



Living with the Bay

Rebuild by Design
December 20, 2016 CAC Meeting

Living with the Bay
Citizens Advisory Committee Meeting #3 – December 20, 2016
Village of East Rockaway Senior Center
6 James Street, East Rockaway, NY 11518

Meeting Summary

The third meeting of the Living with the Bay (LWTB) Citizens Advisory Committee (CAC) meeting was held on December 20, 2017 at the Village of East Rockaway Senior Center. Fifty-two people attended the meeting including 10 CAC members, staff from the Governor's Office of Storm Recovery (GOSR), Tetra Tech staff, and members of the public (see sign-in sheet attached). Upon check-in, members of the public were asked to place a push pin on a large program area map to show the project team where they live. Figure 1 shows the distribution of the attendees over the area.

Introduction

Laura Munafo, Rebuild by Design LWTB Program Manager for GOSR, delivered welcome remarks, and briefly introduced the purpose of meeting – a presentation on the Mill River Watershed Management Plan development process being carried out by GOSR's contractor, Tetra Tech. Members of the CAC then introduced themselves. Ms. Munafo added that there are still openings on the committee and encouraged anyone who is interested to submit an application to join via the GOSR storm recovery website at <http://stormrecovery.ny.gov>.

CAC Member Attendees

The following 10 CAC members were present:

- Joe Forgione, Co-Chair
- David Stern, Co-Chair
- Daniel Caracciolo
- Amy Wolf
- Raymond Pagano
- Linda Marshall
- Thomas Rozakis
- Arthur Mattson
- Andrew Miller
- Jim Ruocco

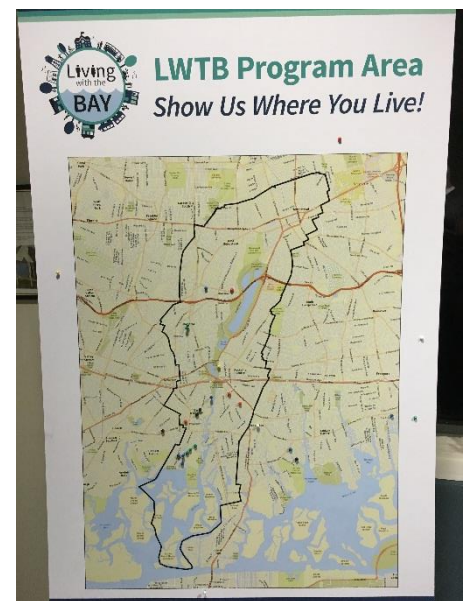


Figure 1. Geographic distribution of meeting attendees.



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(Members that were not present include: Justin Corbo, William Faraday, Daniel Horn, Jay T. Korth, Joseph Landesberg, James Loglisci, Leslie Price, Gregory Rinn, and Steven Ruscio.)

Mill River Watershed Management Plan Presentation

Michael Bomar with Tetra Tech presented a comprehensive overview of how the Mill River Watershed Management Plan will be developed. The program area starts north, bordering the Village of Hempstead, expanding south to marshland and the mouth of Mill River, including 10,000 acres and 28,400 parcels.

Tetra Tech and GOSR identified and briefly discussed roles of the key groups and stakeholders—Department of Housing and Urban Development (HUD), GOSR, Tetra Tech, Citizens Advisory Committee (CAC), Technical Advisory Committee (TAC) and the public.

Mr. Bomar then presented a flow chart that showed the three phases of watershed plan development, tasks within each phase, and how public outreach and engagement will be incorporated along the way:

Phase I: Project Initiation

Task A - Vision, Statement Purpose, Needs/Goals of Watershed Plan

Task B – Description/Assessment of Waterbody(ies) & Watershed Resources

Task C – Identify Stakeholders, Experts, Agencies, Programs and Laws

Phase II: Project Development

Task D – Watershed Characterization

Task E – Watershed Management Recommendations & Alternatives

Task F – Prioritize Projects & Actions

Phase III: Management Plan

Task G – Implementation Strategy & Schedule

Task H – Tracking & Monitoring

Task I – Draft & Final Watershed Management Plan

He also presented the draft goals and objectives, purpose and need, and vision statement for the watershed plan and asked that the committee provide any comments at the end of his presentation.

Draft Goals & Objectives – Members of the Committee noted that they would like to add education and stormwater to the goals and objectives.

- Increase community resilience and improve drainage infrastructure to address the impacts of rising sea level and increased frequency and intensity of extreme weather events.
- Preserve quality of life in the community during natural disasters, emergency events and tidal inundation.
- Incorporate environmental and water quality improvements in the projects.
- Create and improve public access to the waterfront – lakes, river, and bay.



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Purpose & Need

- Purpose: Improve drainage and enhance natural resources to minimize the community's risk from flooding and damage to life and property.
- Need: Over the last century, the Mill River watershed has become more populated with communities growing around the waterfront—lakes, river and bay. Increasing populations, continued storm water runoff from new development, sea level rise and climate change have made the communities more susceptible to flooding and water quality problems. The flooding vulnerabilities were proven during Hurricanes Irene and Sandy.

Vision Statement

"To improve community resiliency in the program area by mitigating local flood risk from storm water and storm surge as well as implementing ecological marshland restoration and enhancing public access to the waterfront."

Mr. Bomar also provided a brief overview of the following:

- Project schedule
- Definition of the program area
- Description of waterbody assessment parameters
- Overview of stormwater agencies, programs and laws that must be considered in the plan
- Overview of how the TAC and CAC meeting will be staggered and build off one another
- Description of planned public outreach materials and activities

Comments and Feedback from CAC Members:

- Public awareness of the river is a key issue for public understanding. Public education as part of the goals/objectives are components missing from presentation.
- One CAC member asked why East Rockaway High School is not represented on the TAC. GOSR and Tetra Tech explained that GOSR met with the school district approximately three weeks prior to this CAC meeting to collect their input. The school has a FEMA grant to protect the building from flooding, but it only covers the building itself. During the meeting, school staff showed the project team the unstable shoreline that allows the ball field to flood. They were also informed of the flooding that occurs in the teachers' parking lot. There was some Hurricane Sandy inundation north of the high school.
- Consider adding someone with expertise in natural resources (New York State Department of Environmental Conservation or Fish and Wildlife staff) to the TAC.
- Cultural/historical aspects are missing from the goals and objectives.
- There has not been enough effort to involve or inform a greater portion of the public in this process. In addition, there was a generally feeling that the committee needs to be brought in at earlier points during the process. (Suggested problem area maps, tour of Parks site, etc.)
- There is confusion regarding when the work will start. (Ms. Munafo responded by emphasizing the importance of knowing what the projects are, and being sure they are the right projects, before any work begins.)
- Does the \$125M from HUD include the cost of developing the watershed plan? (Ms. Munafo explained that it is included.)



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- A question was raised regarding the comparison of Tetra Tech's watershed plan to the previous Dutch Plan. Tetra Tech explained that the watershed plan will be a culmination of the Dutch Plan and will include program implementation consistencies.
- There should be an emphasis on engaging high schools, SPLASH, and community environmental groups and youth programs for clean-up and maintenance of program area sites. The committee expressed concern over spending all the money on hard infrastructure projects with no money left over for education and social projects. However, there was agreement on the committee that most of the implementation funds should be allocated to projects that mitigate storm damage and prevent future flooding. There is a need to set a guideline for true science-informed hard infrastructure projects.
- SPLASH is interested in providing education on watershed/stormwater issues. They are anxious to get boots on the ground (clean-up activities, etc.)
- Concerns were noted about the TAC and CAC having an equal role in the process. CAC members expressed a desire to meeting with the TAC.
- Request for large maps of specific communities that CAC members can show to their citizens and gather feedback. Ms. Munafo noted that Tetra Tech can provide a basic map of their communities that the CAC can meet to talk about. Outside of LWTB scheduled meetings to identify problem areas.
- Concerns were expressed regarding Hempstead Lake State Park and lack of participation and representation from the northern communities.
- Inquiries were made regarding additional funding resources available from GOSR to supplement HUD funding. There is interest in leveraging state funding.
- Additional inquiries were made regarding HUD funding architecture and grant processes, low- to moderate-income employment, and project contract goals for MBE, WBE, VBE and HUD Section 3 firms.

Public Comments

Question: Where is the school education and job skill training component in this project?

Response: GOSR is responsible for putting out a Notice of Funding Availability (NOFA) to gather groups to help get a curricula developed around the project. This is not Tetra Tech's responsibility to cover in the watershed plan. However, Tetra Tech will be incorporating more education aspects into the objectives.

Comment: There is a need to make sure the historic importance of the area is included in the vision statement.

Comment: There should better incorporation of minorities and women in the building of this plan.

Response: Minority and women-owned business (MWBE) components will come into play during the project implementation (architecture, engineering and construction). There is a 30% requirement to be met. Mr. Bomar noted that 30% of the Management Plan is being prepared



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by MWBE firms with another 3% by a Long Island disabled veteran-owned business and another 3% by a Long Island firm qualified as a HUD Section 3 company.

Comment: Please consider improving access to the waterfront and lakes, via the trail system at Hempstead Lake Park and other downstream paths. Horse trails need to be considered in the project. In addition, public safety should be considered. Children need safe pathways and need to be kept off Eagle Avenue. An entrance at Mercy Hospital should be a possible consideration by NYS Parks. Alex Jacobson, owner of the New York Equestrian Center, offered to take CAC members on a tour of Hempstead Lake Park so they can see the proposed project areas.

Response: Thank you for noting the additional/alternate entrance. We were not aware of that and can bring it to the attention of the parks projects team.

Comment: There are no programs to address Horse Pond and the northern part of Mill River (northern part of West Hempstead) or Hempstead High School. There are many spots that could be used for public education.

Comment: There is a tremendous opportunity to educate young people about the project and prepare them to work at these project sites.

Response: Part of the process here will include social resiliency projects. We will be developing curricula based on the project or on a type of project. GOSR cannot release a NOFA for this type of curricula development if we don't have the projects or project types defined yet. It will probably be spring of 2017 that we'll see a NOFA issued.

Question: By July 2017, what will be spent on planning versus implementation?

Response: GOSR stated that there will be approximately \$90M left for implementation out of the original \$125M.

Question: How can the public provide comments?

Response: Ms. Munafo said the public can provide comments using the email address on the project website.

Next Steps - Future Meetings

- CAC Action Items:
 - Review and comment on the power point slides presented at the meeting to be provided by GOSR.
 - Comment on the NYS Parks projects as part of the next CAC meeting.
 - Identify any additional questions that should be added to the FAQs listed in the project brochure. GOSR will provide a start to the FAQs and send out.



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- Provide any recommendation regarding additions to the CAC. GOSR to provide the link to the CAC application.
 - CAC members to identify areas they understand to be stormwater and flooding problems. GOSR to provide a blank map.
- The next CAC meeting will be held in late February. Additional CAC meetings will be scheduled for March, May, June, and July of 2017.



AGENDA

- **Introductions**
- **CAC Roles and Responsibilities**
- **Watershed Management Plan**
- **Goals & Objectives, Purpose & Need, and Vision Statement**
- **Program Area & Project Updates**
- **Description/Assessment of Waterbodies**
- **Stormwater Agencies, Programs, & Laws**
- **Two Month Look Ahead**
- **Public Comment**



CAC Roles & Responsibilities



Governor's Office of
Storm Recovery



ROLES & RESPONSIBILITIES

- **HUD**
- **GOSR**
- **Tetra Tech**
- **Citizens Advisory Committee (CAC)**
- **Technical Advisory Committee (TAC)**
 - **NCDPW, Town of Hempstead, 5 Villages (East Rockaway, Hempstead, Lynbrook, Malverne, Rockville Center)**
- **Public**

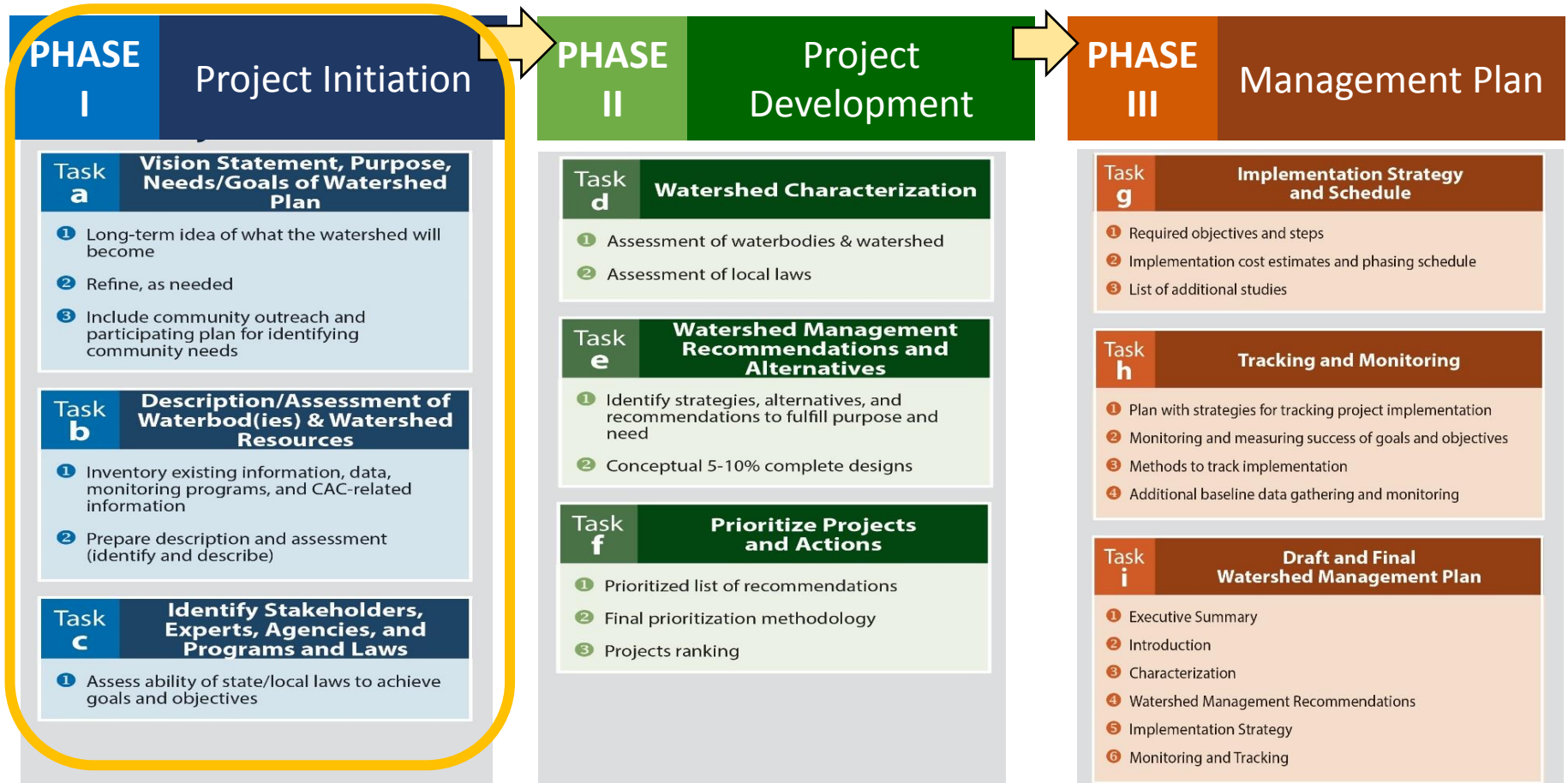




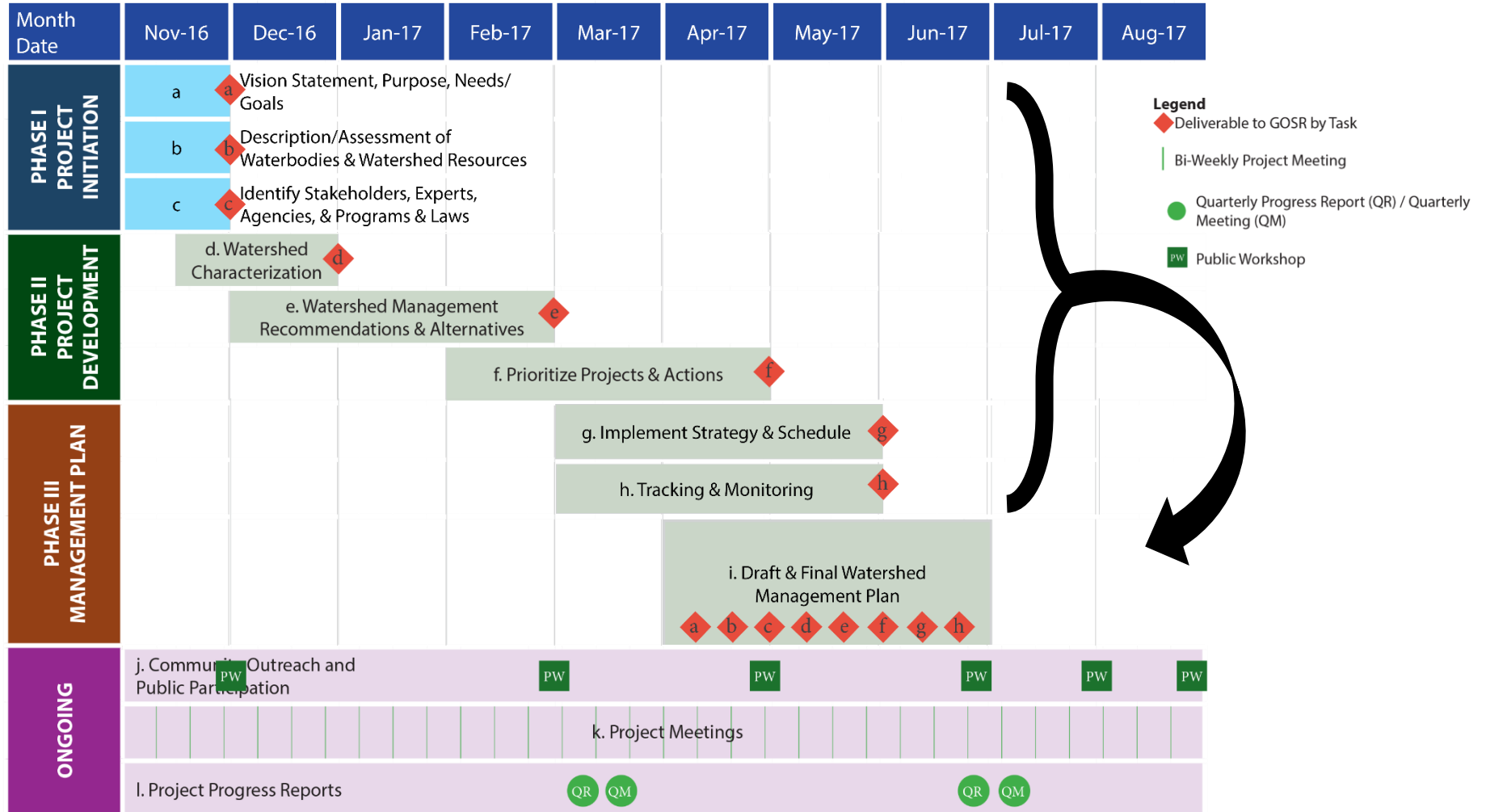
Watershed Management Plan

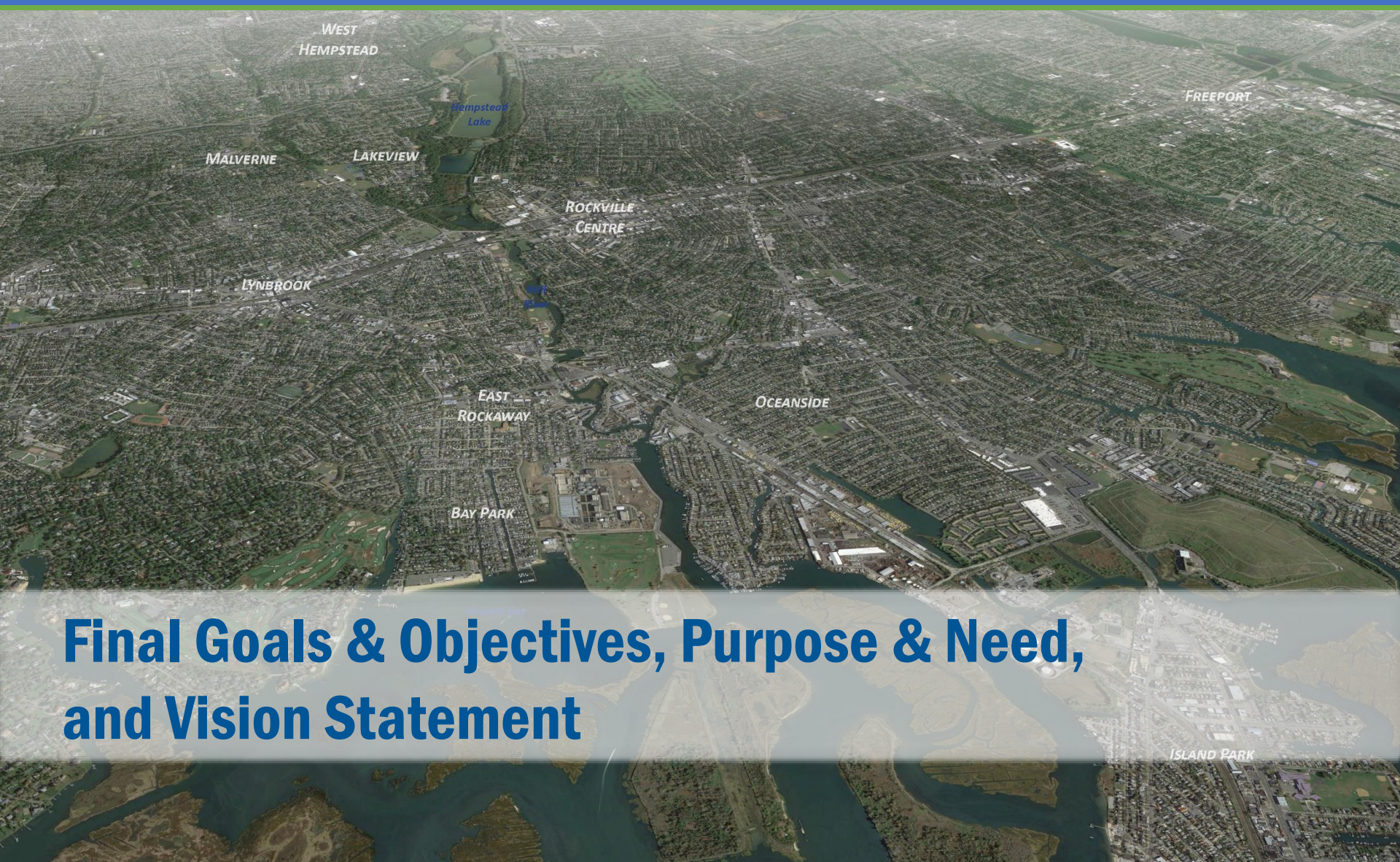
WATERSHED MANAGEMENT PLAN SCOPE OF WORK

ONGOING – Community Outreach, Project Meetings & Project Progress Reports



SCHEDULE





Final Goals & Objectives, Purpose & Need, and Vision Statement



Governor's Office of
Storm Recovery



GOALS AND OBJECTIVES

- Increase community resilience and improve drainage infrastructure to address the impacts of rising sea level and increased frequency and intensity of extreme weather events.
- Preserve quality of life in the community during natural disasters, emergency events, and tidal inundation.
- Incorporate environmental and water quality improvements in the projects.
- Create and improve public access to the waterfront – lakes, river, and bay.

PURPOSE AND NEED

PURPOSE: Improve drainage and enhance natural resources to minimize the community's risk from flooding and damage to life and property.

PURPOSE AND NEED

NEED: Over the last century, the Mill River watershed has become more populated with communities growing around the waterfront – lakes, river, and bay. Increasing populations, continued storm water runoff from new development, sea level rise, and climate change have made the communities more susceptible to flooding and water quality problems. The flooding vulnerabilities were proven during Hurricanes Irene and Sandy.

VISION STATEMENT

“To improve community resiliency in the program area by mitigating local flood risk from stormwater and storm surge as well as implementing ecological marshland restoration and enhancing public access to the waterfront.”



Program Area & Project Updates



REBUILD
BY
DESIGN



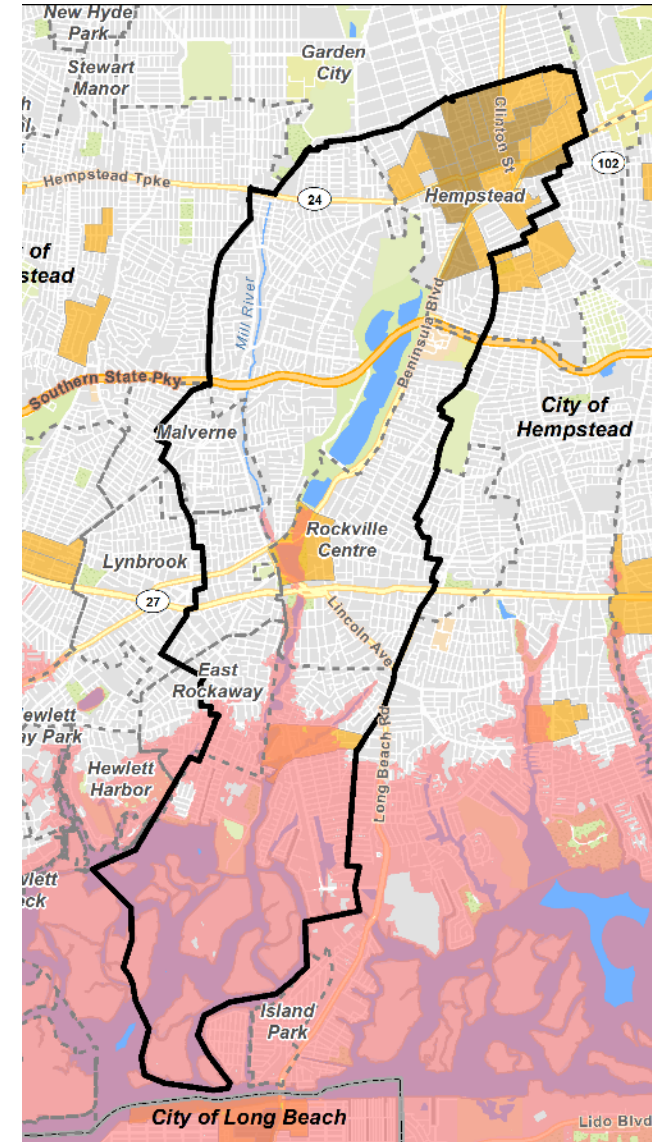
Governor's Office of
Storm Recovery



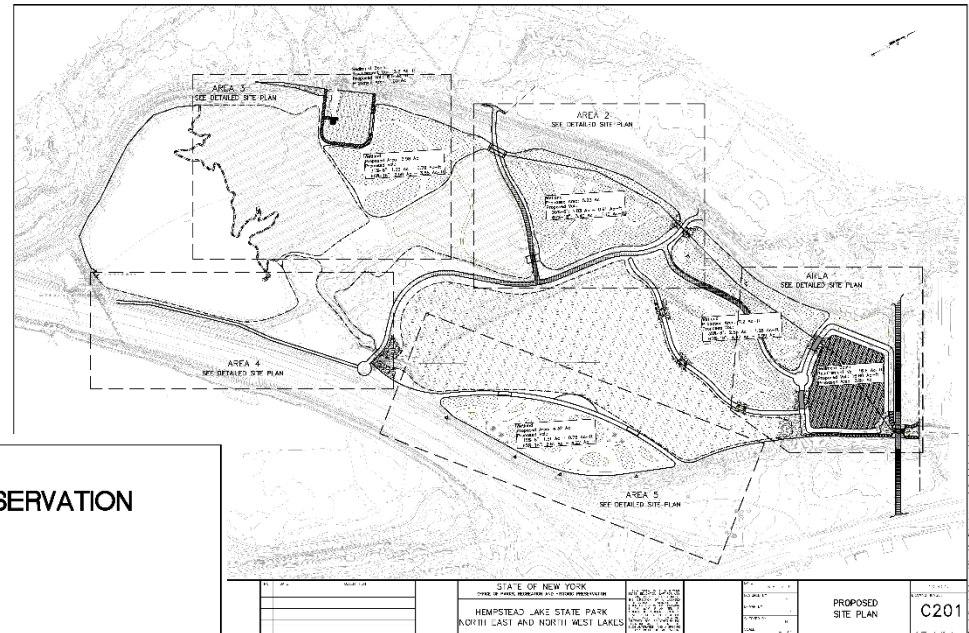
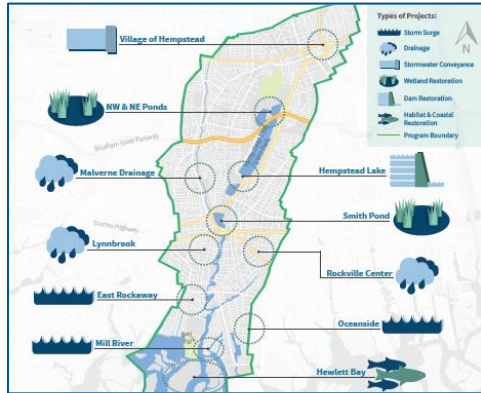
TETRA TECH

LWTB PROGRAM AREA

- **Boundary Identification**
- **10,000 Acres**
- **28,400 Parcels**



PROJECT UPDATES



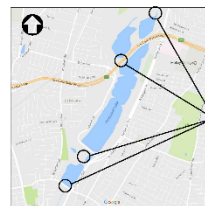
NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION LONG ISLAND REGION



CONTRACT NO. XXXXXX

DAM SAFETY IMPROVEMENTS

AT
HEMPSTEAD LAKE STATE PARK
NASSAU COUNTY, NEW YORK



LOCATION MAP
NYA

PROGRESS PRINTS

INDEX OF DRAWINGS		
SHEET NO.	DRAWING NO.	SHEET TITLE
1	TS-1	TITLE SHEET
2	DSP-1	OVERALL SITE PLAN
3	NWP-1	NORTHWEST POND DAM OVERALL SITE PLAN
4	NWP-2	NORTHWEST POND DAM REMOVALS PLAN
5	NWP-3	NORTHWEST POND PROPOSED DAM PLAN
6	NWP-4	NORTHWEST POND EXISTING SECTION
7	NWP-5	NORTHWEST POND DAM SECTIONS AND ELEVATIONS
8	HL-1	HEMPSTEAD LAKE DAM OVERALL PLAN
9	HL-2	HEMPSTEAD LAKE DAM EXISTING SECTIONS
10	GH-1	GATE HOUSE REMOVALS PLAN
11	GH-2	GATE HOUSE EQUIPMENT INSTALLATION PLAN
12	PA-1	PIPE ARCH PLAN AND ELEVATION
13	PA-2	PIPE ARCH SECTIONS AND REPAIRS
14	SPD-1	SOUTH POND DAM PLAN AND SECTION
15	NPB-1	NORTH-EAST POND BRIDGE PLAN
16	NPB-2	NORTH-EAST POND BRIDGE ELEVATION & SECTION
17	TCB-1	TWIN CULVERT BRIDGE REMOVALS PLAN
18	TCB-2	TWIN CULVERT BRIDGE PLAN
19	TCB-3	TWIN CULVERT BRIDGE ELEVATION
20	TCB-4	TWIN CULVERT BRIDGE SECTIONS
21	SB-1	SCHODACK BRIDGE PLAN
22	SB-2	SCHODACK BRIDGE ELEVATION & SECTION
23	BL-1	BORING LOG - 1
24	BL-2	BORING LOG - 2
25	BL-3	BORING LOG - 3

LKB LOCKWOOD, KESSLER AND BARTLETT, INC.
CONSULTING ENGINEERS
ONE ASTOR WAY, SUITE 201, 11791

RECOMMENDED BY:

ANDRE MODIO, P.E.
PRESIDENT AND CHIEF EXECUTIVE OFFICER
LOCKWOOD, KESSLER & BARTLETT, INC.

APPROVED BY:

SCOTT FISH, P.E.
DIRECTOR OF ENGINEERING

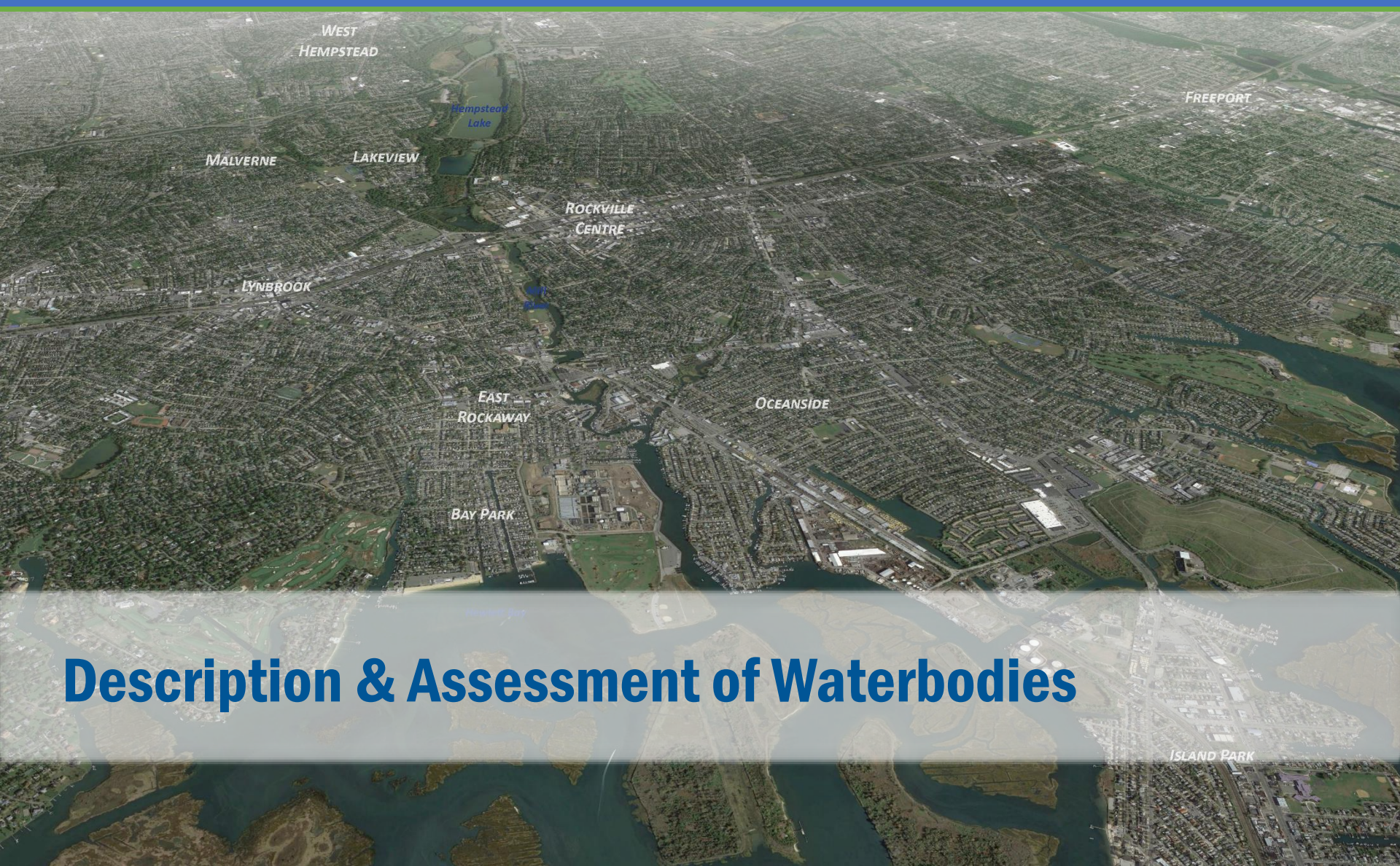
APPROVED BY:

WAYNE MORSELEY
REGIONAL DIRECTOR

Date

Date

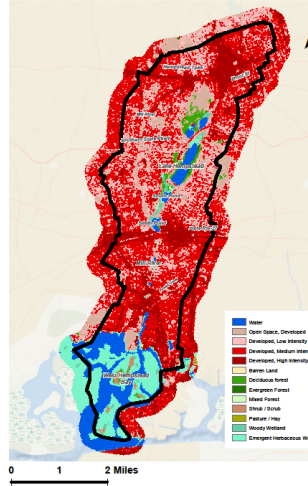
Date



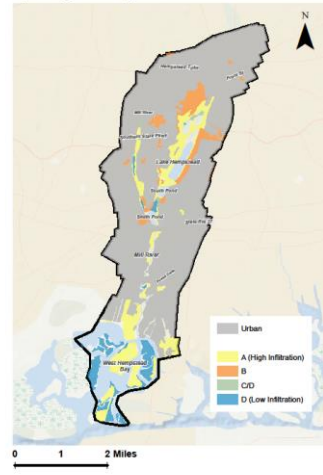
Description & Assessment of Waterbodies

DESCRIPTION & ASSESSMENT OF WATERBODIES

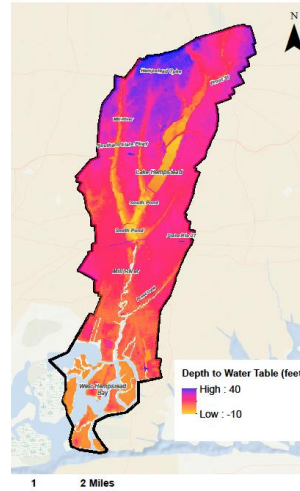
2011 Land Cover



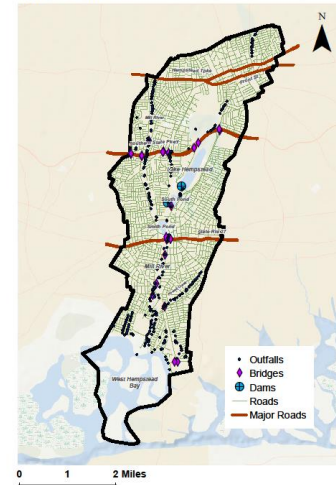
Hydrological Groups



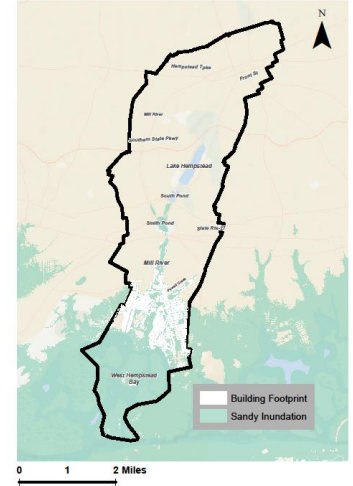
underwater Depth



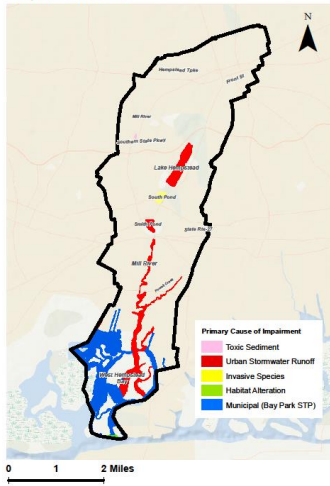
Infrastructure



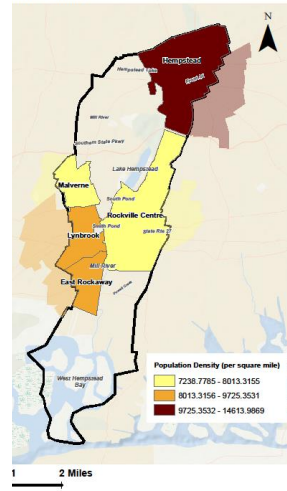
Inundation



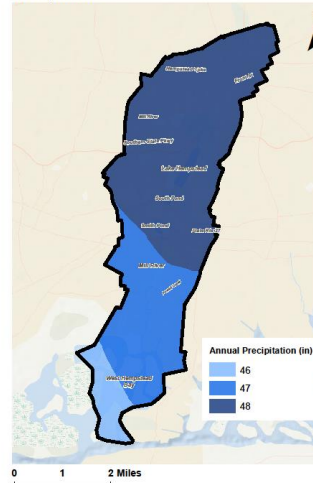
Impaired Waters



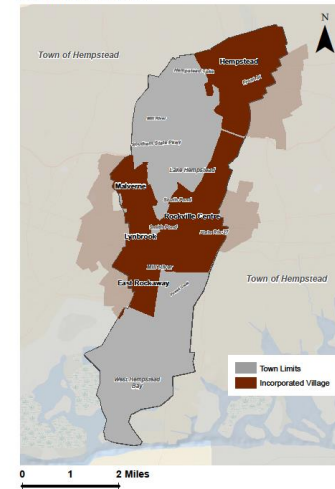
ion Density



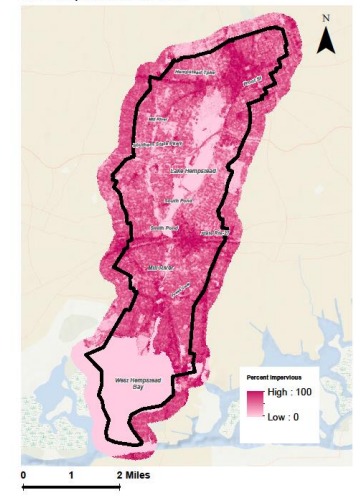
Precipitation



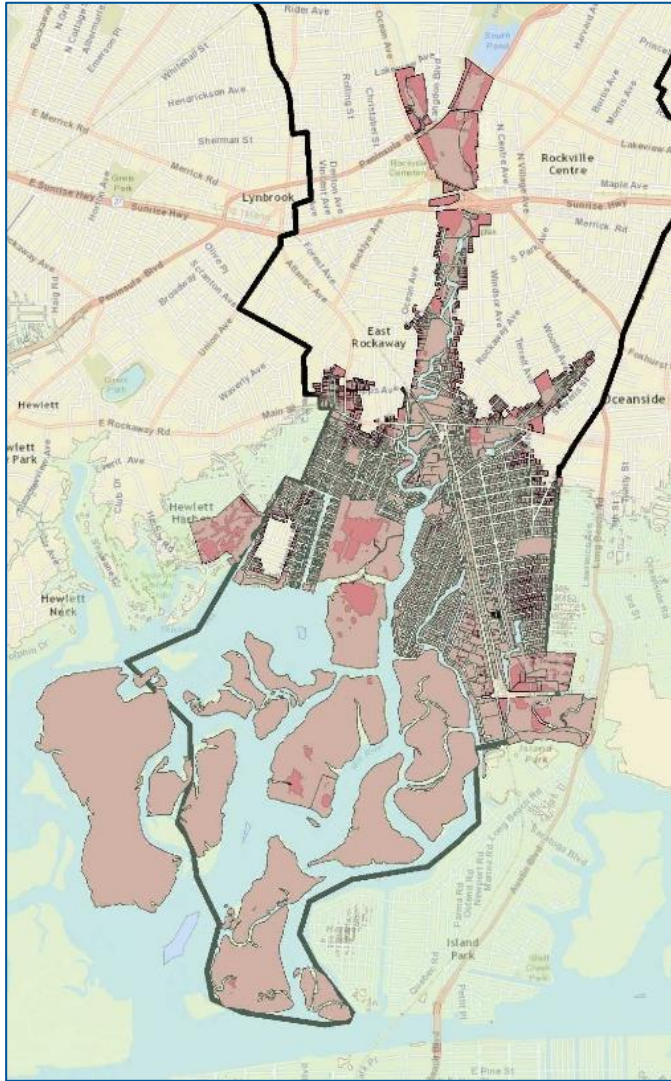
Zoning Jurisdictions



2011 Impervious Surface



SANDY INUNDATION AREA



Description	By Parcel		By Area (Ac)	
	Count	% of Total Parcels	Sum Acres	% of Area
COMMERCIAL	315	8%	184	7%
COMMUNITY SERVICES	111	3%	1,382	55%
INDUSTRIAL	32	1%	16	1%
PUBLIC SERVICES	1	0%	2	0%
RECREATION AND ENTERTAINMENT	43	1%	73	3%
RESIDENTIAL	3292	80%	628	25%
VACANT LAND	80	2%	113	5%
WILD, CONSERVATION LANDS AND PUBLIC PARKS	2	0%	3	0%
NA	245	6%	95	4%
TOTAL	4,121		2,498	



Assessment of Stormwater Agencies, Programs, & Laws

PURPOSE OF REGULATORY ASSESSMENT

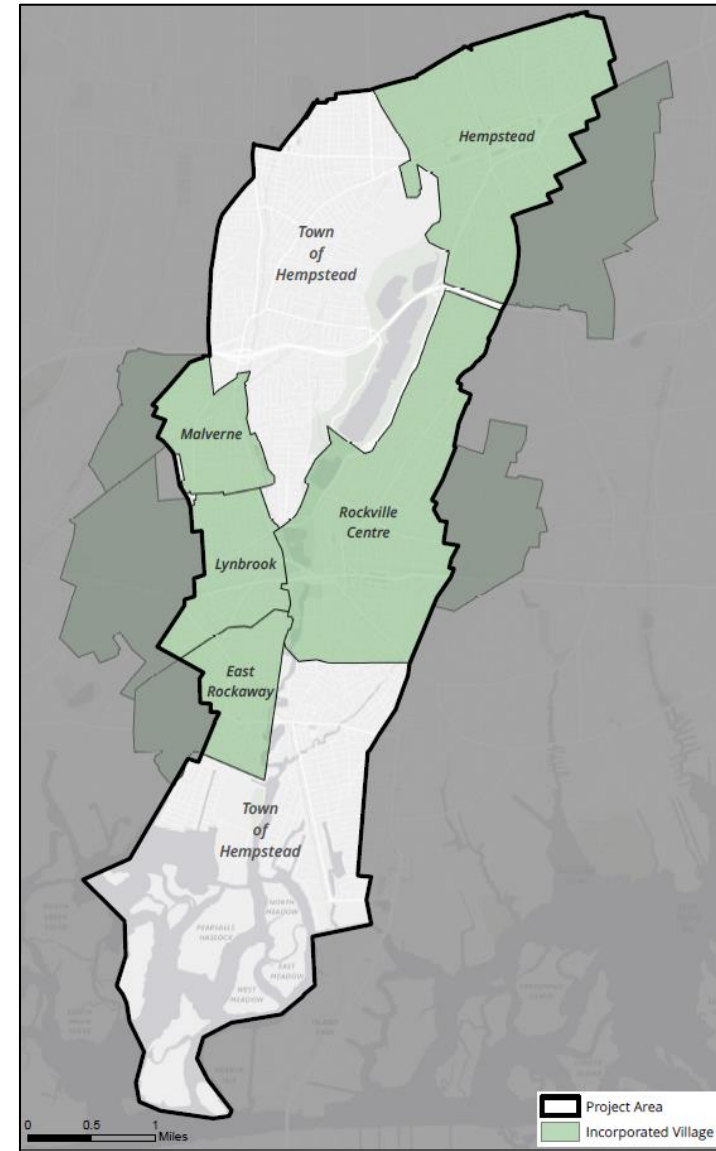
- Identify the Federal, State, and Local requirements that could apply to projects and activities in the LWTB Program area
- Assess the strengths of the regulatory requirements
- Provide guidance and recommendations for navigating the regulatory process



LOCAL JURISDICTIONS

- Village of Rockville Centre
- Village of Lynbrook
- Village of East Rockaway
- Village of Hempstead
- Village of Malverne
- Town of Hempstead
- Nassau County (entire LWTB Program area)

Note: Each jurisdiction has multiple departments and sub-agencies.



STATE AND FEDERAL AGENCIES

New York State Agencies

- **Dept. of Env. Conservation**
- **Natural Heritage Program**
- **Office of Parks, Recreation, & Historic Preservation**
- **Dept. of Transportation**
- **Metropolitan Transportation Authority**
- **Dept. of State Division of Coastal Resources and Waterfront Revitalization**
- **Office of General Services**

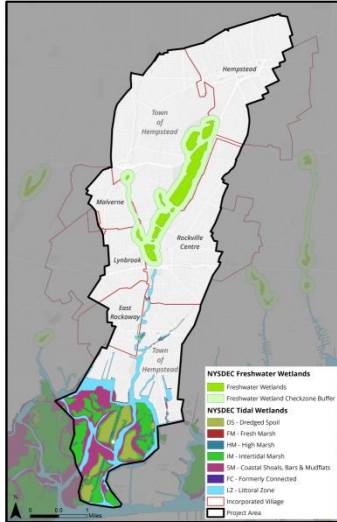
Federal Agencies

- **US Army Corps of Engineers**
- **US Fish and Wildlife Service**
- **Federal Emergency Management Agency**
- **US Coast Guard**
- **National Marine Fisheries Service**
- **US Environmental Protection Agency**

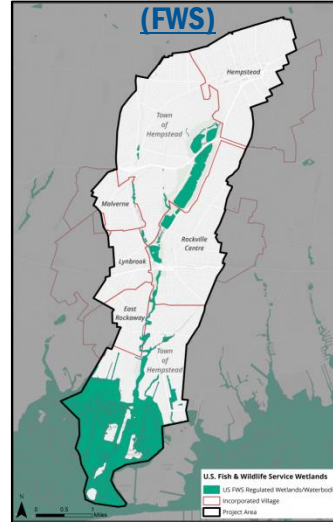


SAMPLE TYPES OF ISSUES

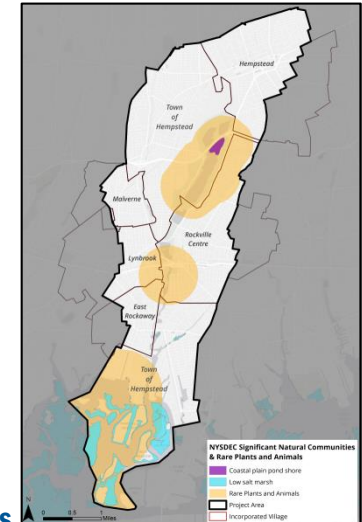
State Regulated Wetlands (DEC)



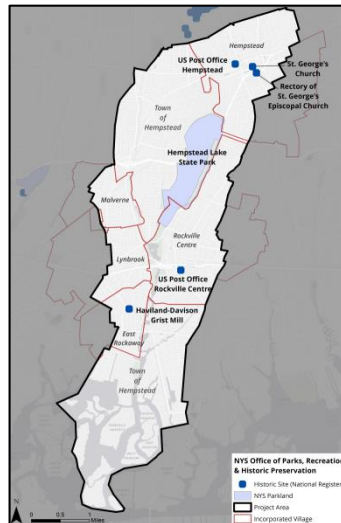
Federally Regulated Wetlands (FWS)



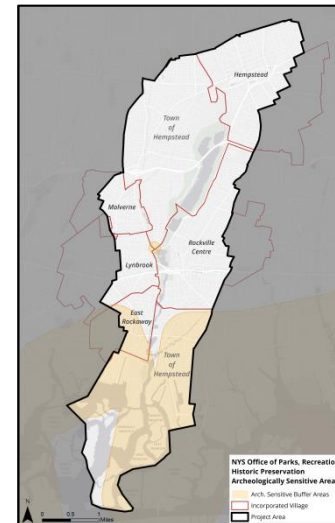
Significant Natural Communities, Rare Plants, and Rare Animals



Historic Preservation



Archeologically Sensitive Areas



SUMMARY CHECKLIST

Likely Jurisdiction or Regulatory Agency	LOCAL	TOWN OF HEMPSTEAD	VILLAGE OF ROCKVILLE CENTRE	VILLAGE OF LYNBROOK	VILLAGE OF EAST ROCKAWAY	VILLAGE OF HEMPSTEAD	VILLAGE OF MALVERNE	NASSAU COUNTY AGENCIES	NEW YORK STATE	NYSDEC	NYS NATURAL HERITAGE PROGRAM	NYS OFFICE OF PARKS, REC, HIST PRES	NYS DOT	MTA	NYS DOS DIV. OF COASTAL RESOURCES	NYS DEPARTMENT OF HEALTH	NYS OFFICE OF GENERAL SERVICES	FEDERAL	USACE	US FISH AND WILDLIFE SERVICE	FEMA	NATIONAL MARINE FISHERIES SERVICE	U.S. COAST GUARD	U.S. EPA
Ongoing MS4 Activity																								
Pollution Prevention		X	X	X	X	X	X	X		X			X	X										
Public Education & Involvement		X	X	X	X	X	X	X		X			X	X										
Road Maintenance/Snow-Ice control		X	X	X	X	X	X	X		X			X	X										
Stormwater Management / SWMP		X	X	X	X	X	X	X		X			X	X										
Property Characteristics																								
Coastal Zone		X								X					X				X					
Endangered Species/Significant Natural Communities										X	X									X		X		
Fish, Wildlife, Animal, Plant Habitat										X					X					X				
Floodplain Management / NFIP		X	X	X	X	X	X														X			
Historic/Archeological Site										X		X												
Parkland								X				X												
Remediation Site										X			X			X								X
Waterfront Permitting		X	X	X	X	X	X	X		X					X		X		X					
Waterways, Structures in Waterways		X			X			X		X							X		X			X	X	
Wetland		X	X	X	X	X	X	X		X	X							X	X					X
Project Type																								
Site Development / Modification		X	X	X	X	X	X	X					X											
Stormwater Management		X	X	X	X	X	X	X		X			X	X										X
Subdivision Application		X	X	X	X	X	X	X																
Water Quality		X	X	X	X	X	X	X		X			X					X						X
Zone Change		X	X	X	X	X	X	X																



Two Month Look Ahead



REBUILD
BY
DESIGN

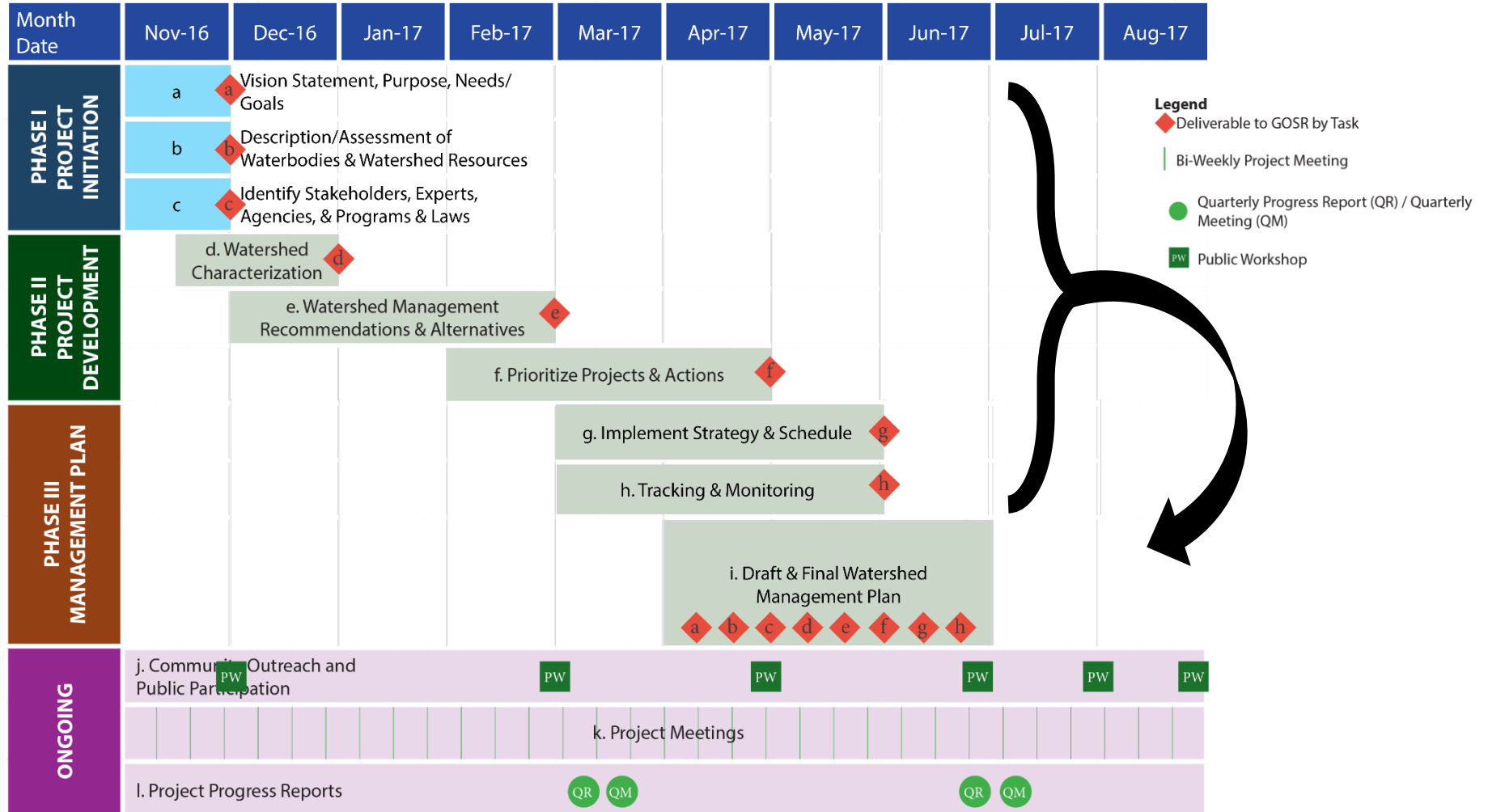


Governor's Office of
Storm Recovery



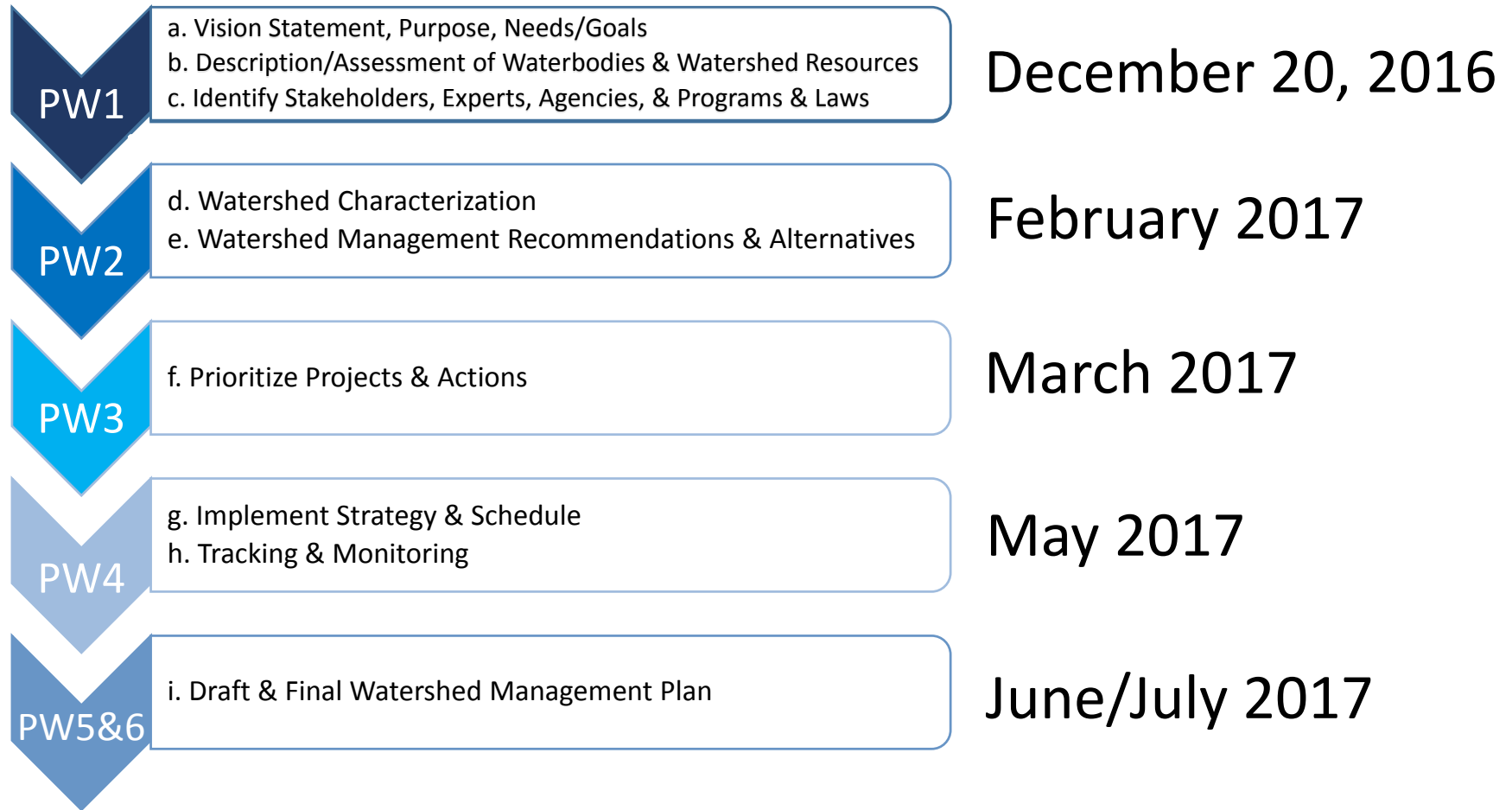
TETRA TECH

TWO MONTH LOOK AHEAD



FUTURE MEETINGS

Citizen's Advisory Committee Meetings – 6 Total



PUBLIC INFORMATION BI-FOLD

Living with the BAY

A REBUILD BY DESIGN PROJECT

LOCATION
LONG ISLAND

Overview

The Living with the Bay Program was created after Hurricane Sandy to increase community resilience in the Mill River and Hempstead Lake Park area of Long Island by improving drainage and enhancing natural resources to minimize the community's risk from flooding and damage to life and property. There are currently six types of potential improvement projects to be incorporated:

- Storm Surge
- Drainage
- Stormwater Conveyance
- Wetland Restoration
- Dam Restoration
- Habitat & Coastal Restoration

Goals & Objectives

Over the last century, the Mill River watershed has become more populated with communities growing around the waterfront – lakes, river, and bay. Increasing populations, continued storm water runoff from new development, sea level rise, and climate change have made the communities more susceptible to flooding and water quality problems. The flooding vulnerabilities were proven during Hurricanes Irene and Sandy. With this in mind, the following goals and objectives for the Living with the Bay Program were developed:

- Increase community resilience and improve drainage infrastructure to address the impacts of rising sea level and increased frequency and intensity of extreme weather events.
- Preserve quality of life in the community during natural disasters, emergency events, and tidal inundation.
- Incorporate environmental and water quality improvements in the projects.
- Create and improve public access to the waterfront – lakes, river, and bay.

Types of Potential Projects:

- Storm Surge
- Drainage
- Stormwater Conveyance
- Wetland Restoration
- Dam Restoration
- Habitat & Coastal Restoration
- Program Boundary

Q&A Discussion

Q: What is REBUILD BY DESIGN?
A: Rebuild by Design is a new way to connect design, funding, and implementation strategies for a more resilient future, marshaling the talent of the world to answer a region's greatest needs. Using an innovative design competition process, the post-Hurricane Sandy Rebuild by Design is generating implementable solutions for a more resilient region.

Q: What is LIVING WITH THE BAY?
A: Rebuild by Design resulted in ten designs with seven currently in the process of being implemented in the Northeast United States, including Living with the Bay, in

central Nassau County. The four Rebuild by Design principles for Living with the Bay include:

- Flood defense
- Ecological restoration
- Access and urban quality
- Social resiliency

Q: How is Living with the Bay FUNDED?
A: The Living with the Bay Program was one of seven such programs funded by the Rebuild by Design process following Hurricane Sandy. The program budget amount submitted in the overall Living with the Bay design proposal was \$177,366,078. With a Community Development Block Grant-Disaster Recovery (CDBG-DR) allocation of \$125,000,000.

Q: How are Living with the Bay PROJECTS DETERMINED?
A: Projects are evaluated based on the degree to which they are able to achieve the Living with the Bay Program's goals and objectives.

Q: What is a WATERSHED?
A: Watershed (noun): an area of land defined by ridges descending to lower elevations.

Q: How do you FIX FLOODING?
A: Various flooding problems require a suite of potential solutions based on existing conditions and environmental considerations. The most basic concept includes improving collecting the stormwater at the surface with new or improved inlets and increasing the underground pipe capacities while keeping any storm surge from filling the pipes downstream.

Q: How do you Improve WATER QUALITY?
A: The typical focus of improving water quality is addressing water clarity and/or algae blooms in stormwater runoff and keeping or restoring natural filtering of runoff processes for drinking water supplies. There are a variety of means and methods to accomplish this, such as retention basins capturing runoff and allowing the water to percolate into

Involved Parties

Living with the Bay Citizen's Advisory Committee

For additional information, visit <http://stormrecovery.ny.gov/living-bay>

WEBSITE UPDATE AND CONTENTS

<http://stormrecovery.ny.gov/living-bay>



Overview

The Living with the Bay Program was created after Hurricane Sandy to increase community resilience in the Mill River and Hempstead Lake Park area of Long Island by lessening local risk from tidal and stormwater flooding, while incorporating environmental benefits such as water quality improvements, ecological restoration, and aquifer recharge, as well as improving waterfront access for the community. There are currently six types of potential improvement projects to be incorporated:

- Storm Surge
- Drainage
- Stormwater Conveyance
- Wetland Restoration
- Dam Restoration
- Habitat & Coastal Restoration

Q: What is a WATERSHED?

A: Watershed (noun): an area of land defined by ridges descending to lower elevations.

Q: How do you FIX FLOODING?

A: Various flooding problems require a suite of potential solutions based on existing conditions and environmental considerations. The most basic concept includes improving, collecting the stormwater at the surface with new or improved inlets and increasing the underground pipe capacities while keeping any storm surge from filling the pipes downstream.

Q: How do you improve WATER QUALITY?

A: The typical focus of improving water quality is addressing water clarity and/or algae blooms in stormwater runoff and keeping or restoring natural filtering of runoff processes for drinking water supplies. There are a variety of means and methods to accomplish this, such as retention basins capturing runoff and allowing the water to percolate into the ground, green infrastructure with provisions to uptake nutrients with native vegetation, and/or treatment structures capturing garbage and sediments. By successfully improving water quality at the surface the quality of our underground drinking water supplies will also be improved.

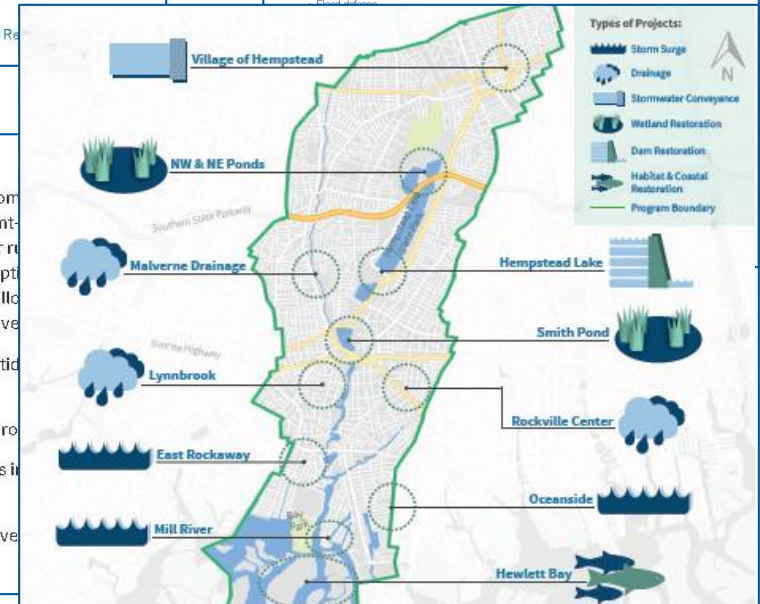
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Goals & Objectives

Over the last century, the Living with the Bay watershed has become more populated with communities growing around the waterfront, river, and bay. Increasing populations and continued stormwater runoff from new development have made the communities more susceptible to flooding and water quality problems. With this in mind, the following goals and objectives for the Living with the Bay Program were developed:

- Increase community resilience by mitigating local risk from tidal storm surge flooding.
- Improve drainage infrastructure to alleviate local flooding problems.
- Incorporate environmental and water quality improvements in projects.
- Create and improve public access to the waterfront-lakes, river, and bay.





TETRA TECH