Grant Information

Title of Project
Integrated Coastal Green Infrastructure to Enhance Bayside Resilience in the Town of Dewey Beach, Delaware

Total Amount Requested	$ 81,797.32
Matching Contributions Proposed	$81,897.66
Proposed Grant Period	03/15/ 2021 - 04/30/ 2022

Project Description
The proposed effort will complete final design and permitting for Phase 2 implementation of green infrastructure practices to mitigate flooding, shoreline erosion, and wetland loss at a prioritized location on Rehoboth Bay in the vulnerable coastal Town of Dewey Beach. This will be achieved through an innovative integration of nature-based living/hybrid shoreline designs and tidal marsh enhancement with green stormwater infrastructure.

Project Abstract
Proposed work will complete final design plans and permit applications for projects to mitigate flooding, shoreline erosion, and wetland loss on publicly-owned bayfront property in Dewey Beach, DE. This part of the Town is increasingly challenged by frequent flooding and loss/degradation of shoreline, wetlands, other natural habitat, and infrastructure. This site is a high priority identified by multiple collaborative planning efforts. Designs will be based upon integration of green infrastructure shoreline and stormwater management practices. These include living/hybrid shoreline tactics, improvements in wetland hydrology, invasives control, pavement removal and permeable parking areas, roadway elevation, and outfall retrofits. The approach was piloted in Dewey Beach last year with implementation of a smaller Phase 1 project on public land just to the south. The project will be led by the Center for the Inland Bays and the Town, in partnership with RK&K, Sovereign Consulting Inc., and DelDOT. Other governmental and community stakeholders will be included in design meetings and outreach activities. Upon completion of design and permitting, funds will be sought by the Town from grants and/or loans for implementation. Outcomes include 850 LF of shoreline stabilized, 1.5 ac of wetlands restored, reduced flooding, improved water quality in Rehoboth Bay, enhanced resilience against storms and sea-level rise, and enhanced habitat for fish, shellfish, and other wildlife.

Organization and Primary Contact Information

Organization	Delaware Center for the Inland Bays
Organization Type	Non-profit Corporation 501(c)(3)
City, State, Country	Rehoboth Beach,Delaware,North America - United States
Region (if international)	
Primary Contact	Dr. Marianne Walch
Position/Title	
Phone and E-mail	x ; science@inlandbays.org

Additional Contacts

Role	Name

Project Location Information

Project Location Description	The Town of Dewey Beach is located in southern Delaware on a narrow barrier strip between the Atlantic Ocean and Rehoboth Bay. The proposed project site encompasses the town's Sunset Park and adjacent shoreline, wetlands, and roadways. (Coordinates 38.693085, -75.078776)
Project Country(ies)	North America - United States
Project State(s)	Delaware
Project Congressional District(s)	District 1 (DE)

Permits and Approvals

Permits/Approvals Description:

Permits/Approvals Status:

Permits/Approvals Agency-Contact Person:

Permits/Approvals Submittal-Approval Date:

Activities and Outcomes

Funding Strategy: Planning, Research, Monitoring
Metric: Resilience - Community benefits projected - # properties with enhanced protection
Required: Recommended
Description: Enter the number of commercial or residential properties within the radius of enhanced protection.

Starting Value	0.00 # properties with enhanced protection
Target value	35.00 # properties with enhanced protection

Note:

Funding Strategy: Capacity, Outreach, Incentives
Metric: Resilience - Outreach/ Education/ Technical Assistance - # govt entities participating
Required: Recommended
Description: Enter the number of municipalities, local, state, and federal government entities participating in the project and add the names of these institutions in the notes.

Starting Value	2.00 # gov't entities participating
Target value	8.00 # gov't entities participating

Note:

Funding Strategy: Planning, Research, Monitoring
Metric: Resilience - Restoration planning/design/permitting - # E&D plans developed
Required: Recommended
Description: Enter the number of Engineering and Design plans developed. Generally there will be one plan per project to be constructed.

Starting Value	0.00 # E&D plans developed
Target value	1.00 # E&D plans developed

Note:

I. PERSONNEL $0.00

Staff Name	Position	Annual Salary	Project Hours	Hourly Rate	LOE (%)	Project Salary	% Fringe	$ Fringe	Total Personnel
Totals						**$0.00**		**$0.00**	**$0.00**

II. TRAVEL $0.00

Domestic Airfare – Per Flight

Purpose/Destination	Unit Cost	Quantity	Total Cost
SubTotal			**$0.00**

International Airfare – Per Flight

Purpose/Destination	Unit Cost	Quantity	Total Cost
SubTotal			**$0.00**

Train – Per Ticket

Purpose/Destination	Unit Cost	Quantity	Total Cost
SubTotal			**$0.00**

Rental Car – Per Day

Purpose/Destination	Days/Duration	Unit Cost	Quantity	Total Cost

SubTotal **$0.00**

Taxis – Per Trip

Purpose/Destination	Unit Cost	Quantity	Total Cost

SubTotal **$0.00**

Mileage – Per Mile

Purpose/Destination	Unit Cost	Quantity	Total Cost

SubTotal **$0.00**

Gasoline – Per Gallon

Purpose/Destination	Unit Cost	Quantity	Total Cost

SubTotal **$0.00**

Per Diem (M&IE) – Per Day

Purpose/Destination	Days/Duration	Unit Cost	Quantity	Total Cost

SubTotal **$0.00**

Lodging – Per Night

Purpose/Destination	Days/Duration	Unit Cost	Quantity	Total Cost

SubTotal **$0.00**

Meals (no M&IE) – Per Meal

Purpose/Destination	Days/Duration	Unit Cost	Quantity	Total Cost

SubTotal **$0.00**

III. EQUIPMENT **$0.00**

Item Name	Description	Unit Cost	Quantity	Total Cost

IV. MATERIALS & SUPPLIES **$500.00**

Type	Purpose	Unit of Measure	Unit Cost	Quantity	Total Cost
Foam core posters	Displays used for public meetings	Each	$50.00	6	$300.00
Project Fact Sheets	Printed outreach materials for public meetings	each	$1.00	150	$150.00
Misc. workshop supplies	Supplies for design charrette	Set	$50.00	1	$50.00

V. CONTRACTUAL SERVICES **$80,297.32**

Subcontract/Contract – Per Agreement

Contractor Name	Description	Total Cost

RK&K Engineering	Engineering and Design Services	$40,802.77
Sovereign Consulting Inc.	Wetland and Living Shoreline Design Services	$39,494.55

SubTotal **$80,297.32**

Subgrant – Per Agreement

Subrecipient	Description	Total Cost

SubTotal **$0.00**

VI. OTHER DIRECT COSTS **$1,000.00**

Type	Purpose	Unit of Measure	Unit Cost	Quantity	Total Cost
Permit Application Fees	State and federal subaqueous lands permits	Each	$1,000.00	1	$1,000.00

VII. TOTAL DIRECT COSTS **$81,797.32**

VIII. INDIRECT COSTS **$0.00**

Explanation of Modified Total Direct Cost Base(MTDC)	Rate Type	NICRA Expiration	$MTDC	Rate(%)	Total Cost

IX. TOTAL PROJECT COSTS **$81,797.32**

Budget Narrative

Budget Narrative: Funds requested from NCRF will be used to cover the majority of contractual costs for engineering, design, and permitting. The rest of the contractual costs will be paid through the Town of Dewey Beach $50,000 cash match. The Town's cash match also will cover the majority of labor costs for staff of the Center for the Inland Bays, who will provide project management, partner coordination, and outreach. Notes within the budget line items explain what is covered within each category for the grant request. Notes within the matching funds section explain what each match will be applied to.

1. Personnel

Personnel - CIB personnel salaries and benefits will be charged to the Town's cash match.

2. Travel

Domestic Airfare - Per Flight -
International Airfare - Per Flight -
Train - Per Ticket -
Rental Car - Per Day -
Taxis - Per Trip -
Mileage - Per Mile -
Gasoline - Per Gallon -
Per Diem (M&IE) - Per Day -
Lodging - Per Night -
Meals (No M&IE) - Per Meal -

3. Equipment

Equipment -

4. Materials and Supplies

Materials and Supplies -	Printing of 24 in x 36 in display posters and misc. supplies needed for design charrette workshop at project start. Display posters and 2-sided color project fact sheets needed for public meeting/open house at project completion. Some materials may be printed in-house at CIB. Costs for printing are based on quote from local printer.

5. Contractual Services

Subcontract/Contract - Per Agreement -	The grant request will primarily cover contractual costs to RK&K and Sovereign Consulting Inc. for design and permitting services. CIB labor costs and other expenses for project management, community engagement, and outreach are covered by matching funds and not included in this budget. RK&K's fee will cover: land surveys; planning meetings; design of stormwater, roadway, and other civil components; community stakeholder design meetings; stormwater and local permitting; attending all permitting meetings; prepartion of plans and drawings. Sovereign's fee will cover: bathymetric surveys; planning meetings; design of living shorelines, marsh, dune, beach and other nature-based features; community stakeholder design meetings; wetlands and subaqueous lands permitting; attending all permitting meetings; prepartion of plans and drawings.

Subgrant - Per Agreement -

6. Other Direct Costs

Other Direct Costs -	Estimated total fees for: jurisdictional detemination; subaqueous lands permit applications to Delaware Wetalnds and Subaquesous Lands Section and to USACE; lease fee agreements. Other fees may apply depeding upon which Nationwide Permits are used, but we won't know for sure until the design phase and meetings with permitting agencies. Total estimate is $1,000 for all.

7. Indirect Costs

Indirect Costs -

Matching Contributions

Matching Contribution Amount:	$50,000.00
Type:	Cash
Status:	Pledged
Source:	Town of Dewey Beach
Source Type:	Non-Federal
Description:	Funds will cover: CIB staff salaries and local travel for project management, partner coordination, and outreach ($13,800); a portion of contractual expenses for design and permitting consultants ($31,580); and $100 refreshments for public workshops

Matching Contribution Amount:	$10,000.00
Type:	Cash
Status:	Pledged
Source:	Community Transportation Fund - Senator Lopez
Source Type:	Non-Federal
Description:	Discretionary state transportation funds controlled by Senator Ernesto Lopez, for project engineering work within roadways and right-of-ways.

Matching Contribution Amount:	$10,000.00
Type:	Cash
Status:	Pledged
Source:	Community Transportation Fund - SRep. Schwartzkopf
Source Type:	Non-Federal
Description:	Discretionary state transportation funds controlled by Representative Peter Schwartzkopf, for project engineering work within roadways and right-of-ways.

Matching Contribution Amount:	$5,000.00
Type:	In-kind
Status:	Pledged

Source:	Town of Dewey Beach
Source Type:	Non-Federal
Description:	Town manager labor costs for assistance with design and coordination of other partners, meetings with residents and businesses. Legal fees for agreements required for project. Other town expenses incurred related to the project.

Matching Contribution Amount:	$1,271.50
Type:	In-kind
Status:	Pledged
Source:	Volunteer labor
Source Type:	Non-Federal
Description:	Value of intended volunteer labor. Includes: assistance with collection of photographs & other site data/records; participation of unpaid town council members and infrastructure committee members in project meetings. Estimate 50 hr@$25.53.

Matching Contribution Amount:	$3,000.00
Type:	In-kind
Status:	Pledged
Source:	Delaware Department of Transportation
Source Type:	Non-Federal
Description:	Estimated value of staff time and resources needed to participate in design and stakeholder meetings and to provide plans and data required for design elements in state right-of-way.

Matching Contribution Amount:	$2,626.16
Type:	Cash
Status:	Pledged
Source:	Center for the Inland Bays Operating Funds
Source Type:	Non-Federal

Description:	Source is FY21/22 operating grant funds from DE Dept. of Natural Resources and Environmental Control. Funds will cover a portion of salaries/benefits for CIB outreach staff for work on the project and indirect costs.

Total Amount of Matching Contributions:	$81,897.66

EasyGrantsID: 69331

National Fish and Wildlife Foundation – National Coastal Resilience Fund 2020, Full Proposal

Title: Integrated Coastal Green Infrastructure to Enhance Bayside Resilience in the Town of Dewey Beach, Delaware

Organization: Delaware Center for the Inland Bays

The following pages contain the uploaded documents, in the order shown below, as provided by the applicant:

Upload Type	File Name	Uploaded By	Uploaded Date
NCRF Full Proposal Narrative 2020	NCRF Full Proposal Narrative.pdf	Walch, Marianne	06/25/2020
Project Map	Map Exhibit 1 - Project Location in Basin.pdf	Walch, Marianne	06/25/2020
Project Map	Map Exhibit 2 - Dewey Beach Bayfront with Phasing Plan.pdf	Walch, Marianne	06/25/2020
Project Map	Map Exhibit 3 - Issues Addressed by Proposed Project.pdf	Walch, Marianne	06/25/2020
Letters of Support	NCRF Letters of Support-combined.pdf	Walch, Marianne	06/25/2020
Conceptual Plans	NCRF20 Dewey Bayfront Conceptual Design.pdf	Walch, Marianne	06/25/2020
Photos - Jpeg	Photo 1_Aerial view Dewey Beach..JPG	Walch, Marianne	06/25/2020
Photos - Jpeg	Photo 2_Project Area Drone Image.JPG	Walch, Marianne	06/25/2020
Photos - Jpeg	Photo 3_shoreline erosion Sunset Pk.JPG	Walch, Marianne	06/25/2020
Statement of Litigation	CIB-Statement+of+Litigation.pdf	Walch, Marianne	06/24/2020
Board of Trustees, Directors, or equivalent	CIB-Organization_Board_Bylaws.pdf	Walch, Marianne	06/24/2020
Other Documents	CIB-Supplemental Photographs.pdf	Walch, Marianne	06/25/2020

The following uploads do not have the same headers and footers as the previous sections of this document in order to preserve the integrity of the actual files uploaded.

Full Proposal Project Narrative

Priority Addressed: Project Final Design and Permitting

1. **Coastal Community Context**:

This project will complete final design and permitting for Phase 2 of a planned effort to mitigate flooding, shoreline erosion, and wetland loss along the Bayfront in a highly vulnerable coastal town within the Delaware Inland Bays watershed. Delaware's three Inland Bays are recognized by Congress as an Estuary of National Significance and are a major economic and natural resource for Sussex County and the State of Delaware (Map Exhibit 1).

The Town of Dewey Beach, located on a narrow barrier strip between the Atlantic Ocean and Rehoboth Bay, is a small but vibrant coastal community. While home to fewer than 400 year-round residents, the town is a beach and vacation destination for over 1.2 million visitors annually. Coastal Highway (State Route 1) – the access and evacuation route for most of the Delaware Coastal Corridor – runs through the town (Photo 1; Supplemental Photos, Figure 1.) Since its incorporation in 1981, Dewey Beach has experienced intense development to accommodate the seasonal influx of visitors. Development has brought a large increase in impervious surface, which has soared to an average of 58% within town boundaries. Several drainage areas within the town exceed 80% impervious cover.

The intense development, paired with the town's low-lying geography, makes management of stormwater runoff and storm surge a challenge, especially when combined with the complicating effects of sea level rise (SLR). The large area of impervious cover in the town generates a tremendous amount of runoff during storm events that directly enters Rehoboth Bay via streets and through storm drains. Much of the stormwater conveyance system is half a century old, in disrepair, and undersized. Surcharging of bay waters into stormwater pipes is common during very high tides and storms, contributing to frequent prolonged flooding of town streets. Homes, businesses, and infrastructure in the town are increasingly threatened by flooding and shoreline erosion on the bay side of town (Supplemental Photos, Figures 2 & 3). In addition, untreated runoff delivers significant loads of nutrients, sediment, and macropollutants to the Bay. Both flooding and pollution are exacerbated by more frequent storm events and SLR. Eroding sediments and loss/degradation of fringing tidal marshes further contribute to loads of excess nutrients entering Rehoboth Bay and degrade aquatic and wetland habitat. Baygrasses have completely disappeared here, intertidal shellfish populations have declined, and little sandy beach remains for nesting of diamondback terrapins and horseshoe crabs.

Previous Efforts: Multiple collaborative planning efforts have identified the Dewey Beach Bayfront, and the proposed project site in particular, as high priority for achieving the town's goals of reducing flooding from storms and high tides, stabilizing eroding shorelines, and protecting infrastructure, while also preserving/restoring wetlands and other natural resources and improving water quality in Rehoboth Bay. The town developed a Phase I Stormwater Master Plan for Nutrient Reduction in 2013. This plan provided an inventory of the stormwater infrastructure, but a second phase of planning was necessary to develop a community-driven implementation plan. In 2016, the town partnered with the Center for Inland Bays (CIB) to develop a Phase II Stormwater Master Plan, which was funded through a state Surface Water Matching Planning Grant. The Phase II plan integrates innovative stormwater BMPs and living shoreline techniques to help attenuate energy, and sediment and nutrient loads, associated with flooding from the Bay. It provides specific recommendations for green infrastructure to protect shorelines, decrease stormwater runoff, increase stormwater storage, increase flow capacities and, therefore, decrease downstream flooding. The recommended runoff reduction practices and living shoreline tactics will also work toward improving water quality.

The Phase II plan identifies a prioritized list of BMPs opportunities - including bioretention facilities, permeable pavement and pavers, pavement removal options, and living shorelines – with general concept designs and cost estimates. Many of the highest priority BMPs fall within the drainage areas to outfalls at Read Ave. and Dagsworthy St., which are part of the proposed project area. These are the largest drainage areas in the town (28 acres and 20 acres, respectively) and experience some of the worst chronic and acute flooding. A Living Shoreline Siting and Concept Plan developed by the Center for the Inland Bays in 2016 identified the shoreline at Sunset Park on Dagsworthy St. as a priority site for a living shoreline demonstration project. The Dewey Beach 2018 Comprehensive Plan also includes the proposed project as a high priority.

The Delaware Department of Transportation (DelDOT) also has a vested interest in improving both drainage and water quality along Coastal Hwy through Dewey Beach and has partnered with CIB and the town in coastal resiliency planning. In 2018, with assistance from consultants at RK&K and Sovereign Consulting Inc. (partners on this proposed effort), DelDOT completed a pilot project for the Federal Highway Administration (FHWA) to assess the potential for green infrastructure techniques to protect sections of Coastal Hwy from the impacts of storm surges and climate change. It was one of five projects FHWA sponsored to examine use of nature-based tactics, or 'Green Coastal Infrastructure' (GCI), to protect coastal roads and bridges. Coastal Hwy is already being affected by SLR, with impacts expected to grow and accelerate in the future, and the several miles of roadway that extend south from Dewey Beach to the Indian River Inlet are the most vulnerable (Supplemental Photos, Figure 3B). DelDOT's final project report included modeling to determine coastal flooding impacts, wave energy potential, and natural buffer protection for various storm events. It also included a review of stormwater management needs and opportunities, and of six sites examined, Read Ave. in Dewey Beach received the highest vulnerability index score. This site was selected by DelDOT for conceptual design development, which was completed through the FHWA grant.

The town's focus has now turned to implementing the recommendations of the Stormwater Master Plan. CIB recently partnered with the town and DelDOT to construct two projects in the Read Ave. drainage area (designated as Phase 1 on Map Exhibit 2). Both were completed this year. The first, a living shoreline and outfall retrofit at the bayside end of Read Ave., built upon the concept design developed during the DelDOT project. It included a stone and oyster shell sill with restored tidal marsh, an offshore oyster shell reef, a low dune reinforced with Hesco™ flood barriers, a kayak launch, and three new outfall pipes with tide gates (Supplemental Photos, Figures 6B&C). The second project was a bioretention facility at the intersection of Read Ave. and Coastal Hwy. This project also included an infiltration trench for additional storage and pervious concrete (Supplemental Photos, Figure 6A). CIB, the town, and DelDOT continue to discuss ways to integrate additional best management practices into future planning and funding programs.

Proposed Effort: The town's highest priority now is to design, permit, and construct resilience and habitat improvement projects for the Bayfront from Sunset Park to McKinley St. (designated as Phase 2 on Map Exhibit 2). This Phase 2 effort is the focus of the proposed NCRF project. The proposed project site encompasses approximately 850 feet of shoreline beginning at the northeast boundary of the park (next to the Bay Resort Hotel) and extending south beyond Dagsworthy St. and the point at North Beach restaurant to a one-acre tidal marsh owned by the Dewey Beach Lions Club (Photo 2). Also included in the project area are several blocks of roadways and extensive parking, their associated drainage systems, and Sunset Park itself. Approximately 30 residential properties, five businesses, and the Dewey Beach Lions Club facilities lie within the project planning area.

Review of historical aerial photography shows that Sunset Park and the adjacent marsh habitat south of the park have experienced severe erosion due to wind and wave activity and inadequate stormwater infrastructure. Since 2005, the average horizontal landward movement of the mean low water line has been approximately two feet per year, with concomitant loss of wetland vegetation and sediment to the Bay (Map Exhibit 3). Large amounts of sediment scoured from the shoreline by wave energy have produced sand bars in the cove. Since 2005, an average of one foot per year of the macadam on Dagsworthy St. has disappeared underwater (Supplemental Photos, Figures 4 & 5). Chronic flooding of the street deposits sediment on the roadway and washes trash and other pollutants into the Bay. Invasive vegetation has overtaken portions of Sunset Park. This area of the town's Bayfront has a southwest fetch of approximately three and a half miles and a south-southwest fetch approaching five miles. Although the site is sheltered from much of the winter storm energy out of the north-northeast-east energy corridor, the long fetch, slightly deeper water, and the low shoreline elevations (1.0 to 3.0 NAVD88) make this site particularly vulnerable to storm energy, sea level rise, and frequent flooding.

The Town of Dewey Beach is committed to maintaining momentum on implementation of green infrastructure projects that address flooding, stabilize disappearing shorelines and wetlands, reduce runoff, and improve water quality. Its economy, its quality of life, and, indeed, its long-term survival depend upon it.

2. **Activities:**

Project Goal – The goal of the proposed effort is to develop final design plans and permit applications for multiple shoreline and stormwater practices along the Dewey Beach Bayfront between Bayard St. and McKinley St., including Sunset Park (owned by the town) and properties owned by the Dewey Beach Lions Club. This project is a continuation of work that began with multiple planning efforts and a first phase of implementation projects in the Read Ave. drainage area to the south (Map Exhibit 2; Supplemental Photos, Figure 6). A conceptual design has already been prepared through collaborative efforts (see uploaded design). We will use an innovative integration of GCI – i.e., nature-based living and hybrid shoreline designs – with Green Stormwater Infrastructure (GSI). This

approach to coastal protection, integrating shoreline and stormwater practices within sites, provides enhanced environmental and ecosystem service value as well as long-term protection against flooding and erosion in the face of SLR.

Short- and Long-term Outcomes -- Outcomes are described in more detail in the next section of this narrative. Briefly, the major outcomes of this project include:

Short-Term Outcomes/Deliverables:

- Final design plans for the project area, to include living and hybrid shoreline tactics, stormwater best management practices, wetland restoration, and recreational amenities.
- Wetlands and subaqueous permit applications developed and submitted.
- Community engagement through planning and stakeholder meetings.
- Public education and outreach about the project.

Long-term Outcomes:

- Reduced flooding and shoreline erosion along the town Bayfront.
- Protection of infrastructure and commercial/residential properties through resilience to storms and SLR.
- Reduced pollutant loads to Rehoboth Bay.
- Preservation and restoration of habitat for fish, crabs, shellfish and other wildlife.
- Enhanced aesthetics and recreational opportunities for town residents and visitors.

Project Activities and Milestones -- The following activities will occur to implement the proposed effort. The expected timeline for project completion is approximately 12 months, assuming a March 2021 start date.

1. Develop partner agreements and consultant task orders. [March 2021]
2. Hold project kickoff meeting with key project partners (CIB, Town Manager and Mayor, design consultants, DelDOT) to review design concepts and needs, project budget and timeline, and partner roles and responsibilities. [March 2021]
3. Issue a press release to announce the grant award and project goals. [March 2021]
4. Organize and hold a design charrette workshop to gather input and information on planning and design needs, possible design approaches, and challenges and constraints. The charrette will engage all project partners and stakeholders. Permitting agencies will also be invited to join this meeting, which will be facilitated by CIB staff and/or consultants. [April 2021]
5. Conduct surveys and collect additional site data needed. Perform wetland delineations. [April-May 2021]
6. Hold onsite meetings with permitting agencies (DNREC Wetlands & Subaqueous Lands Section & USACE) to review conceptual plans and gather input needed to complete final designs. [June 2021]
7. Complete semi-final (60%) design plans. Hold meeting(s) with partners and key stakeholders, including permitting agencies, to review the proposed design. [September 2021]
8. Complete 90% design and develop permit applications. Submit both to permitting agencies and partners for review. [November 2021]
9. Complete final sealed project plans and develop materials lists and cost estimates. [January 2021]
10. Develop a public-facing, two-page project fact sheet for printing and posting to websites. [January 2021]
11. Organize and hold a community outreach meeting at the Dewey Beach Lions Club to present the final design and project accomplishments. Issue a press release to announce the meeting and project completion. [March 2021]
12. Conduct ongoing outreach throughout the project period, to include social media and CIB publications. Project presentations will be delivered to the Dewey Beach Town Council, the Resilient and Sustainable Communities League, the Association of Coastal Towns (ACT), and the Sussex County Association of Towns (SCAT). [March to July 2021]
13. Complete and submit required project reports to the National Fish & Wildlife Foundation.
14. Hold ongoing meetings with partners and stakeholders to develop a funding strategy for implementation of the designed projects. Funds for implementation will immediately be sought through grants and/or State Revolving Fund loans. Potential grant sources that will be pursued include Delaware Community Water Quality Improvement Grants, Section 319 grants, NFWF resiliency programs, National Estuary Program competitive grants, DelDOT programs, and the Delaware Emergency Management Agency.

3. **Outcome(s):**

Project Deliverables and Short-Term Outcomes:

- Final, sealed engineering plans, which will include: (1) living/hybrid shoreline stabilization from Sunset park to the Lions Club marsh at McKinley Street; (2) roadway and stormwater infrastructure upgrades on Dagsworthy St., McKinley St. and Hayden Rd.; (3) improved drainage and restoration of the tidal marsh at McKinley St; and (4) recreational amenities to include a small boat launch, and pedestrian/nature trails.
- Submission of wetlands and subaqueous permits to the Delaware WSLS and the USACE, to ensure the projects are ready for implementation as soon as funding for construction is secured. We anticipate permitting the designs under USACE's Nationwide Permit program (NWP 54 and/or 27). One challenge will be to show the USACE minimization and avoidance associated with any pedestrian trails placed over or through wetlands. We will work with permitting agencies and the town to determine the best feasible approach for trails. It is also possible, though unlikely, that design elements will trigger need for Coastal Zone Consistency Certification and/or 401 Water Quality Certification.
- Multiple governmental and community stakeholders engaged through a design charrette, and interim design review meetings.
- Education and outreach about the project, the Inland Bays, and the benefits of living shorelines and green infrastructure provided to the general public, including town residents, and to governmental officials and local decision makers. This will be achieved through a public meeting/open house at the end of the project, presentations to community stakeholder groups, presentations at scientific and technical workshops, two press releases, social media and website posts, an article in CIB's *Inland Bays Journal*, and a two-page project fact sheet.

Project Benefits and Long-Term Outcomes (post-construction):

- Coastal Resilience:
  - Stabilization of ~800 linear feet of severely eroded shoreline.
  - Enhanced protection against waves, extreme storms, and sea-level rise for bayside homes, roadways, and businesses.
  - Upgrade of aging and undersized stormwater infrastructure, resulting in reduced flooding in two of the largest drainage areas in the town.
  - Runoff volume reduction from green infrastructure practices and removal/offsets of impervious cover.
- Environmental Benefits:
  - Reduced nonpoint source loads of nutrients, sediment, and other pollutants to Rehoboth Bay.
  - Restoration/preservation and improved functioning of a total of ~1.5 acres of tidal wetlands.
  - New and/or enhanced subtidal, intertidal, and wetland habitat for baygrasses, fish, shellfish, crabs, horseshoe crabs, diamondback terrapins, birds, and other wildlife.
  - Reduced litter, including macro- and microplastics, entering Rehoboth Bay.
- Community Outcomes (ecosystem services uplift):
  - Improved shoreline safety, aesthetics, and public access.
  - A safe and aesthetically pleasing public park on the bay side of the town.
  - Increased property values.
  - Economic benefits and stability for waterfront businesses in Dewey Beach.
  - New and/or enhanced recreational opportunities for town residents and visitors, including a stabilized launch area for small sailboats and kayaks, and pedestrian walkways and nature trails connecting the public areas and businesses along the Bayfront.
  - Increased public knowledge about and appreciation for the natural resources of the Inland Bays.

Alignment with Established Plans:

The proposed project site and concept has been identified as high-priority through multiple planning efforts led by the town and its partners in recent years. This prioritization derives from the high vulnerability of the town's bayside shoreline and properties to erosion from wave energy and inadequate stormwater infrastructure, as well the project's potential to demonstrate a nature-based solution in a highly visible location for urban shoreline stabilization that can be replicated in other coastal urban settings.

Locally, the proposed work directly aligns with the Stormwater section of the *2017 Town of Dewey Beach Comprehensive Plan*. The Comprehensive Plan: 1) identifies the need to address inadequate stormwater-management infrastructure and flood controls; 2) encourages the use of "green" practices and materials in local construction and development projects; and 3) calls for partnership with federal agencies, the state of Delaware, and other local governments to reduce pollution of the Inland Bays and the hazards of flooding. It specifically identifies Sunset Park as a priority restoration site for flood mitigation, improved fish and wildlife habitat, and increased tourism by improving bayside amenities. The town and CIB also developed a *Phase II Stormwater Master Plan* to reduce stormwater runoff and flooding within town limits through green infrastructure best management practices (BMPs) that will also improve water quality and ecological resilience. Sunset Park and the Dagsworthy St. drainage area were identified as priority locations for BMPs.

On the County level, the proposed work aligns with the Resource Protection Strategies of the Conservation Element of the *2018 Sussex County Comprehensive Land Use Plan*. The plan promotes environmentally-friendly green architecture, green site design, and green stormwater management techniques.

On a watershed level, the proposed project also addresses objectives and actions of the *Inland Bays Comprehensive Conservation and Management Plan* (CCMP), including Stormwater Management Objective 1 ("Reduce nutrient contributions from stormwater to help achieve TMDLs") and Managing Living Resources and their Habitats Objective 2, Action H4 ("Demonstrate innovative living shoreline stabilization techniques utilizing bay grasses, shellfish, and other nature-based materials").

Sunset Park in Dewey Beach received one of the highest ranking scores in the CIB's 2016 *Inland Bays Living Shoreline Siting and Concept Design Plan*, a prioritization effort to identify living shoreline demonstration project locations and inform an implementation strategy.

The town currently is coordinating with DelDOT, CIB, and other coastal partners to implement coastal green infrastructure techniques to reduce flooding along the Coastal Hwy emergency evacuation route. Through this partnership, two projects were completed this year in the Read Ave. drainage area. The town, CIB, and representatives of DelDOT's Planning and Engineering Divisions meet quarterly to discuss strategies for incorporating Dewey Beach projects into future planning and funding programs such as the state's Capital Transportation Program and Transportation Alternatives Program. DelDOT also completed an FHWA-sponsored project in 2018 to assess the potential for green infrastructure techniques to protect the coastal corridor from pacts of storms and SLR. The final project report ranked the Dewey Beach Bayfront at Read Ave. as the most vulnerable of the sites modeled. As a result, DelDOT has continued to provide funds and other resources to implement resiliency projects in the town.

4. **Tracking Metrics:**

Project Activity	**Metric**	**Target/Description**
A. Engineering and Design Plans Developed	Planning, Research, Monitoring – Restoration planning/design/permitting - # E&D plans developed	One sealed master design plan for project area developed to construction ready (90-100%).
B. Project Permitting	Planning, Research, Monitoring – Restoration Planning/Design/Permitting - # permit applications developed	Two permit applications developed.
C. Government Agency Participation and Engagement	Capacity, Outreach, Incentives – Outreach, Education/Technical Assistance - # of governmental entities participating	Eight governmental entities will participate in various aspects of the project. (See Note C below)
D. Community Benefits	Planning, Research, Monitoring – Community Benefits projected - # of properties with enhanced protection	36 properties within the radius of enhanced resilience: Commercial: 4 Residential: ~30 Community Organizations: 1

Notes on Tracking Metrics:

A. One master final plan set is anticipated, to include all of the practices designed within the project area. 11-12 copies of the sealed plan set will be needed.

B. The project will result in one master design. One permit application for the State and Federal permitting agencies will be submitted. The anticipated application package to the State will be for a DNREC Wetlands and a Subaqueous Lands permit and lease. The federal permit submittal will request permitting through the Nationwide Permit Program (likely NWP 54 and/or 27).

C. List of governmental entity participants and their primary roles:
   - *Town of Dewey Beach*: property owner, partial funder, planning and design review, coordination of business and resident stakeholders
   - *Delaware Department of Transportation:* Planning, stakeholder meetings, design review
   - *Delaware Department of Natural Resources and Environmental Control (DNREC), Division of Watershed Stewardship:* Permitting, stakeholder meetings, design review
   - *U.S. Army Corps of Engineers:* Permitting
   - *Sussex Conservation District:* Delegated agency for stormwater and E&S review
   - *DNREC Division of Climate, Coastal, and Energy:* Stakeholder meetings
   - *Delaware General Assembly:* Partial funding through the state's Community Transportation Fund
   - *Delaware Resilient and Sustainable Communities League (RASCL):* Planning and stakeholder meetings. RASCL is a collaborative network of resilience and sustainability practitioners from state agencies, academic institutions, and nonprofits working together to support communities across the State of Delaware.

D. Properties that should experience enhanced protection once the designed practices are installed.

Commercial Properties (4): Bay Resort Hotel, Delmarva Board Sports Waterfront Concession, Ivy Restaurant, North Beach Restaurant

Residential Properties (30): Approximately 30 residential buildings or units (houses or condos) are located within the general project area and likely will be directly impacted by the increased resiliency afforded by the project designs developed, once they are implemented.

Community Organization Properties (1): Dewey Beach Lions Club

5. **Project Team:**

The proposed project will implement a key component of a multi-year collaborative planning effort to enhance resiliency in the Town of Dewey Beach, protect key infrastructure, and restore and preserve natural resources. The partners and stakeholders that developed these plans will also be engaged in the proposed design and permitting effort for Phase 2 implementation. The project team includes:

Delaware Center for the Inland Bays

The Delaware Center for the Inland Bays (CIB), one of 28 National Estuary Programs, is a nonprofit organization. Established in 1994, the Center promotes the wise use and enhancement of the Inland Bays watershed by conducting public outreach and education, developing and implementing restoration projects, encouraging scientific inquiry, sponsoring needed research, and establishing a long-term process for the protection and preservation of the Inland Bays watershed. CIB oversees the implementation of the Comprehensive Conservation and Management Plan for Delaware's Inland Bays (CCMP). CIB has 25 years of experience administering and implementing federal and state grant awards on research, planning, and water quality restoration projects. This includes a five-year partnership with the Town of Dewey Beach to develop a Living Shoreline Siting Plan and a Stormwater Green Infrastructure Master Plan. CIB also secured funding for and managed the design and construction of two projects in the town from these plans. CIB will provide overall project management and partner coordination for the proposed effort.

Dr. Marianne Walch and Robert Collins will serve as project leads. Dr. Walch is CIB's Science & Restoration Coordinator, leading CIB's research, monitoring, and aquatic ecosystem restoration efforts. She earned a B.S. in microbiology from the University of Maryland and a Ph.D. in Environmental Microbiology & Applied Mathematics from Harvard University. Her expertise includes aquatic ecology, water quality monitoring, stormwater pollution, biofouling, and wastewater treatment. Before joining the CIB in 2015, Dr. Walch spent 13 years managing stormwater quality programs for DelDOT. Mr. Collins is CIB's Program Manager. A graduate of the Stockbridge School of Agriculture at the University of Massachusetts, Mr. Collins worked 25 years managing

golf course properties before joining CIB 2012. He now manages the CIB's James Farm Ecological Preserve, oyster gardening and shell recycling programs, and has implemented several living shoreline projects.

Town of Dewey Beach

The Town of Dewey Beach owns the public property that is the focus of this effort and has pledged both cash and in-kind match. The town historically has successfully partnered with CIB, Delaware Department of Transportation, Delaware Department of Natural Resources and Environmental Control, Sussex County, and the Army Corps of Engineers on projects such as beach nourishment, development of stormwater master plans, and implementation of stormwater retrofits and a living shoreline project. Dewey Beach is governed by the elected Mayor and Town Council. The Town Council officially voted at its June 12th meeting to support the project and commit $50,000 cash match to the design and permitting effort. Town Manager Scott Koenig, P.E., and Mayor Dale Cooke will represent the town in planning and design meetings and coordinate with residents and business owners. The town's Infrastructure Committee, led by Mr. James Tyler, a retired engineer, will also review designs. A letter of support from the town is included with this application.

Delaware Dept. of Transportation (DelDOT)

DelDOT led development of a Coastal Green Infrastructure Plan for the Coastal Hwy that included conceptual plans for projects in Dewey Beach. DelDOT has also partnered with CIB over the past ten years to construct a number of stormwater BMPs along the coastal corridor. The Department (represented by Mark Luszcz, Deputy Director of Design), will help integrate the proposed work into the state's plans for improvements along Coastal Hwy. Mr. Luszcz and other DelDOT staff will participate in design planning meetings, review design plans, and provide surveys, plans and other documents and studies required for design. A letter of support from DelDOT Secretary Jennifer Cohan is included with this application.

Rummel, Klepper & Kahler (RK&K)

RK&K will provide survey, design, and permitting services for the project. The firm has previously partnered with CIB, the town, and DelDOT to develop green infrastructure stormwater and living shoreline plans for Delaware's coastal corridor and Town of Dewey Beach, including the conceptual design for the proposed project. CIB has a Master Professional Services Agreement with RK&K for stormwater and restoration design, which will facilitate the contractual process.

Larry Trout, Jr., PE brings exceptional talent in the area of shoreline erosion protection assessment and design. With 25 years of experience, he has unique expertise in the areas of shoreline protection (living shorelines), coastal erosion control, green stormwater infrastructure, stream restoration, hydraulic and hydrologic routing, erosion and sediment control, and flood control design throughout the Northeast. His experience includes coastal shoreline stabilization and stream bank stabilization using both bioengineering and engineering methods, analysis and design of storm drainage and stormwater management, erosion and sediment control, stream channel improvements, channel erosion control measures, wetland and waterway construction permits, watershed hydraulic/hydrologic modeling, environmental reviews; preparation of plans, hydrologic/hydraulic analysis and reports for structures, storm drains, culverts, wetlands creation; drainage and flooding investigations/remedial actions/construction; construction review; wetland permits; and floodplain permits.

Sovereign Consulting Inc.

Sovereign has previously partnered with CIB, RK&K, the town, and DelDOT to develop green infrastructure stormwater and living shoreline plans for Delaware's coastal corridor, the Town of Dewey Beach, and throughout the Inland Bay Region. Sovereign was the lead consultant for CIB's 2016 Inland Bays Living Shoreline Siting and Concept Design Plan, and was a technical lead for the FHWA-sponsored project in 2018 to assess the potential for green infrastructure techniques to protect the coastal corridor from pacts of storms and SLR.

Douglas Janiec is the Natural Resources Program Manager and a Senior Restoration Ecologist with Sovereign Consulting Inc. He has been investigating, assessing, restoring, and monitoring natural resources for more than 30 years. His expertise in living shoreline assessment, design, construction, and monitoring is recognized throughout the Mid-Atlantic Region. Mr. Janiec has worked on a number of high-interest technologies for coastal restoration and resilience involving living shorelines and wave energy attenuation, including his innovation and specialization in 'hybrid living shoreline systems.' He is an active member of the Delaware Living Shoreline Committee, and has worked extensively with National Estuary Programs, local, state, and federal agencies, and in the private sector. He partnered with RK&K to develop the conceptual design for the proposed project and will

lead and manage the Sovereign team for this effort. CIB also has a Master Professional Services Agreement with Sovereign for planning and design of living shorelines and wetland restorations.

Other

The Delaware Resilient and Sustainable Communities League (RASCL) is a collaborative network of state, nonprofit, and academic organizations providing best practices and technical assistance to local communities to help them manage environmental changes, including climate change. RASCL member organizations will participate in stakeholder discussions and be updated on project progress at member meetings. A letter of support from RASCL is included with this application.

The Mid-Atlantic Regional Center of the National Wildlife Federation(NWF) has partnered with CIB and other Delaware organizations on living shoreline initiatives. Staff from NWF's Coastal Resilience Program have toured the Dewey Beach Bayfront, are familiar with its issues, and have agreed to provide technical assistance for the proposed project. A letter of support from NWF is included with this application.

6. **Other (Optional):**

Sunset Park on Dagsworthy St., is a highly visited public park, owned and maintained by the Town of Dewey Beach. The Bay Resort Hotel on the north side of the park and the Dewey Beach Lions Club and restaurant businesses just south of it are vital to the Dewey Beach economy. The park is a popular kayak and sailboat launch. In addition, interpretive signage there provides a passive educational opportunity to connect people with nature, and in summer the park serves as an outdoor classroom for children through an annual field program hosted by the Town of Dewey Beach, the Lions Club, and Envirotech LLC. The project area is of significant ecological value, as it is surrounded by more than 3,200 linear feet of extensive hardened, degraded shorelines to the north and south, and represents the majority of the undeveloped shoreline on the bayside of Dewey Beach.

The town is actively working on coastal resilience with its partners, and has offered significant financial support for projects in recent years as matching funds for grants. Currently visitors and tourists tend to focus their attention and activities on the ocean side beaches. However, town leaders hold a future vision of the Bayfront becoming a more vibrant, safe, and thriving destination for residents and visitors alike – a place for families to kayak and paddleboard, stroll and enjoy nature, or view the evening sunset while dining or picnicking.

7. **Representative Project Photos:**

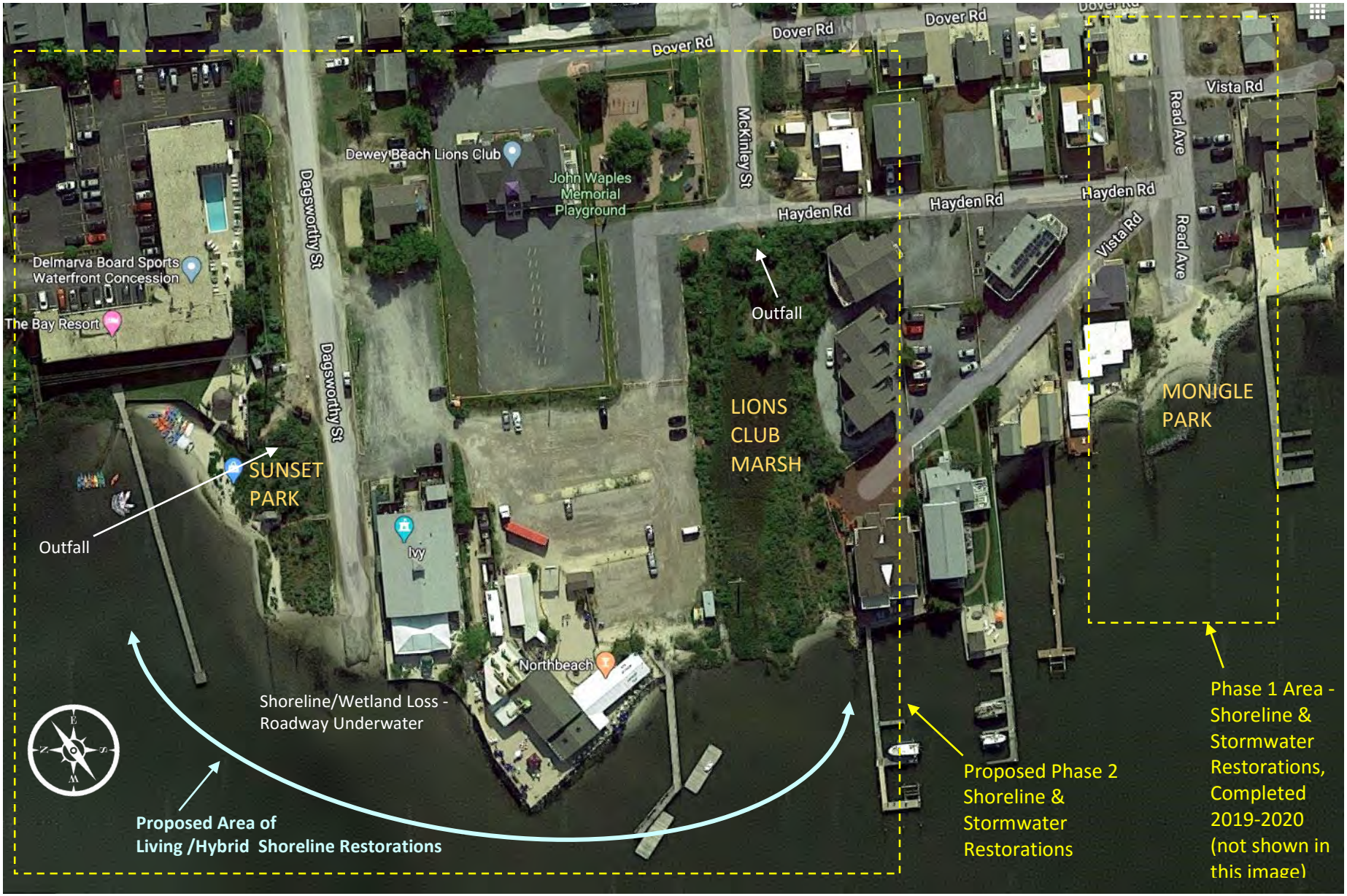
- Photo 1: T.J. Redefer, Dewey Beach. Drone photo of the Town of Dewey Beach, looking south, showing the proposed project area.
- Photo 2: Robert Collins, CIB. Drone image of proposed project area.
- Photo 3: Marianne Walch, CIB. Photo of shoreline erosion at Sunset Park.

8. **Designs, Site Maps and Letters of Support:**

The following documents have been uploaded with this application:

- Conceptual design for project area
- Site maps:
  - *Map Exhibit 1:* Inland Bays basin showing project site location
  - *Map Exhibit 2:* Dewey Beach's bayside shoreline showing proposed project area and phasing for integrated nature-based shoreline management and stormwater retrofits
  - *Map Exhibit 3*: Aerial image showing
- Letters of Support:
  - Town of Dewey Beach, Council and Town Manager
  - Town of Dewey Beach Infrastructure Committee
  - Delaware Department of Transportation
  - Delaware's U.S. Congressional Delegation (Sen. Thomas Carper, Sen. Christopher Coons, Rep. Lisa Blunt Rochester)
  - State Senator Ernesto Lopez and State Representative Peter Schwartzkopf
  - Resilient and Sustainable Communities League
  - The National Wildlife Federation
  - Dewey Beach Lions Club
  - Bluewater Development Corporation (owner, Bay Resort Hotel)

Location of the project site within the Delaware Inland Bays basin. Dewey Beach is located between the City of Rehoboth Beach to the north and the Delaware Seashore State Park to the south.



Map of Dewey Beach's bayside shoreline showing proposed project and phasing for integrated nature-based shoreline management and stormwater retrofits. Note how the end of Dagsworthy St. is underwater, and sediment has accumulated on the roadway from repeated flooding events. Marshes have degraded due to erosion, invasive vegetation, and poor hydrology and are disconnected by development and shoreline hardening. Project will include integrated nature-based shoreline stabilization, wetland restoration/enhancement, and GI stormwater retrofits.

Map showing issues to be addressed by the proposed project. These include: average loss of 2 ft/yr of shoreline and beach since 2005; average loss of roadway macadam of 1ft/yr; chronic flooding of Dagsworthy St.; aging stormwater infrastructure; and invasive vegetation in Sunset Park.

TOWN OF DEWEY BEACH
www.townofdeweybeach.com

105 Rodney Avenue
Dewey Beach, DE 19971
302-227-6363 (Voice or TDD)
302-227-8319 (Fax)

June 19, 2020

Dr. Marianne Walch, Ph.D.
Science & Restoration Coordinator
Delaware Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, Delaware 19971

Dear Dr. Walch:

At their meeting on Friday, June 12, 2020, the Commissioners for the Town of Dewey Beach voted unanimously to authorize the Center for Inland Bays to proceed with the National Coastal Resilience Grant application submission for Sunset Park and the surrounding area. In addition, the Town Commissioners committed to the proposed $50,000 cash match requirement should the grant application be successful. We believe this proposed improvement to the Town of Dewey Beach will significantly improve the overall quality of the environment within the Town.

Best Regards,

Scott D. Koenig, P.E., ICMA-CM
townmanager@townofdeweybeach.com
Town Manager
(302) 227-6363

cc: Mayor & Commissioners

Marianne Walch <science@inlandbays.org>

Integrated Coastal Gren Infrastructure to Enhance Bayside Resilience in the Town of Dewey Beach, Delaware

1 message

James Tyler <jimdeweyinfrastructure@gmail.com> Tue, Jun 23, 2020 at 3:15 PM
To: Marianne Walch <science@inlandbays.org>

The Town has struggled for years to cope with flooding, shoreline erosion and wetland loss. Stormwater runoff and high tides contribute to the flooding events; wave action in the bay causes shoreline erosion and contributes to wetland loss.
Procedures similar to those in the Phase I project will be used in this project to alleviate these problems, thus adding resilience to the Town"s infrastructure and shoreline/wetlands.
The Town of Dewey Beach Infrastructure Committee endorses and supports the project. The Infrastructure Committee members will participate in all planning and stakeholder meetings for the project and review designs and permit applications developed under the grant.

James H. Tyler, P.E., F.ASCE
Chairman , Infrastructure Committee
Town of Dewey Beach, Delaware

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

June 4, 2020

To Whom It May Concern:

I fully support Delaware Center for the Inland Bays' (CIB's) grant application to the 2020 National Coastal Resilience Fund, entitled "Integrated Coastal Green Infrastructure to Enhance Bayside Resilience in the Town of Dewey Beach, Delaware."

As the lowest lying state in the nation, Delaware's coastal communities deal with the impacts of Nor'easters, storm surges and "sunny-day" flooding on a regular basis.

The Delaware Department of Transportation (DelDOT) operates and maintains a 17-mile stretch of State Route 1, a coastal roadway, and the Indian River Inlet Bridge in the CIB project region. This roadway operates as an emergency route and also greatly serves the economic well-being of the state of Delaware. In addition, DelDOT owns and maintains most of the local streets in the Town of Dewey Beach, including all streets in the project area.

In 2018 it was estimated that the tourism industry alone contributed approximately $3.5 billion to Delaware's gross domestic product while employing over 44,000 people and attracting over 9.2 million visitors to the state annually. A large proportion of these visitors are heading to the Delaware Beaches.

DelDOT is committed to researching and implementing projects that address the vulnerability of our transportation infrastructure. We have successfully partnered with CIB and the Town of Dewey Beach on other coastal planning and implementation projects. We are actively working with both agencies on other initiatives included in the Town of Dewey Beach Phase II Stormwater Plan. The proposed living shoreline and stormwater retrofit projects align with DelDOT's strategic plans for this important roadway network and our efforts to make our infrastructure more resilient to the impacts of coastal flooding and storm surges.

The Department commits to providing in-kind match for the proposed effort to include: participation in stakeholder meetings; providing plans, surveys, field consultation, and documents needed to complete the work; review/approval of any plans that are impacting the state right-of-way; and coordination on any interagency agreements or Memorandum of Understanding.

Sincerely,

Jennifer Cohan
Secretary

DelDOT

Congress of the United States

Washington, DC 20510

June 19, 2020

RE: FY 2017 NOAA Coastal Resiliency Grant Program

To Whom It May Concern:

We are writing to urge your support for a grant application submitted to the NFWF National Coastal Resilience Fund by the Delaware Center for Inland Bays. The project is a partnership between the Center the Town of Dewey Beach, Delaware Department of Transportation, and others to increase the resiliency of Dewey Beach, Delaware's eroding bayshore. Being awarded this grant would be a major advancement for the state's coastal resiliency and living shoreline work.

Delaware's Inland Bays, composed of Rehoboth Bay, Indian River Bay and Little Assawoman Bay, serve as the backbone of our state's coastal resort area that stretches north to Cape Henlopen at the mouth of the Delaware Bay and south to the Town of Fenwick Island and the Maryland state line. The shorelines of the Inland Bays are dynamic transition zones between open waters and their adjacent beaches, marshes and uplands. The natural shorelines of the bays serve to buffer erosion for the coastal community, in addition to providing high-value ecosystem services to the residents of Delaware, including maintenance of estuarine water quality, prevention of erosion, removal and storage of excess nutrients, and provision of critical habitat for finfish, shellfish and coastal bird species. However, extensive shoreline development has caused widespread hardening of the shorelines of the Inland Bays with riprap and bulkhead that provides limited habitat for spawning horseshoe crabs, avian species reliant on beaches, and recreationally important juvenile finfish, such as summer flounder and striped bass.

The Town of Dewey Beach is the narrowest portion of developed land on the coastal corridor, and has experienced severe bayside erosion due to wind and wave activity combined with the effects of development, resulting in the chronic loss of intertidal beach and wetlands and increased flooding in the surrounding community. Climate change will continue to exacerbate eroding shorelines and flooding through rising sea levels, and also increase the frequency and severity of storms. Inadequate stormwater infrastructure in Dewey amplifies the risks and impact of flooding. While the majority (58%) of Dewey is covered by impervious surface, there are opportunities to use green infrastructure, including living shorelines, to improve the coastal resilience and reduce flood risk. The proposed project will link together three existing open spaces within town limits through living shorelines and pedestrian connections, address flooding issues, and complete green infrastructure planning for essentially all of the publicly-owned portion of the Dewey bayfront.

We appreciate your time and consideration of this proposal and ask that you contact us once a decision is rendered.

Should you have any questions we can be reached through our respective staff members, Larry Windley in Senator Carper's office at (302) 674-3308, Andrew Dinsmore in Senator Coons' office at (302) 573-6345, and Tyrone Jones in Congresswoman Blunt Rochester's office at (202) 830-2330.

Sincerely,

Thomas R. Carper
United States Senator

Christopher A. Coons
United States Senator

Lisa Blunt Rochester
Member of Congress

DELAWARE GENERAL ASSEMBLY
STATE OF DELAWARE
411 LEGISLATIVE AVENUE
DOVER, DELAWARE 19901

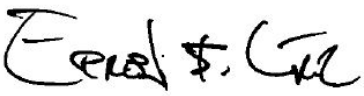
June 22nd, 2020

Mr. Scott Koenig
Town Manager
Town of Dewey Beach
105 Rodney Avenue
Dewey, DE 19971

Mr. Koenig,

As you requested during your grant application process, we will commit $10,000 each in CTF funds to the project: Integrated Coastal Green Infrastructure to Enhance Bayside Resilience in the Town of Dewey Beach, Delaware. We wish you the best of luck in the application process. Should you be in need of further assistance, please do not hesitate to contact us.

Sincerely,



Peter C. Schwartzkopf
Speaker of the House
14th District

Ernesto B. Lopez
Senator
6th District

RASCL
RESILIENT AND SUSTAINABLE COMMUNITIES LEAGUE

June 18, 2020

Dr. Marianne Walch
Science and Restoration Coordinator
Delaware Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

Dear Marianne;

The Delaware Resilient and Sustainable Communities League (RASCL) strongly endorses the Center for the Inland Bays' 2020 proposal for the National Coastal Resilience Fund, titled "Integrated Coastal Green Infrastructure to Enhance Bayside Resilience in the Town of Dewey Beach, DE."

Dewey Beach is a particularly vulnerable community on Delaware's Atlantic Coast. It experiences shoreline erosion, a rate of sea level rise that is roughly twice the global average, and is sandwiched between the Atlantic Ocean and Rehoboth Bay with little elevation or natural buffers to offer protection. This project would complete final design plans and permit applications to implement flood and shoreline mitigation projects using environmental best practices. This work is critically needed to improve community resilience. It is part of an ongoing partnership involving your organization, Dewey Beach, Delaware Department of Transportation and others that is producing on the ground results.

RASCL is a partnership of 18 organizations actively working to build the capacity of local communities to thrive in the face of changing climate and environmental conditions. The Center of the Inland Bays is a valued member of RASCL and we are delighted to support this project by offering technical expertise and stakeholder outreach support. For example, we have members with landscape design and engineering expertise as well as climate scientists who can support the development of designs that factor in the region's climatology and coastal processes.

We stand ready to support this project to its' full completion. If you have any questions, you can contact me at dswallow@udel.edu or other members of our Steering Committee.

Sincerely,

Danielle Swallow

Danielle Swallow
RASCL Steering Committee member

National Wildlife Federation
Office of the President
11100 Wildlife Center Drive • Reston, VA 20190-5362 • 703-438-6000

June 24, 2020

Claire Flynn
National Coastal Resilience Program
National Fish and Wildlife Foundation
1133 Fifteenth St., N.W., Suite 1000
Washington, DC 20005

Dear Ms. Flynn:

The National Wildlife Federation enthusiastically supports the *Integrated Coastal Green Infrastructure to Enhance Bayside Resilience in the Town of Dewey Beach, Delaware* proposal submitted by the Delaware Center for the Inland Bays.

The National Wildlife Federation, America's oldest and largest conservation organization, has been active in efforts to promote and implement natural and nature-based coastal resilience projects across the country. In the Mid-Atlantic, we engaged with over one hundred fifty stakeholders to identify key challenges and solutions to improved implementation of living shorelines and other forms of coastal natural infrastructure. Through conversations and workshops, these stakeholders identified the need for demonstration projects on public and private lands that can demonstrate both improved ecological outcomes and improved community resilience. This proposed project will fill this need in a highly visible and highly vulnerable area of the Mid-Atlantic.

Situated on a thin strip of land between the Atlantic Ocean and Rehoboth Bay, Dewey Beach is on the front lines in facing the impacts of climate change. Solutions piloted here have the potential to be scaled up not just to other Delaware coastal communities but similarly exposed towns across the Mid-Atlantic.

The Delaware Center for the Inland Bays, with their strong local and state level partnerships has been a leader in working with Delaware's coastal communities on issues around green infrastructure and adaptation. This project would build upon this leadership and improve the resilience of the ecosystem, economy and community of Dewey Beach. We are proud to partner with them on this proposal and look forward to bringing regional and national attention to this project.

Thank you for your consideration.

Sincerely,

Collin O'Mara
President and CEO

June 24, 2020

Dr. Marianne Walch
Delaware Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

Dear Dr. Walch:

This letter confirms that the Dewey Beach Lions Club supports the proposed NCRF project, "*Integrated Coastal Green Infrastructure to Enhance Bayside Resilience in the Town of Dewey Beach, Delaware.*"

The Lions Club property - including the club house, North Beach restaurant, and the marsh - falls within the proposed project footprint. Our property and operations are increasingly threatened by shoreline erosion, storms, and sea level rise. Planning now for future resiliency and protection of our natural resources is critical.

The Dewey Beach Lions Club agrees to partner with the Town and the Center for the Inland Bays on this effort. We agree to provide input at planning and design meetings, provide any information or documents required for design and permitting, and review design plans.

Sincerely,

C. Moody

President
Dewey Beach Lions Club

BLUE WATER
development corp.

9919 Stephen Decatur Highway
Ocean City, Maryland 21842
ph: 410-213-1900
fx: 410-213-2171

June 22, 2020

Dr. Marianne Walch
Delaware Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

Dear Dr. Walch:

This letter confirms the Bay Resort's intent to participate as a partner on the proposed NCRF project, "Integrated Coastal Green Infrastructure to Enhance Bayside Resilience in the Town of Dewey Beach, Delaware." We will provide input at planning meetings, provide any information or documents required for design and permitting, and review proposed designs. The improvements proposed along the bayside waterfront near Sunset Park will not only help protect property and businesses in the Town, but also will enhance the quality of life for both residents and visitors.

Sincerely,

Dean Geracimos
Chief Operating Officer

PRELIMINARY DESIGN – NOT FOR CONSTRUCTION

RKK21\SYS – \\adrkk.com\fs\Cloud\Projects\2015\15080_CIB\CIB\Sunset Park\CADD\Ref\DogsWorthyDesign_JKM.dwg
Jun 25, 2020 – 3:32pm ENV.CTB Plot Scale 1=1 Plot By: jmedhaug Tab:22x34 (P)

RK&K
Rummel, Klepper & Kahl, LLP
110 S. POPLAR STREET | WILMINGTON, DE 19801
SUITE 102 PH: (302) 468-4880
Engineers | Construction Managers | Planners | Scientists
www.rkk.com

DELAWARE CENTER FOR INLAND BAYS
39375 INLET ROAD
REHOBOTH BEACH, DE 19971

DATE	JUNE 2020
SCALE	1" = 30'
DESIGNED YL	DRAWN YL
CHECKED LGT	APPROVED LGT

SUNSET PARK
TOWN OF DEWEY BEACH

SUSSEX COUNTY, DELAWARE

PROPOSED IMPROVEMENTS

30 15 0 30 60
SCALE: 1" = 30'

DRAWING NO. C-1

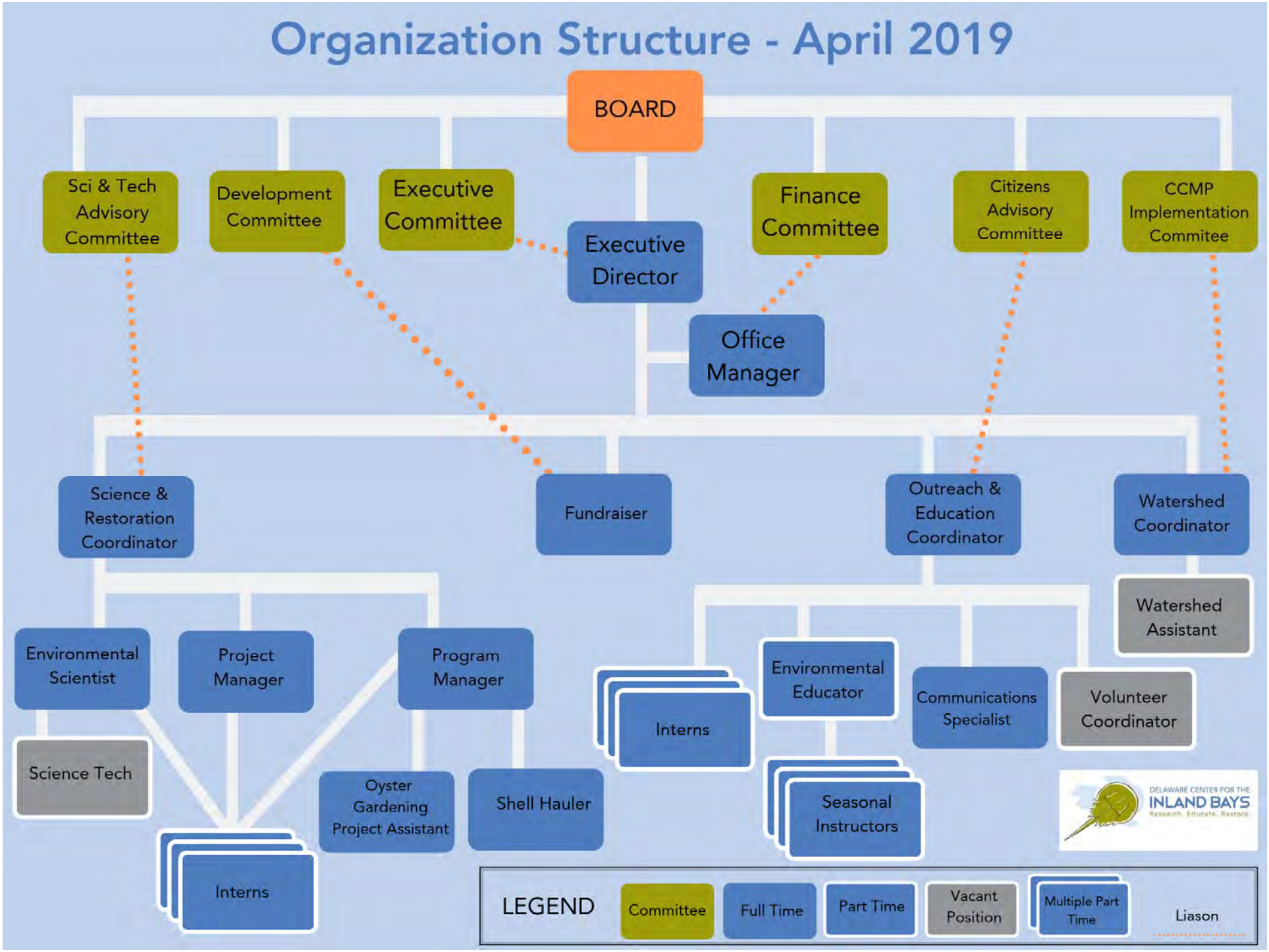
SHEET NO. 1 OF 1

Statement of Litigation

Instructions: Save this document on your computer and complete. The final narrative should not exceed two (2) pages; do not delete the text provided below. Once complete, upload this document into the on-line application as instructed.

Litigation: In the space provided below, state any litigation (including bankruptcies) involving your organization and either a federal, state, or local government agency as parties. This includes anticipated litigation, pending litigation, or litigation completed within the past twelve months. Federal, state, and local government applicants are not required to complete this section. If your organization is not involved in any litigation, please state below.

The Delaware Center for the Inland Bays is not involved in any litigation.


Organization Structure - April 2019
BOARD
Sci & Tech Advisory Committee
Development Committee
Executive Committee
Executive Director
Finance Committee
Citizens Advisory Committee
CCMP Implementation Commitee
Office Manager
Science & Restoration Coordinator
Fundraiser
Outreach & Education Coordinator
Watershed Coordinator
Watershed Assistant
Environmental Scientist
Project Manager
Program Manager
Interns
Environmental Educator
Communications Specialist
Volunteer Coordinator
Science Tech
Oyster Gardening Project Assistant
Shell Hauler
Seasonal Instructors
Interns
DELAWARE CENTER FOR THE INLAND BAYS
Research. Educate. Restore.
LEGEND
Committee
Full Time
Part Time
Vacant Position
Multiple Part Time
Liason

APR 2020

Board of Directors Contact List

Patricia Coluzzi
Board Vice Chair
Appointee, Speaker of the House
41 Sussex St.
Rehoboth Beach, DE 19971
Home: (302) 226-1669
pat@patcoluzzi.com

David Baird
Board Treasurer
Sussex Conservation District
District Coordinator
23818 Shortly Rd
Georgetown, DE 19947
W: 302-856-2105
david.baird@sussexconservation.org

Dr. Susie Ball
Board Chair
Board Elected Director
15 Fairway Drive
Rehoboth Beach, DE 19971
Cell: 610-299-9328
balldel@comcast.net

Sec. Michael T. Scuse
Delaware Department of Agriculture
2320 South DuPont Highway
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SUPLEMENTAL PHOTOGRAPHS

Figure 1. Aerial image of the northern part of the Town of Dewey Beach, showing the proposed project area.

SUPLEMENTAL PHOTOGRAPHS

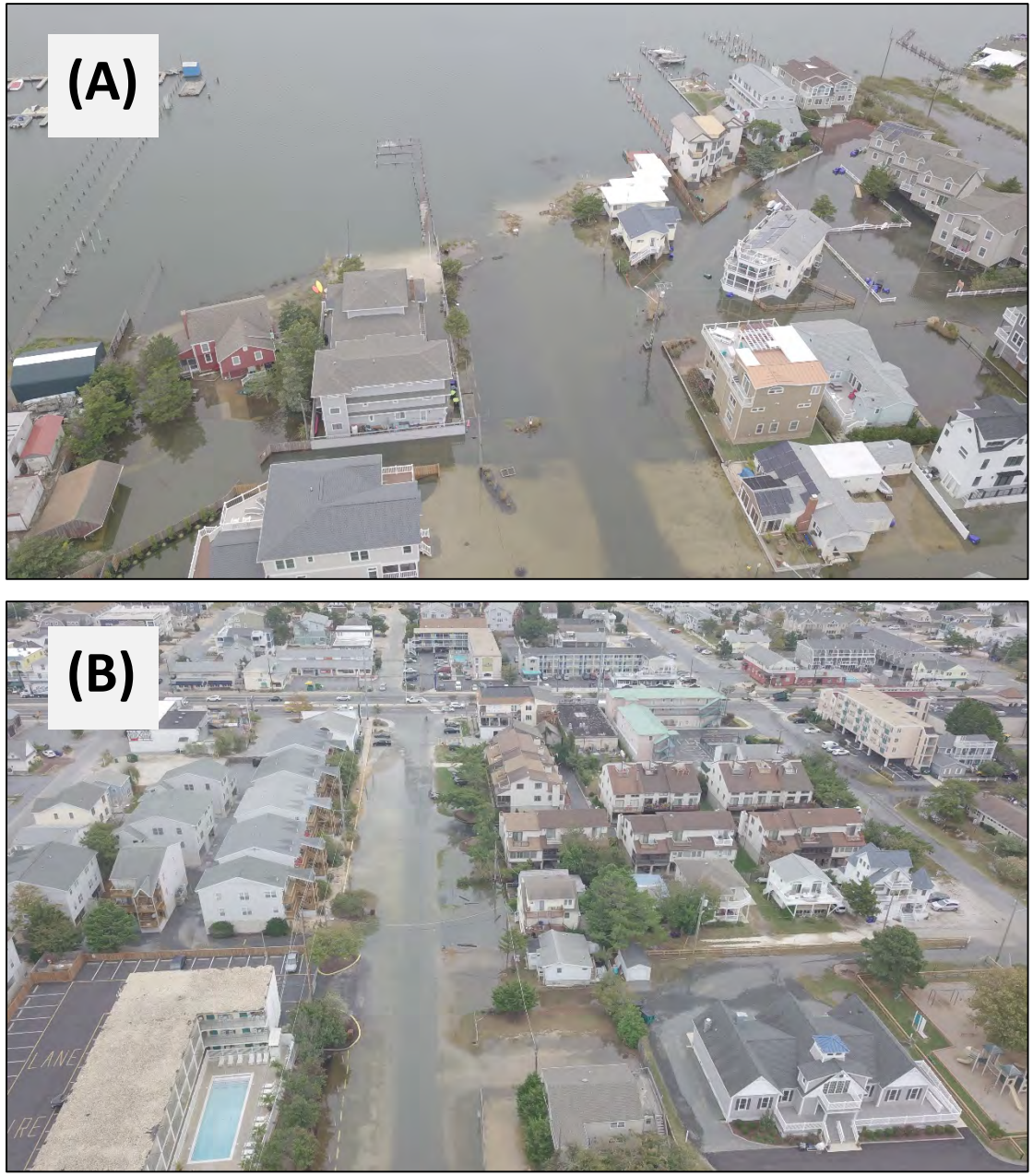

Figure 2. Examples of frequent, prolonged flooding events occurring on the bay side of the Town of Dewey Beach. Both images taken after a typical nor'easter storm, October 2019.

A. Drone view of the bay side of Read Ave., just prior to installation of a living shoreline and tide gate retrofit.

B. Drone view of Dagsworthy St., and a portion of the proposed project area (Lions Club is seen in the lower left). View is looking east toward the ocean.

SUPLEMENTAL PHOTOGRAPHS

Figure 3. More images of flooding problems in Dewey Beach.

A. Flooding on the bay side of Read Ave. after an extremely high tide, prior to living shoreline and tide gate installation. Bay water often surcharges into the storm drain system.

B. Flooding of Coastal Hwy just south of Dewey Beach. Taken during a nor'easter in January 2017.

C. View of the bay side end of Read Ave. showing flooding and erosion in 2017, prior to living shoreline installation. Residents tried to control flooding with sandbags.

SUPLEMENTAL PHOTOGRAPHS

Figure 4. Drone image of the proposed project area. Note that the end of Dagsworthy St. (left) has fallen into Rehoboth Bay due to erosion and shoreline loss. Note also the sediment left on roads and parking areas by flooding. Approximately two feet of shoreline loss per year is occurring.

SUPLEMENTAL PHOTOGRAPHS

Figure 5. Images of Sunset park and Dagsworthy St. at low- to mid-tide.

A. Macadam loss and erosion at the end of Dagsworthy St., looking at Rehoboth Bay.

B. Hardened shoreline at the North Beach restaurants. Existing bulkheads will be retrofit with living shoreline tactics.

C. View of Sunset Park from Dagsworthy St., showing shoreline erosion.

SUPLEMENTAL PHOTOGRAPHS

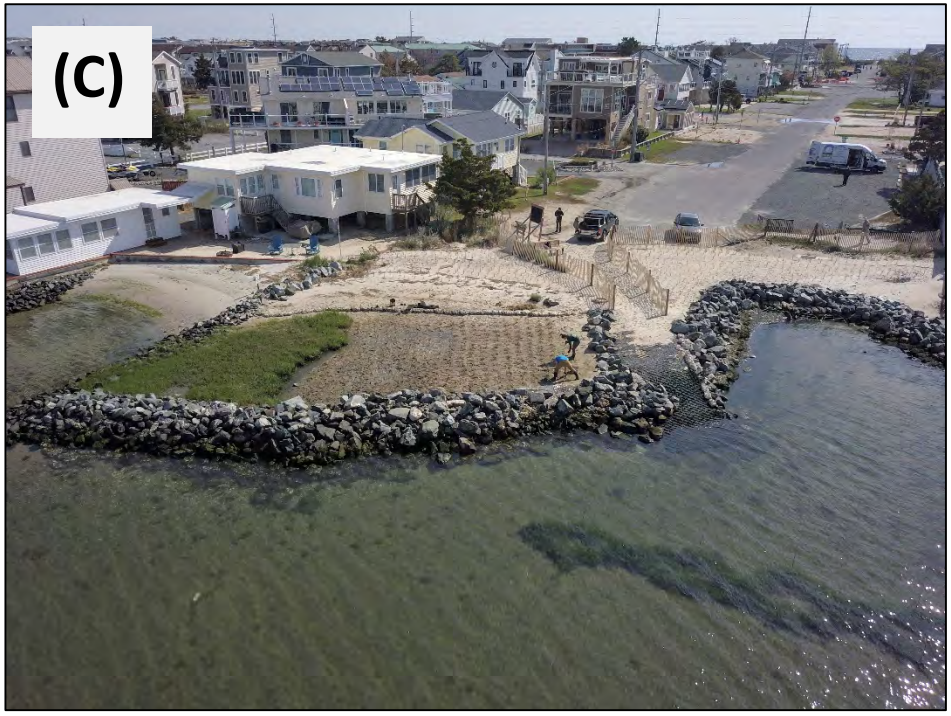

Figure 6. Bioretention and living shoreline projects recently implemented in the Read Ave. drainage area of Dewey Beach. Both were completed through a partnership between the Town, CIB, and DelDOT.

A. Bioretention facility at the intersection of Read Ave. and Coastal Hwy. Also included are an infiltration trench, biochar amendments, and permeable concrete sidewalks and parking.

B. Stabilized kayak launch at Read Ave. living shoreline.

C. Living shoreline at Read Ave. Includes a stone and oyster shell toe, restored salt marsh, a low dune, an offshore braided oyster shell reef, and new outfalls retrofitted with tide gates.