

CWSRF Non-Federal Administrative Account

Application Guidelines for Surface Water Matching Planning Grants

Application Cover Sheet and Checklist

Applicant Name:

City of Lewes/Lewes Board of Public Works

Date of Application: 4/25/22

Date Received: __/__/__

Checklist for Application Materials

- Application Cover Sheet and Checklist
- County / Municipal Information Sheet
- Scope of Work Document

CWSRF Non-Federal Administrative Account

Application Guidelines for Surface Water Matching Planning Grants

Information Sheet

Project Title: Lewes Beach Stormwater Analysis and Retrofit Plan

Partners/Sponsors: City of Lewes and Lewes Board of Public Works

Point of Contact: Ann Marie Townshend, City Manager
City of Lewes
atownshend@ci.lewes.de.us
(302) 645-7777

Austin Calaman, General Manager
Lewes Board of Public Works
acalaman@lewesbpw.com
(302) 645-6228

Date of current or previous comprehensive plan: 2015 (under 5-year review)

Type of grant application: Surface Water Matching Planning Grant (maximum \$50,000)

Total Project Cost: \$70,000

Requested Funding: \$35,000

Amount of Local Funds Available (match): \$35,000

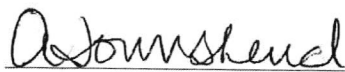
Project Description: Lewes Beach Stormwater Analysis and Retrofit Plan. The project will analyze and study existing and potential future stormwater issues on Lewes Beach and develop recommended alternatives to address those issues over time.

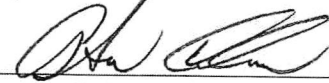
Who will complete the project: Consultant w/Staff Assistance

Project Start Date: July 2022

Project Completion Date: March 2023

City of Lewes and Lewes Board of Public Works insurance coverage meets the requirements of the grant program, and match is available through local funds.


Ann Marie Townshend, City Manager
City of Lewes


Austin Calaman, General Manager
Lewes Board of Public Works

4/25/22
Date

Project Goals and Priorities

- *A small watershed study.*
- *Planning/preliminary engineering/feasibility analysis of community stormwater management inventory, improvements, and/or retrofits in existing developments and municipalities*
- *Planning/preliminary engineering/feasibility analysis of green stormwater infrastructure practices including but not limited to bioretention, green roofs, impervious disconnection, permeable pavements, infiltration, vegetated swales, green parking, cisterns, and the planting of trees and other appropriate vegetation and aeration.*

The area of Lewes known as Lewes Beach, which is bound by the Lewes to Rehoboth Canal, Delaware Bay, and Savannah Road, was developed prior to modern-day stormwater management practices. While there are some “french drains” in various areas of Lewes Beach, the area generally lacks curbs, gutters, and stormwater pipes. Further, installation of this infrastructure is generally infeasible because of the tidal environment, which would limit the ability to discharge stormwater into the canal or Delaware Bay.

With the increase in precipitation due to climate change, stormwater runoff, especially when combined with tidal flooding, causes standing water in areas of the community. The City owns large areas of open space along with several unimproved alleys that offer opportunities to implement stormwater retrofits to manage some of the stormwater. The goal of the project is to identify the problem areas where stormwater runoff contributes to ponding or where runoff adversely affects private property, then determining whether retrofits, particularly green infrastructure practices, would be feasible to help manage this stormwater.

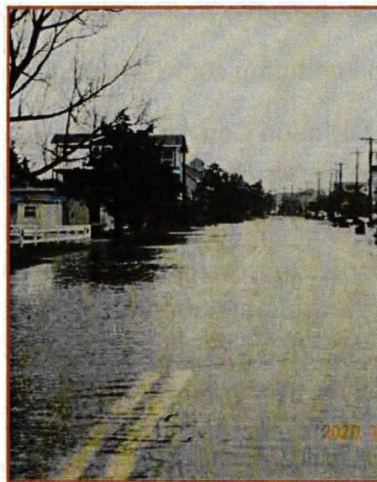


Figure 1. Example of Stormwater Issues at West End of Lewes Beach

Geographic Scope

Lewes Beach is located primarily within the Delaware Bay Watershed, but due to the water exchange provided by the Lewes to Rehoboth Canal, and the confluence of the Broadkill River at the Roosevelt Inlet, the area also drains partly to the Rehoboth Bay (Inland Bays Watershed) and the Broadkill River (Broadkill River Watershed). Lewes Beach, from the Bay to the Canal, encompasses approximately 385-acres of land, 50% of which is residential space with minor commercial/institutional spaces (Lewes Yacht Club and Childrens Beach House).

1. Total Maximum Daily Loads (TMDLs) Regulation for Broadkill River
 - a. The nonpoint source nitrogen load in the entire Broadkill River watershed shall be reduced by 40 percent from the 2002-2003 baseline level. This shall result in a yearly-average total nitrogen load of 2224.2 pounds per day.
 - b. The nonpoint source phosphorous load in the entire Broadkill River watershed shall be reduced by 40 percent from the 2002-2003 baseline level. This shall result in a yearly-average total phosphorus load of 94.7 pounds per day.
 - c. The nonpoint source enterococcus bacteria load in the entire Broadkill River watershed shall be reduced by 75 percent from the 2002-2003 baseline level. This shall result in a yearly-average enterococcus bacteria load of 1.0E+11 CFU per day.
2. Total Maximum Daily Loads (TMDLs) Regulation for the Inland Bays
 - a. The nonpoint source bacteria load in the freshwater portion of the Inland Bays Drainage Basin (Buntings Branch, Little Assawoman Bay, Assawoman Bay, Indian River Bay, Iron Branch, Indian River, Rehoboth Bay, and Lewes-Rehoboth Canal Watersheds) shall be reduced by 40 percent from the 2000-2005 baseline level.
 - b. The nonpoint source bacteria load in the marine water portion of the Inland Bays Drainage Basin (Buntings Branch, Little Assawoman Bay, Assawoman Bay, Indian River Bay, Iron Branch, Indian River, Rehoboth Bay, and Lewes-Rehoboth Canal Watersheds) shall be reduced by 23 percent from the 2000-2005 baseline level.

The names of the targeted watershed pollution control strategy include:

- Broadkill River Watershed Pollution Control Strategy – DNREC – December, 2012
- Inland Bays Pollution Control Strategy – DNREC – May 2008

The goal of the Lewes Beach Stormwater Analysis and Retrofit Plan is to develop recommendations that address systemic stormwater runoff quantity issues to minimize disturbance to residences and other facilities and minimize blockage of a key evacuation route on Cedar Avenue. Understanding the importance of removing nutrients from the affected Watersheds to minimize eutrophication, fish kills, low oxygen levels, etc., the Analysis and Plan will focus on developing solutions that address the quantity control issues noted above by utilizing nutrient removal practices prior to discharge into the Lewes – Rehoboth Canal. The Analysis and Plan will focus on utilizing such stormwater management practices as listed below – this is not a comprehensive list of practices that will be reviewed for possible use on Lewes

Beach. The Plan will be mindful of the effective infiltration capacity of Lewes Beach due to its sandy soils – this infiltration capacity has already been utilized by the City via the installation of porous asphalt streets in certain areas of the Beach.

- Bioretention areas
- Rain gardens
- Artificial wetlands
- Filter strips
- Grass swales
- Level spreaders
- Infiltration devices
- Permeable pavements

The proposed Lewes Beach Stormwater Analysis and Retrofit Plan shall provide, in accordance with various section of the 2015 Lewes Comprehensive Plan, technical guidance related to TMDL reductions, appropriate climate adaptation measures – with priority to projects in areas that have taken steps to adopt best practices and meaningful standards for drainage and floodplain management, saltwater intrusion, and various flooding strategies, all as described in the Significant Natural Features section of the Comprehensive Plan.

The subject area is within Levels 2 and 3 of the Strategies for State Policies and Spending. It is a developed area within a municipality, but it is also located within the 100-year floodplain. The City of Lewes' most recent Comprehensive Plan was approved by the City of Lewes in late 2017 and certified by Governor Carney in early 2018.



Figure 2. Location of Focus Area: Lewes, DE along Lewes Beach

Project Feasibility and Cost Effectiveness

1. Other Considered Alternatives
 - a. The City considered addressing stormwater runoff issues individually as they become an area of concern with residents and evacuation, however, the City and BPW decided that a Beach-wide approach would allow for the most efficient and economically-feasible solutions for addressing the on-going issues.
 - b. The City does pave streets on Lewes Beach with permeable pavement systems as they become necessary – that option will be part of the Analysis and Plan’s study.
 - c. The City recently completed a significant study that provided recommendations for minimizing tidal flooding from the Lewes – Rehoboth Canal on the westernmost end of Cedar Avenue. It is the City and BPW thought that this analysis, together with implementing the tidal surge recommendation, will address a significant number of the rainfall/surge flood events.
2. The City and BPW considered the cost of a Beach-wide analysis versus addressing individual stormwater issues as they arise. The cost benefits of the Beach-wide analysis are mainly due to addressing the Lewes Beach drainage issues holistically rather than in a haphazard “one-at-a-time” approach. It is especially important that the Lewes Beach Stormwater Analysis and Retrofit Plan be completed now as the City and BPW initiate other major projects along the Cedar Avenue/Bay Avenue corridor – water main and water service replacements, tidal flooding infrastructure as noted above, street improvements, coordination with DelDOT on improvements to Cedar Avenue, etc.
3. Scope of Work Breakdown and Schedule:
 - a. Field survey to augment existing topographic survey and right-of-way survey – **complete by September 2022**
 - b. Field reconnaissance during storm events to coordinate on-site stormwater runoff issues with the field survey data. Utilize resident feedback from the City’s recently completed tidal surge study to further identify areas of interest related to stormwater ponding/flooding – **complete by October 2022**
 - c. Identify areas for potential stormwater best management practices installation in relation to the discovered stormwater runoff areas with issues – **complete by November 2022**
 - d. Augment survey data for the BMP areas as necessary – **complete by December 2022**
 - e. Wetlands delineation and geotechnical investigations to determine the feasibility of BMP installation in the areas discovered in c. above – **complete by February 2023**
 - f. Review existing plans and documents to augment data collection – **complete by February 2023**

- g. Develop preliminary stormwater best management practices, specific to problem areas and available BMP sites, for discussion with the City, BPW and State (as necessary) – **complete by April 2023**
 - i. Review the proposed, preliminary stormwater best management practices from a geographical perspective to determine if a more efficient approach can be utilized – combining several problem areas into a lesser number of BMP sites.
- h. Finalize stormwater practices for recommended installation at various locations on Lewes Beach as determined during the Analysis and Plan work. Develop site-specific sketches indicating the preliminary design for each BMP location on Lewes Beach – indicate how those BMP’s will address the stormwater runoff issues identified at the beginning of the Analysis and Plan work – **complete by June 2023**
- i. Develop preliminary cost estimates necessary for the City/BPW to plan for funding the improvements. Each BMP location will have its own cost estimate such that the work can be completed in phases. The Analysis and Plan will work with the City and BPW to determine a schedule for implementation over time, which will be included in the final report – **complete by July 2023**
- j. Complete Analysis and Plan final report for submission to the City, BPW and State – **complete by September 2023**

k. Detailed Budget:

1.	Total Project Cost	\$70,000
	Grant Request	\$35,000
	Organizational Match	\$35,000
	Total	\$70,000
	a. Administrative Costs	\$3,000
	Salaries	\$1,500
	Travel	\$500
	Contractual	\$500
	Indirect Cost	\$500
	b. Project Planning Costs	\$67,000
	Project Engineering and Analysis	\$55,000
	Soil Borings and Analysis	\$7,000
	Surveying	\$5,000
	Total	\$70,000

Technical Merit

1. Names and Relevant Experiences:
 - a. Ann Marie Townshend – City Manager – 26 years of planning experience including 16 years of municipal management and stormwater regulations and solutions
 - b. Austin Calaman – BPW General Manager – 6 years of experience as utilities manager or assistant utilities manager including addressing multiple stormwater issues in other parts of the City of Lewes
 - c. Charles M. O'Donnell, III, P.E. – George, Miles & Buhr, LLC – over 35-years of experience including 28-years as the City of Lewes/BPW Engineer. Mr. O'Donnell has been involved with every aspect of stormwater management within the City of Lewes over that time – particularly the permeable pavement and other stormwater drainage projects on Lewes Beach. Mr. O'Donnell has been observing the Lewes Beach areas of concern for years and will assist in focusing the Plan's efforts where they will be most beneficial to the City and residents.
 - d. Stephen L. Marsh, P.E. – George, Miles & Buhr, LLC – Mr Marsh's engineering experience includes storm sewer and stormwater management studies and design, and Steve has hydraulic and hydrologic modeling capabilities include TR-55, TR-20, HEC-RAS, and Storm-CADD. In 2008, Mr. Marsh acquired his LEED® AP certification, which provides a thorough understanding of green building practices and principles. In 2013, he became a Certified Professional in Storm Water Quality (CPSWQ). As a CPSWQ, he is recognized by his peers as a specialist in computing, analyzing, and evaluating storm water quality. Mr. Marsh is just the second registered CPSWQ on the Eastern Shore of Maryland and the second in Delaware.
 - e. Joshua T. Elliott, P.E. – George, Miles & Buhr, LLC – Mr. Elliott has been working closely with Mr. O'Donnell on many City of Lewes projects and is currently developing water improvements plans for the Cedar Avenue/Bay Avenue corridors on Lewes Beach. He is well aware of the various drainage issues on Lewes Beach including the issues of low elevations, significant groundwater levels, and marshy soils as the area moves toward the Canal. Mr. Elliott has designed several stormwater projects in Lewes and elsewhere on the Delmarva Peninsula.
 - f. Brent R. Jett, P.E., Certified Floodplain Manager – George, Miles & Buhr, LLC – Mr. Jett has a distinguished background in site planning and design, infrastructure design, stormwater management, land planning, survey management, construction administration, project management, client relations, code review, and contract management. He is experienced in all phases of development for public/private clients of all sizes. Mr. Jett recently served on several environmental committees with local and state stakeholders for sustainability concerns throughout the mid-Shore region of Maryland. In addition, Mr. Jett was the Project Engineer for the City of Lewes' recently

completed West Cedar Avenue Flood Mitigation Study, which developed recommendations for addressing tidal surge issue on the west end of Cedar Avenue – this experience will be helpful in addressing the stormwater issues on Lewes Beach.

- g. David F. Gray – Surveyor – George, Miles & Buhr, LLC – Mr. Gray will accomplish all surveying needs to augment the significant amount of survey data already collected along Lewes Beach.
- h. Jerry H. Johnson – Geotechnical Professional – Hillis Carnes Engineering Associates – Jerry has more than 35 years of experience in Geotechnical Engineering, Drilling, Environmental Consulting, and Construction Materials Testing and Inspection services. Jerry has been involved in residential, commercial, and industrial development projects throughout the Mid-Atlantic region. GMB has worked closely with Jerry on many projects in Lewes.

Programmatic Capability

1. See the Scope of Work Breakdown and Schedule above for the City/BPW to complete the project objectives in a timely and successful fashion.
2. The BPW and GMB have worked with DNREC (and DHSS) many times in the past regarding planning grants and GMB is familiar with meeting the project goals and schedule as identified herein. Additionally, GMB will assist the City and BPW each month in preparing the necessary grant reimbursement forms based on our experience with previous CWSRF and DWSRF planning grants. A list can be provided if necessary but the BPW/GMB experience with State planning grants numbers greater than 15 through the years.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

3/3/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Strategic Insurance Partners 492 Franklin Avenue Nutley NJ 07110		CONTACT NAME: Celeste Santos PHONE (A/C, No, Ext): (973) 667-2600 FAX (A/C, No): (973) 667-5842 E-MAIL ADDRESS:	
INSURED City of Lewes PO Box 227 114 E. Third Street Lewes DE 19958		INSURER(S) AFFORDING COVERAGE INSURER A: Argonaut Insurance Company 19801 INSURER B: Safety National Casualty Corporation 15105 INSURER C: INSURER D: INSURER E: INSURER F:	

COVERAGES

CERTIFICATE NUMBER: Certificate of Liability

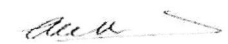
REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:			PE-4634607-05	4/1/2021	4/1/2022	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 Employee Benefits \$ 1,000,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS			PE-4634607-05	4/1/2021	4/1/2022	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 0			PE-4634607-05	4/1/2021	4/1/2022	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	AGC 4065488	9/1/2021	9/1/2022	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
 Coverages are subject to Terms, Conditions and Exclusions on the policies.

CERTIFICATE HOLDER**CANCELLATION**

For Specimen Purposes Only For Specimen Purposes Only	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Mark Grossbard/CO 
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