in the out years. The project is partially funded in the amount of approximately \$4.7 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

62 **South Cargo Apron Development - Economic Development**

There has been increasing interest in accommodating mid-to-large cargo aircraft operations at the airport. This project programs the construction of an apron to serve the equivalent of seven group IV aircraft including the associated taxiway connections. This project has an estimated DRBA cost of \$89,000 in 2019 and \$1.4 million in the out years. The project is partially funded in the amount of approximately \$27.9 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

63 **Cargo Fuel Farm - Economic Development**

There is an interest in accommodating mid-to-large cargo aircraft operations at the airport. This project programs the construction of a fuel farm with the capacity to serve cargo operations. Given the level of federal funding scheduled for other associated projects this effort will be funded by the Authority. This project has an estimated DRBA cost of \$525,000 in 2019 and \$6.2 million in the out years. There are no anticipated annual operating cost impacts for this project.

New Castle Airport - Out Year Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2019	External Funding 2019	2020	External Funding 2020	2021	External Funding 2021	2022	External Funding 2022	2023	External Funding 2023
	Out Year Projects										
80	Convert Runway 14-32 to Taxiway E	\$ -	\$ -	\$ 13,000	\$ 250,000	\$ 29,000	\$ 551,000	\$ 205,000	\$ 3,895,000	\$ 205,000	\$ 3,895,000
85	Relocate Airport Operations and Maintenance	\$ -	\$ -	\$ -	\$ -	\$ 50,000	\$ -	\$ 605,000	\$ -	\$ -	\$ -
86	New Runway I Approach System (CAT II ILS - NAV A)	\$ -	\$ -	\$ -	\$ -	\$ 400,000	\$ -	\$ -	\$ -	\$ 1,025,000	\$ -
87	Acquire Land for Runway 1 RPZ	\$ -	\$ -	\$ -	\$ -	\$ 100,000	\$ 900,000	\$ -	\$ -	\$ -	\$ -
92	South Cargo Apron Expansion	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,000	\$ 565,000	\$ 215,000	\$ 4,085,000
93	Construct Run-up Pad	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 25,000	\$ 225,000	\$ 300,000	\$ 2,700,000
98	38 Acre Site Cargo Apron Development	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 65,000	\$ -
	Grand Total	\$ -	\$ -	\$ 13,000	\$ 250,000	\$ 579,000	\$ 1,451,000	\$ 871,000	\$ 4,685,000	\$ 1,810,000	\$ 10,680,000

80 **Convert Runway 14-32 to Taxiway E - Efficiency and Sustainability**

There is an interest in accommodating mid-to-large cargo aircraft operations at the airport. This project programs the conversion of Runway 14-32, which is no longer federally supported as a runway, into a taxiway capable of accommodating these larger aircraft. This project has an estimated DRBA cost of \$452,000 in the out years. The project is partially funded in the amount of approximately \$8.6 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

85 **Relocate Airport Operations and Maintenance - Efficiency and Sustainability**

The airport operations and maintenance facilities are currently located on opposite sides of the airfield with the maintenance facility located entirely within the secured perimeter of the Delaware Air National Guard. As part of the master plan process, a common site was selected and this project budgets for the development of the site to accommodate the operation and maintenance needs of the airport. Partial funding is anticipated from the Delaware Air National Guard and the Federal Aviation Administration for this project, but is not committed at this time. This project has an estimated DRBA cost of \$655,000 in the out years.

86 **New Runway I Approach System (CAT II ILS - NAV AID) - Efficiency and Sustainability**

There is an interest in accommodating mid-to-large cargo aircraft operations at the airport. This project programs upgrading the existing Runway 1, Category I Instrument Landing System to a Category II in order to improve landing conditions for cargo aircraft. This project has an estimated DRBA cost of \$1.4 million in the out years. There are no anticipated annual operating cost impacts for this project.

87 **Acquire Land for Runway 1 RPZ - Efficiency and Sustainability**

The FAA strongly encourages airport sponsors to control all properties falling within the Runway Protection Zones at each runway end. This project programs the investigation and purchase of land adjacent to the Runway 1 approach. This project has an estimated DRBA cost of \$100,000 in the out years. The project is partially funded in the amount of approximately \$900,000 by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

Millville Airport - Continuing Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2018 \$ Spent (EST.)	2019	External Funding 2019	2020	External Funding 2020	2021	External Funding 2021	2022	External Funding 2022	2023	External Funding 2023
	Continuing Projects											
10	Fuel Farm Relocation	\$ 50,000	\$ 850,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12	Rehabilitate Runway 10-28	\$ 300,000	\$ 25,000	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
23D	Roof and Building Envelope Rehabilitation (MIV)	\$ 50,000	\$ 95,000	\$ -	\$ 303,000	\$ -	\$ 25,000	\$ -	\$ 25,000	\$ -	\$ 25,000	\$ -
36	South Apron Expansion	\$ 40,000	\$ 110,000	\$ 1,350,000	\$ 125,000	\$ 1,125,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
45	Rehabilitate North Apron	\$ 455,000	\$ 11,000	\$ 99,000	\$ 100,000	\$ 900,000	\$ 100,000	\$ 900,000	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ 895,000	\$ 1,091,000	\$ 1,699,000	\$ 528,000	\$ 2,025,000	\$ 125,000	\$ 900,000	\$ 25,000	\$ -	\$ 25,000	\$ -

10 **Fuel Farm Relocation - Economic Development**

This project programs the relocation of a new dual (Jet A and 100 LL) aviation fuel farm. The project will replace the existing fuel farm which is nearing the end of its design life and also includes relocation of the facility to a more appropriate location. This project has an estimated DRBA cost of \$850,000 in 2019. This effort has no anticipated net annual operating cost impact.

12 **Rehabilitate Runway 10-28 - Safety**

This project programs the rehabilitation of Runway 10-28 including miscellaneous lighting, signage, and drainage improvements. The project is recommended in accordance with the findings of the latest Pavement Management Study. This project has an estimated DRBA cost of \$25,000 in 2018. The project is partially funded in the amount of approximately \$250,000 by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

23D **Roof and Building Envelope Rehabilitation (MIV) - Asset Preservation**

The Authority is still in the early stages of a healthy roof management program having over 150 roof systems throughout its facilities. Each year, annual inspections and capital investments are strategically placed to provide a 30-year solution to establish a consistent and manageable replacement plan in the future. This project has an estimated DRBA cost of \$95,000 in 2019 and \$378,000 in the out years. This effort has no anticipated annual operating cost impact.

36 **South Apron Expansion - Economic Development**

The project programs the design and construction of a new cargo apron in the vicinity of the intersection of Taxiways "B" and "E". The project will expand the apron pavement to provide for more diverse aircraft operations. This project has an estimated DRBA cost of \$110,000 in 2019 and \$125,000 in the out years. The project is partially funded in the amount of approximately \$2.5 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

45 **Rehabilitate North Apron - Asset Preservation**

This project programs reconfiguration and repairs to the concrete apron pavement serving the corporate aviation complex. The project is recommended in accordance with the findings of the latest Pavement Management Study. This project has an estimated DRBA cost of \$11,000 in 2019 and \$200,000 in the out years. The project is partially funded in the amount of approximately \$1.9 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

Millville Airport - Annual Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	External Funding		External Funding		External Funding		External Funding		External Funding	
		2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
Annual Projects											
22D	Annual Minor Capital Maintenance (MIV)	\$ 254,000	\$ 266,000	\$ 265,000	\$ -	\$ 171,000	\$ -	\$ 365,000	\$ -	\$ 150,000	\$ -
24D	Annual Minor Capital Equipment (MIV)	\$ 25,000	\$ -	\$ 138,000	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -
25D	Annual Automation/Telecom Upgrades (MIV)	\$ 160,000	\$ -	\$ 45,000	\$ -	\$ 95,000	\$ -	\$ 75,000	\$ -	\$ 20,000	\$ -
40D	Reserve for Economic Development/Tenant Improvements (MIV)	\$ 1,000,000	\$ -	\$ 2,500,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -
Grand Total		\$ 1,439,000	\$ 266,000	\$ 2,948,000	\$ -	\$ 1,366,000	\$ -	\$ 1,440,000	\$ -	\$ 1,170,000	\$ -

22D **Annual Minor Capital Maintenance (MIV) - Asset Preservation**

The project programs repairs, renovations, and improvements to Authority owned and occupied facilities and infrastructure to include, but not be limited to: site grading, lighting, signage, utility upgrades, storm water, fire suppression, pavement, airfield security/safety, planning, permitting and record document updates. The project is necessary to protect the facilities, maintain good repair, and provide for public safety. This project has an estimated DRBA cost of \$254,000 in 2019 and \$951,000 in the out years. The project is partially funded in the amount of approximately \$266,000 by the Federal Aviation Administration.

24D **Annual Minor Capital Equipment (MIV) - Efficiency and Sustainability**

This project programs annual capital equipment purchases which may include but are not limited to: vehicles, trucks, specialty equipment, emergency generators, trailers, and other equipment that are utilized to preserve existing infrastructure assets. Purchases are based on established replacement guidelines considering useful life and condition. This project has an estimated DRBA cost of \$25,000 in 2019 and \$238,000 in the out years.

25D **Annual Automation/Telecom Upgrades (MIV) - Asset Preservation**

Automation upgrades with equipment enhancements are required for maintaining sustainable and efficient facilities. This project includes but is not limited to: automation master planning, computer hardware replacement purchases, network upgrades, software and hardware upgrades, uninterruptible power supply improvements, camera installations, fire detection systems upgrades, and other miscellaneous upgrades or installations. This project has an estimated DRBA cost of \$160,000 in 2019 and \$235,000 in the out years.

40D **Reserve for Economic Development/Tenant Improvements (MIV) - Economic Development**

The Authority needs to program substantial capital infrastructure improvements to meet external needs. This project programs building repairs and site improvements for the airport tenants as needed per lease agreements with the Authority, as well as programming for proposed economical development efforts. This project has an estimated DRBA cost of \$1 million in 2019 and \$5.5 million in the out years. There are no anticipated annual operating cost impacts for this project.

Millville Airport - New Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2019	External Funding		External Funding		External Funding		External Funding		External Funding	
			2019	2020	2020	2021	2021	2022	2022	2023	2023	
	New Projects											
97	Access Road Improvements (MIV)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

97 **Access Road Improvements (MIV) - Economic Development**

The access roads for the airport are exhibiting signs of deterioration. This project programs the design and construction of this rehabilitation, to include demolition and reconstruction of existing asphalt pavement. This project has an estimated DRBA cost of \$1 million in the out years.

Millville Airport - Out Year Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2019	External Funding		External Funding		External Funding		External Funding		
		2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
	Out Year Projects										
77D	Facility Utility Survey (MIV)	\$ -	\$ -	\$ 511,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
81	T-Hangar Replacements	\$ -	\$ -	\$ 125,000	\$ -	\$ 1,250,000	\$ -	\$ -	\$ -	\$ -	\$ -
88	Rehabilitate Taxiways "A", "C", and "G"	\$ -	\$ -	\$ -	\$ -	\$ 60,000	\$ 510,000	\$ 660,000	\$ 6,000,000	\$ -	\$ 2,700,000
94	Extend Runway 10-28	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 35,000	\$ 300,000	\$ 35,000	\$ -
	Grand Total	\$ -	\$ -	\$ 636,000	\$ -	\$ 1,310,000	\$ 510,000	\$ 695,000	\$ 6,300,000	\$ 35,000	\$ 2,700,000

77D Facility Utility Survey (MIV) - Asset Preservation

Utility records and location services are not provided by the local utility companies for the majority of the Authority's properties and historical records are difficult to track without a common GIS platform. This project programs a field utility survey to include preliminary development of a GIS platform to record this data and track future changes. This project has an estimated DRBA cost of \$511,000 in the out years. This effort has no anticipated annual operating cost impact.

81 T-Hangar Replacements - Economic Development

The existing portable T-Hangars at the airport have reached the end of their serviceable life and can no longer be economically maintained. This project programs the design and construction costs for a new ten bay T-hangar building to be constructed at the T-hangar site which was recently constructed with the benefit federal airport improvement program funds. This project has an estimated DRBA cost of \$1.4 million in the out years. There are no anticipated annual operating cost impacts for this project.

88 Rehabilitate Taxiways "A", "C", and "G" - Asset Preservation

In accordance with the findings of the latest Pavement Management Study taxiways A, C, and G are in need of repair. This project programs the design and construction costs for these repairs to include pavement resurfacing, lighting, signage, and associated drainage improvements. This project has an estimated DRBA cost of \$720,000 in the out years. The project is partially funded in the amount of approximately \$9.2 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

94 Extend Runway 10-28 - Asset Preservation

This project programs the extension of Runway 10-28 including miscellaneous lighting, signage, and drainage improvements. This project has an estimated DRBA cost of \$70,000 in the out years. The project is partially funded in the amount of approximately \$300,000 by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

Cape May Airport - Continuing Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2018 \$ Spent	External Funding			External Funding			External Funding			External
		(EST.)	2019	2019	2020	2020	2021	2021	2022	2022	2023	Funding 2023
	Continuing Projects											
23E	Roof and Building Envelope Rehabilitation (WWD)	\$ -	\$ 425,000	\$ -	\$ 313,000	\$ -	\$ 25,000	\$ -	\$ 25,000	\$ -	\$ 25,000	\$ -
28	Rehabilitate 10-28 & Remove Taxiway E	\$ -	\$ 22,000	\$ 193,000	\$ 161,000	\$ 1,444,000	\$ 289,000	\$ 2,601,000	\$ 150,000	\$ 1,350,000	\$ -	\$ -
29	Rehabilitate Apron B	\$ -	\$ 198,000	\$ 1,825,000	\$ 178,000	\$ 1,600,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
50	Tenant Expansion	\$ -	\$ 3,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ -	\$ 3,645,000	\$ 2,018,000	\$ 652,000	\$ 3,044,000	\$ 314,000	\$ 2,601,000	\$ 175,000	\$ 1,350,000	\$ 25,000	\$ -

23E **Roof and Building Envelope Rehabilitation (WWD) - Asset Preservation**

The Authority is still in the early stages of a healthy roof management program having over 150 roof systems throughout its facilities. Each year, annual inspections and capital investments are strategically placed to provide a 30-year solution to establish a consistent and manageable replacement plan in the future. This project has an estimated DRBA cost of \$425,000 in 2019 and \$388,000 in the out years. This effort has no anticipated annual operating cost impact.

28 **Rehabilitate 10-28 & Remove Taxiway E - Asset Preservation**

Results from the most recent pavement management study indicate the pavement on Runway 10-28 is deteriorating and is in need of rehabilitation. Work will include pavement resurfacing, lighting, signage, and associated drainage improvements as well as the removal of an unnecessary connector taxiway. This project has an estimated DRBA cost of \$22,000 in 2019 and \$600,000 in the out years. The project is partially funded in the amount of approximately \$5.6 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

29 **Rehabilitate Apron B - Asset Preservation**

This project programs repairs to the primary apron pavement including bituminous asphalt resurfacing as well as concrete pavement repairs and slab replacements. The project is recommended in accordance with the findings of the latest Pavement Management Study. This project has an estimated DRBA cost of \$198,000 in 2019 and \$178,000 in the out years. The project is partially funded in the amount of approximately \$3.4 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

50 **Tenant Expansion - Economic Development**

Cape May Airport has experienced increased development and business interest and there is little available space to accommodate demand. This project provides for additional building core-and-shell square footage and associated site work improvements to accommodate the growth of an existing tenant. This project has an estimated DRBA cost of \$3 million in 2019. There are no anticipated annual operating cost impacts for this project.

Cape May Airport - Annual Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	External Funding		External Funding		External Funding		External Funding		External Funding	
		2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
	Annual Projects										
22E	Annual Minor Capital Maintenance (WWD)	\$ 427,000	\$ 66,000	\$ 150,000	\$ -	\$ 150,000	\$ -	\$ 150,000	\$ -	\$ 150,000	\$ -
24E	Annual Minor Capital Equipment (WWD)	\$ 162,000	\$ -	\$ 180,000	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -
25E	Annual Automation/Telecom Upgrades (WWD)	\$ 55,000	\$ -	\$ 25,000	\$ -	\$ 145,000	\$ -	\$ 25,000	\$ -	\$ 25,000	\$ -
40E	Reserve for Economic Development/Tenant Improvements (WWD)	\$ 1,000,000	\$ -	\$ 500,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -
	Grand Total	\$ 1,644,000	\$ 66,000	\$ 855,000	\$ -	\$ 1,395,000	\$ -	\$ 1,175,000	\$ -	\$ 1,175,000	\$ -

22E Annual Minor Capital Maintenance (WWD) - Asset Preservation

This project programs repairs, renovations, and improvements to Authority owned and occupied facilities and infrastructure to include, but not be limited to: site grading, lighting, signage, utility upgrades, storm water, fire suppression, pavement, airfield security/safety, planning, permitting and record document updates. The project is necessary to protect the facilities, maintain good repair, and provide for public safety. This project has an estimated DRBA cost of \$427,000 in 2019 and \$600,000 in the out years. The project is partially funded in the amount of approximately \$66,000 by the Federal Aviation Administration.

24E Annual Minor Capital Equipment (WWD) - Efficiency and Sustainability

This project programs annual capital equipment purchases which may include but are not limited to: vehicles, trucks, specialty equipment, emergency generators, trailers, and other equipment that are utilized to preserve existing infrastructure assets. Purchases are based on established replacement guidelines considering useful life and condition. This project has an estimated DRBA cost of \$162,000 in 2019 and \$280,000 in the out years.

25E Annual Automation/Telecom Upgrades (WWD) - Efficiency and Sustainability

Automation upgrades with equipment enhancements are required for maintaining sustainable and efficient facilities. This project includes but is not limited to: automation master planning, computer hardware replacement purchases, network upgrades, software and hardware upgrades, uninterruptible power supply improvements, camera installations, fire detection systems upgrades, and other miscellaneous upgrades or installations. This project has an estimated DRBA cost of \$55,000 in 2019 and \$220,000 in the out years.

40E Reserve for Economic Development/Tenant Improvements (WWD) - Economic Development

The Authority needs to program substantial capital infrastructure improvements to meet external needs. This project programs building repairs and site improvements for the airport tenants as needed per lease agreements with the Authority, as well as programming for proposed economical development efforts. This project has an estimated DRBA cost of \$1 million in 2019 and \$3.5 million in the out years. There are no anticipated annual operating cost impacts for this project.

Cape May Airport - New Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2019		2020		2021		2022		2023	
			External Funding		External Funding		External Funding		External Funding		External Funding
	New Projects										
11	Cape May County Reimbursements	\$ 370,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
42	Terminal Parking Lot Pavement Improvements	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
57	Replace 10-28 PAPIs	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
68	Multi-purpose Building	\$ 75,000	\$ -	\$ 1,425,000	\$ 250,000	\$ 2,225,000	\$ -	\$ -	\$ -	\$ -	\$ -
95	Access Road Improvements (WWD)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,000,000	\$ -	\$ -	\$ -
	Grand Total	\$ 945,000	\$ -	\$ 1,425,000	\$ 250,000	\$ 2,225,000	\$ -	\$ 1,000,000	\$ -	\$ -	\$ -

11 **Cape May County Reimbursements - Efficiency and Sustainability**

The county has undertaken significant infrastructure improvements at the airport. Certain elements of their work were undertaken that were the responsibility of the Authority. These efforts were completed by the county as the separation of work between parties was deemed inefficient. This project programs the reimbursement of costs incurred by the county which are the responsibility of the Authority. This project has an estimated DRBA cost of \$370,000 in 2019. There are no anticipated annual operating cost impacts for this project.

42 **Terminal Parking Lot Pavement Improvements - Efficiency and Sustainability**

The terminal parking lot pavement is in poor condition and is in need of rehabilitation. Work will include pavement resurfacing and associated drainage improvements. This project has an estimated DRBA cost of \$250,000 in 2019. There are no anticipated annual operating cost impacts for this project.

57 **Replace 10-28 PAPIs - Asset Preservation**

The existing Precision Approach Path Indicator (PAPI) at both ends of the runway have reached the end of their serviceable life and can no longer be maintained. This project programs the replacement of these critical navigational aids. This project has an estimated DRBA cost of \$250,000 in 2019. There are no anticipated annual operating cost impacts for this project.

68 **Multi-purpose Building - Efficiency and Sustainability**

The existing terminal building's layout and condition are not conducive to future terminal functions and the facility is poorly located. Cape May County is investing significant funds in the development of a new airport entrance at Hornet Road and this project provides for the planning, design, and construction of a new terminal facility at the end of Hornet Road immediately adjacent to the airport's FBO and fueling facilities. This project has an estimated DRBA cost of \$75,000 in 2019 and \$3.7 million in the out years. The project is partially funded in the amount of approximately \$250,000 by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

95 **Access Road Improvements (WWD) - Economic Development**

The access roads for the airport are exhibiting signs of deterioration. This project programs the design and construction of this rehabilitation, to include demolition and reconstruction of existing asphalt pavement. This project has an estimated DRBA cost of \$1 million in the out years. There are no anticipated annual operating cost impacts for this project.

Cape May Airport - Out Year Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2019		External Funding 2019		2020		External Funding 2020		2021		External Funding 2021		2022		External Funding 2022		2023		External Funding 2023	
	Out Year Projects																				
77E	Facility Utility Survey (WWD)	\$	-	\$	-	\$	380,000	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
82	Remove Obstructions	\$	-	\$	-	\$	18,000	\$	158,000	\$	18,000	\$	158,000	\$	17,000	\$	150,000	\$	198,000	\$	1,725,000
90	Second Multi-Tenant Building	\$	-	\$	-	\$	-	\$	-	\$	3,000,000	\$	-	\$	-	\$	-	\$	-	\$	-
	Grand Total	\$	-	\$	-	\$	398,000	\$	158,000	\$	3,018,000	\$	158,000	\$	17,000	\$	150,000	\$	198,000	\$	1,725,000

77E Facility Utility Survey (WWD) - Efficiency and Sustainability

Utility records and location services are not provided by the local utility companies for the majority of the Authority’s properties and historical records are difficult to track without a common GIS platform. This project programs a field utility survey to include preliminary development of a GIS platform to record this data and track future changes. This project has an estimated DRBA cost of \$380,000 in the out years. This effort has no anticipated annual operating cost impact.

82 Remove Obstructions - Safety

This project programs the removal of obstructions on airport property and on properties within the airport’s immediate surroundings. The effort includes wetland mitigation efforts and brings the airport into compliance with federal airspace safety standards. This project has an estimated DRBA cost of \$251,000 in the out years. The project is partially funded in the amount of approximately \$2.2 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

90 Second Multi-Tenant Building - Economic Development

Cape May Airport has experience increased development and business interest and there is little available space to accommodate demand. This project provides for the construction of a second multi-tenant light industrial building to accommodate new tenancy requests. This project has an estimated DRBA cost of \$3 million in the out years. There are no anticipated annual operating cost impacts for this project.

Delaware Airpark - Continuing Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2018 \$ Spent	2019	External Funding		External Funding		External Funding		External Funding		External Funding 2023
		(EST.)		2019	2020	2020	2021	2021	2022	2022	2023	
	Continuing Projects											
9	Runway Relocation	\$ 360,000	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
27	Master Plan (33N)	\$ -	\$ 15,000	\$ 115,000	\$ 30,000	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
33	Expand Apron	\$ -	\$ 20,000	\$ 200,000	\$ 210,000	\$ 1,650,000	\$ 25,000	\$ 210,000	\$ 225,000	\$ 2,000,000	\$ 125,000	\$ 1,100,000
59	New Aviation Fuel Farm	\$ -	\$ 85,000	\$ -	\$ 600,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
73	New Box Hangars	\$ -	\$ 90,000	\$ -	\$ 700,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ 360,000	\$ 230,000	\$ 315,000	\$ 1,540,000	\$ 1,881,000	\$ 25,000	\$ 210,000	\$ 225,000	\$ 2,000,000	\$ 125,000	\$ 1,100,000

9 **Runway Relocation - Safety**

This project programs the relocation of the existing runway in three phases and primarily consists of utility infrastructure, storm water, excavation, paving, and grading efforts. The project brings the runway safety areas into compliance with current federal standards and is undertaken in accordance with the recommendations of the Airport Master Plan. This project has an estimated DRBA cost of \$20,000 in 2019. There is anticipated annual operating cost impact of \$7,000 for this project.

27 **Master Plan (33N) - Efficiency and Sustainability**

The current master plan is outdated and is eligible for update in accordance with the federal Airport Improvement Program. The Authority intends to develop a dynamic master plan to set goals and plan the future development of the airport. The plan will reflect current industry trends and incorporate feedback from all stakeholders. This project has an estimated DRBA cost of \$15,000 in 2019 and \$30,000 in the out years. The project is partially funded in the amount of approximately \$346,000 by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

33 **Expand Apron - Economic Development**

The existing apron space is predicted to become more heavily utilized as a result of the runway relocation and facility expansion. This project programs the design and construction of additional apron space, placed appropriately to serve the increased demand. This project has an estimated DRBA cost of \$20,000 in 2019 and \$585,000 in the out years. The project is partially funded in the amount of approximately \$5.2 million by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

59 **New Aviation Fuel Farm - Economic Development**

This project programs the installation of a new dual (Jet A and 100 LL) aviation fuel farm. The project will replace the existing fuel farm which is nearing the end of its design life and also includes relocation of the facility to a more appropriate location. This project has an estimated DRBA cost of \$85,000 in 2019 and \$600,000 in the out years. There are no anticipated annual operating cost impacts for this project.

73 **New Box Hangars - Economic Development**

There is a need for additional hangers at the Delaware Air Park. This project programs the construction of additional box hangers to address this demand. This project has an estimated DRBA cost of \$90,000 in 2019 and \$700,000 in the out years. There are no anticipated annual operating cost impacts for this project.

Delaware Airpark - Annual Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	External Funding		External Funding		External Funding		External Funding		External Funding	
		2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
	Annual Projects										
22F	Annual Minor Capital Maintenance (33N)	\$ 525,000	\$ 45,000	\$ 72,000	\$ 45,000	\$ 45,000	\$ 45,000	\$ 25,000	\$ -	\$ 25,000	\$ -
24F	Annual Minor Capital Equipment (33N)	\$ 27,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
25F	Annual Automation/Telecom Upgrades (33N)	\$ -	\$ -	\$ 65,000	\$ -	\$ 36,000	\$ -	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ 552,000	\$ 45,000	\$ 137,000	\$ 45,000	\$ 81,000	\$ 45,000	\$ 25,000	\$ -	\$ 25,000	\$ -

22F **Annual Minor Capital Maintenance (33N) - Asset Preservation**

This project programs repairs, renovations, and improvements to Authority owned and occupied facilities and infrastructure to include, but not be limited to: site grading, lighting, signage, utility upgrades, storm water, fire suppression, pavement, airfield security/safety, planning, permitting, and record document updates. The project is necessary to protect the facilities, maintain good repair, and provide for public safety. This project has an estimated DRBA cost of \$525,000 in 2019 and \$167,000 in the out years. The project is partially funded in the amount of approximately \$135,000 by the Federal Aviation Administration.

24F **Annual Minor Capital Equipment (33N) - Efficiency and Sustainability**

This project programs annual capital equipment purchases which may include but are not limited to: vehicles, trucks, specialty equipment, emergency generators, trailers, and other equipment that are utilized to preserve existing infrastructure assets. Purchases are based on established replacement guidelines considering useful life and condition. This project has an estimated DRBA cost of \$27,000 in 2019.

25F **Annual Automation/Telecom Upgrades (33N) - Efficiency and Sustainability**

Automation upgrades with equipment enhancements are required for maintaining sustainable and efficient facilities. This project includes but is not limited to: automation master planning, computer hardware replacement purchases, network upgrades, software and hardware upgrades, uninterruptible power supply improvements, camera installations, fire detection systems upgrades, and other miscellaneous upgrades or installations. This project has an estimated DRBA cost of \$101,000 in the out years.

Delaware Airpark- New Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2019	External Funding		External Funding		External Funding		External Funding		
		2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
	New Projects										
89	Acquire Land For Airfield Protection	\$ -	\$ -	\$ -	\$ -	\$ 20,000	\$ 180,000	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ -	\$ -	\$ -	\$ -	\$ 20,000	\$ 180,000	\$ -	\$ -	\$ -	\$ -

89 Acquire Land For Airfield Protection - Safety

The airport has expanded as part of the airport master plan, as have the safety areas surrounding the airport. This project programs the investigation and purchase of land adjacent to the airport to protect the new footprint. This project has an estimated DRBA cost of \$20,000 in the out years. The project is partially funded in the amount of approximately \$180,000 by the Federal Aviation Administration. There are no anticipated annual operating cost impacts for this project.

Civil Air Terminal - Annual Projects

Airports Strategic Capital Improvement Plan

Ranking	Project	2019		2020		2021		2022		2023	
			External Funding		External Funding		External Funding		External Funding		External Funding
	Annual Projects										
22G	Annual Minor Capital Maintenance (CAT)	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
25G	Annual Automation/Telecom Upgrades (CAT)	\$ 45,000	\$ -	\$ 36,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Grand Total	\$ 70,000	\$ -	\$ 36,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

22G Annual Minor Capital Maintenance (CAT) - Asset Preservation

This project programs repairs, renovations, and improvements to Authority owned and occupied facilities and infrastructure to include, but not be limited to: site grading, lighting, signage, utility upgrades, storm water, fire suppression, pavement, airfield security/safety, planning, permitting, and record document updates. The project is necessary to protect the facilities, maintain good repair, and provide for public safety. This project has an estimated DRBA cost of \$25,000 in 2019.

25G Annual Automation/Telecom Upgrades (CAT) - Efficiency and Sustainability

Automation upgrades with equipment enhancements are required for maintaining sustainable and efficient facilities. This project includes but is not limited to: automation master planning, computer hardware replacement purchases, network upgrades, software and hardware upgrades, uninterruptible power supply improvements, camera installations, fire detection systems upgrades, and other miscellaneous upgrades or installations. This project has an estimated DRBA cost of \$45,000 in 2019 and \$36,000 in the out years.