Enjoying, Restoring, & Protecting the Ipswich River Bank:

A Community Informational Meeting

May 24, 2017

IPSWICH RIVER WATERSHED ASSOCIATION

CZM

Tonight's Speakers

- **Alicia Geilen**, Conservation Agent
  Town of Ipswich

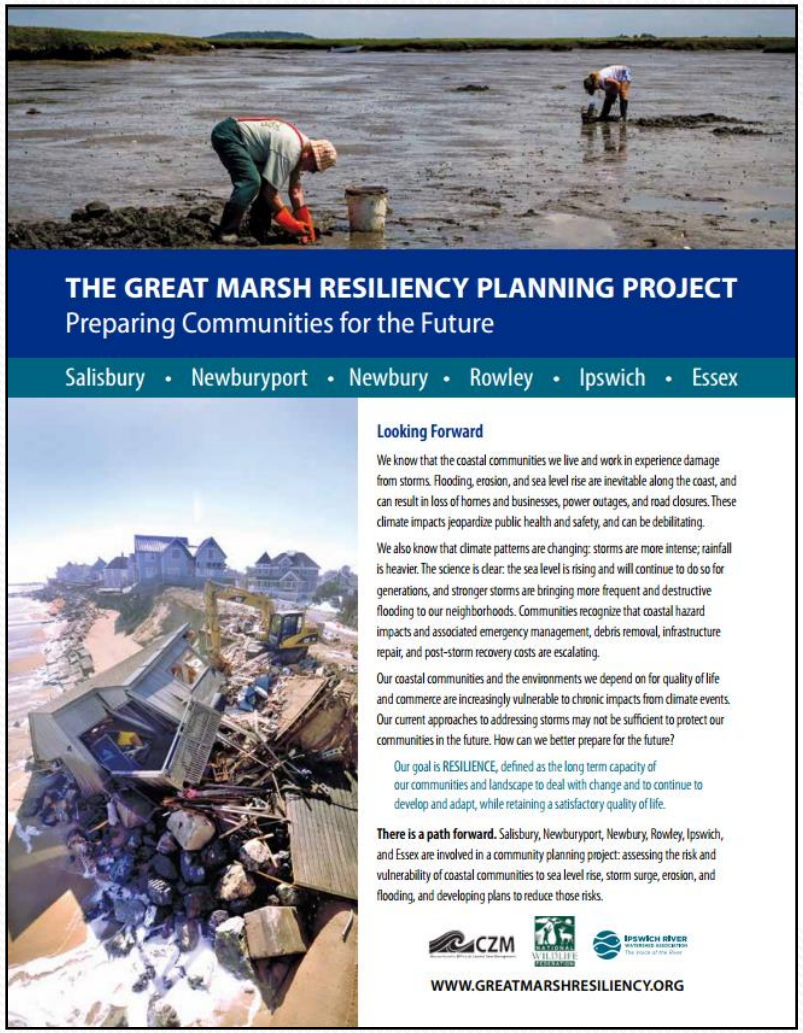
- **Kristen Grubbs**, Planner
  Ipswich River Watershed Association

Overview of Tonight's Presentation:

1. Impacts of climate change on coastal areas
2. 2016-2017 Ipswich CZM Grant Project overview and project goals
3. 2016-2017 Ipswich Grant Project findings on causes of coastal bank erosion
4. Projects being advanced in this year's grant
5. Plan for other areas of concern
6. How you can help reduce erosion of coastal bank
7. Questions and comments

Impacts Of Climate Change On Coastal Areas

Great Marsh Resiliency Planning Project



THE GREAT MARSH RESILIENCY PLANNING PROJECT
Preparing Communities for the Future

Salisbury • Newburyport • Newbury • Rowley • Ipswich • Essex

Looking Forward

We know that the coastal communities we live and work in experience damage from storms. Flooding, erosion, and sea level rise are inevitable along the coast, and can result in loss of homes and businesses, power outages, and road closures. These climate impacts jeopardize public health and safety, and can be debilitating.

We also know that climate patterns are changing: storms are more intense; rainfall is heavier. The science is clear: the sea level is rising and will continue to do so for generations, and stronger storms are bringing more frequent and destructive flooding to our neighborhoods. Communities recognize that coastal hazard impacts and associated emergency management, debris removal, infrastructure repair, and post-storm recovery costs are escalating.

Our coastal communities and the environments we depend on for quality of life and commerce are increasingly vulnerable to chronic impacts from climate events. Our current approaches to addressing storms may not be sufficient to protect our communities in the future. How can we better prepare for the future?

Our goal is RESILIENCE, defined as the long term capacity of our communities and landscape to deal with change and to continue to develop and adapt, while retaining a satisfactory quality of life.

There is a path forward. Salisbury, Newburyport, Newbury, Rowley, Ipswich, and Essex are involved in a community planning project: assessing the risk and vulnerability of coastal communities to sea level rise, storm surge, erosion, and flooding, and developing plans to reduce those risks.

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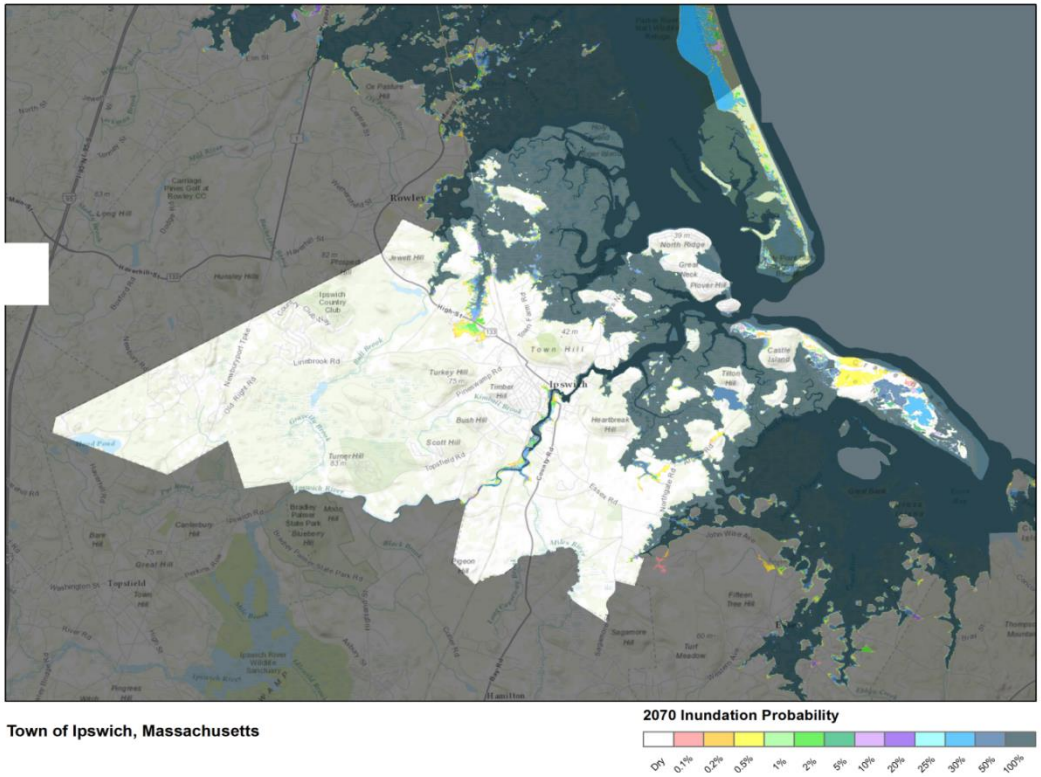
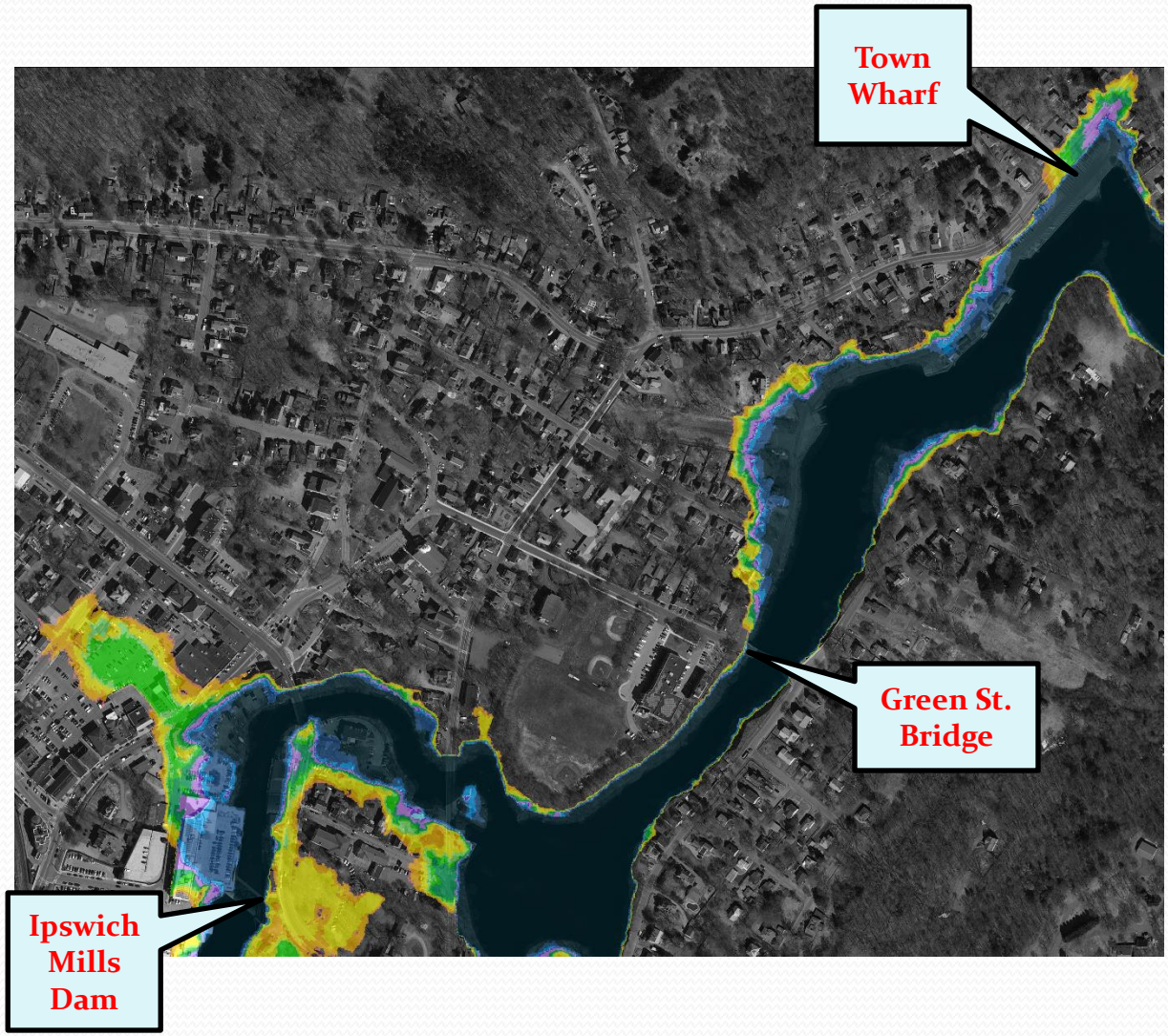
WWW.GREATMARSHRESILIENCY.ORG



Town of Ipswich, Massachusetts

www.greatmarshresiliency.org

Coastal Inundation Maps



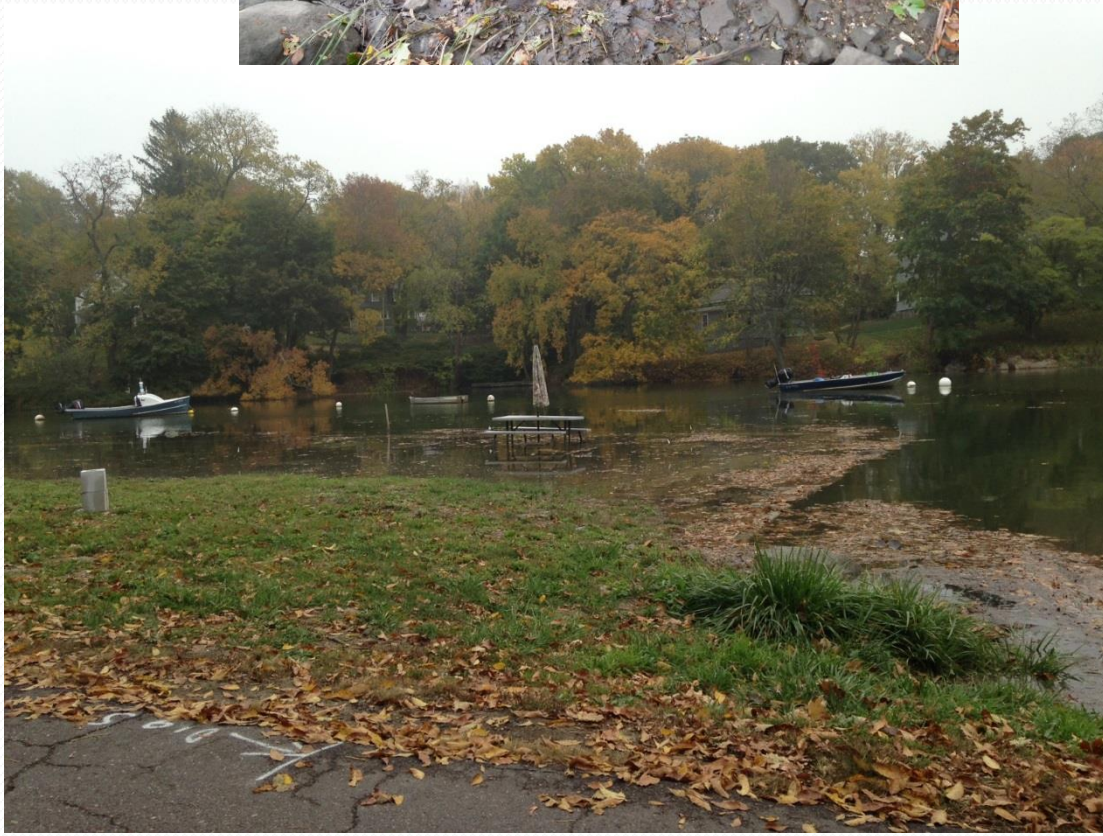
Percent Risk of Coastal Flooding

- 0.1%
- 0.2% — **500-Year Storm**
- 0.5%
- 1% — **100-Year Storm**
- 2%
- 5%
- 10%
- 20%
- 25%
- 30%
- 50%
- 100%

What does this mean? A building that lies within the 50% flood exceedance zone would have a 50% chance of flooding at least once in the calendar year.

Climate Impacts:

- Warmer weather causes stronger storms, increasing flooding, and erosion.
- Sea level rise increases flooding and erosion.



King Tide 10-19-2016

Importance of Coastal Bank

- Coastal Bank is important because it protects people and infrastructure (water & sewer pipes, roads, utilities poles) from storm damage.

Importance of Coastal Bank (cont.)

- Hard structures like seawalls can protect a small area, but cause more erosion in other areas, whereas vegetated bank can protect bank without causing erosion elsewhere.

2016-2017 Ipswich CZM Grant

Project Overview and Project Goals

Project Summary

In June 2016, Ipswich applied for and was awarded a $63,000 grant from MA Coastal Zone Management (CZM) for:

- assessing erosion of coastal bank that threatens municipal infrastructure (sewer and water pipes, electric lines, roads), and
- exploring the possibility of nature-based solutions to stabilize bank.

Grant Team

- The grant is a partnership between the Town's Planning Directorate (Conservation, Open Space, Planning), Public Works, and Utilities.
- Three consultants were hired to assist:
  - ✓ Horsley Witten Group,
  - ✓ Coneco Engineers & Scientists,
  - ✓ and Ipswich River Watershed Association.
- Specialists from MA CZM are also team members.

2016-2017 CZM Grant Findings On Causes Of Coastal Bank Erosion

Six Areas of Concern (AOCs) were Identified:

1. Water Street from Ipswich Outboard club to Green Street Bridge (a, b, c);
2. Behind Town Hall at Green Street Bridge;
3. Along Riverwalk (dirt river path);
4. At river path at County Street Bridge;
5. Ipswich sewer under the river (a, b);
6. Riverwalk at EBSCO dam.


AREA 1A
AREA 1B
AREA 1C
AREA 2
AREA 3
AREA 4
AREA 5A
AREA 5B
AREA 6
Warren St
N Main St
Meetinghouse Green
County St
Summer St
Green St
Water St
Ipswich Public Library
Zabaglione Cafe
SALT Kitchen and Rum Bar
Ipswich Town Hall
Ipswich Council on Aging
Ipswich River
Turkey Shore Rd
Woods Ln
Ipswich Police Department
Elm St
Grant St
Ipswich River

Coastal geologists and engineers have identified the following primary causes of erosion in the area

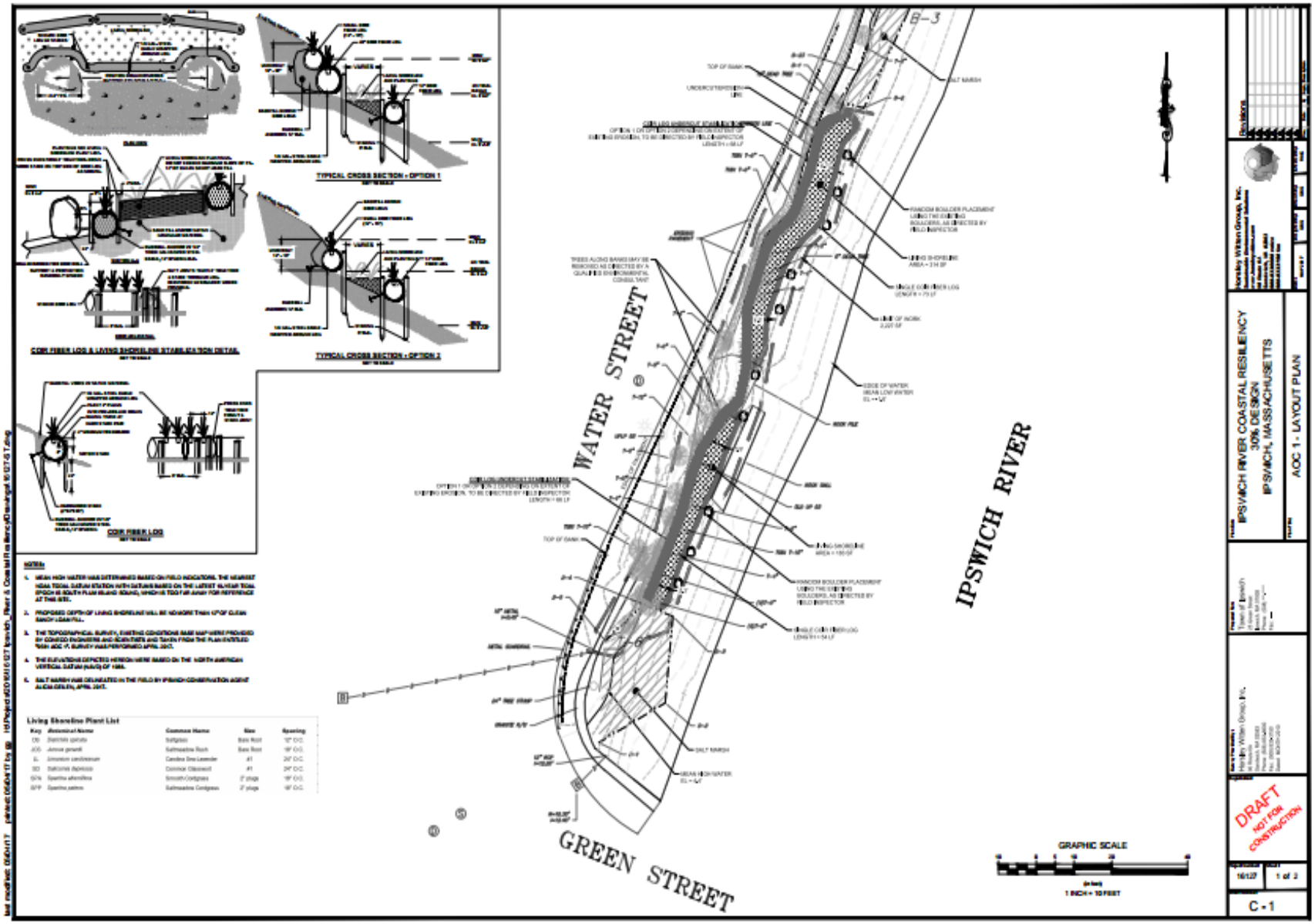
- Increased flooding (coastal and inland);
- Inadequately-managed rainwater and snowmelt running off roadways (called stormwater);
- Walking over the river bank and its associated wetlands to reach the water;
- Launching and storing small boats on coastal bank and wetlands.

Projects Being Advanced In This Year's Grant

Area of Concern 1c:

Water Street from Green Street Bridge to south of Summer Street where the toe of bank is being undercut by up to 3', threatening the road, sewer and water pipes beneath it, and electric lines above it.

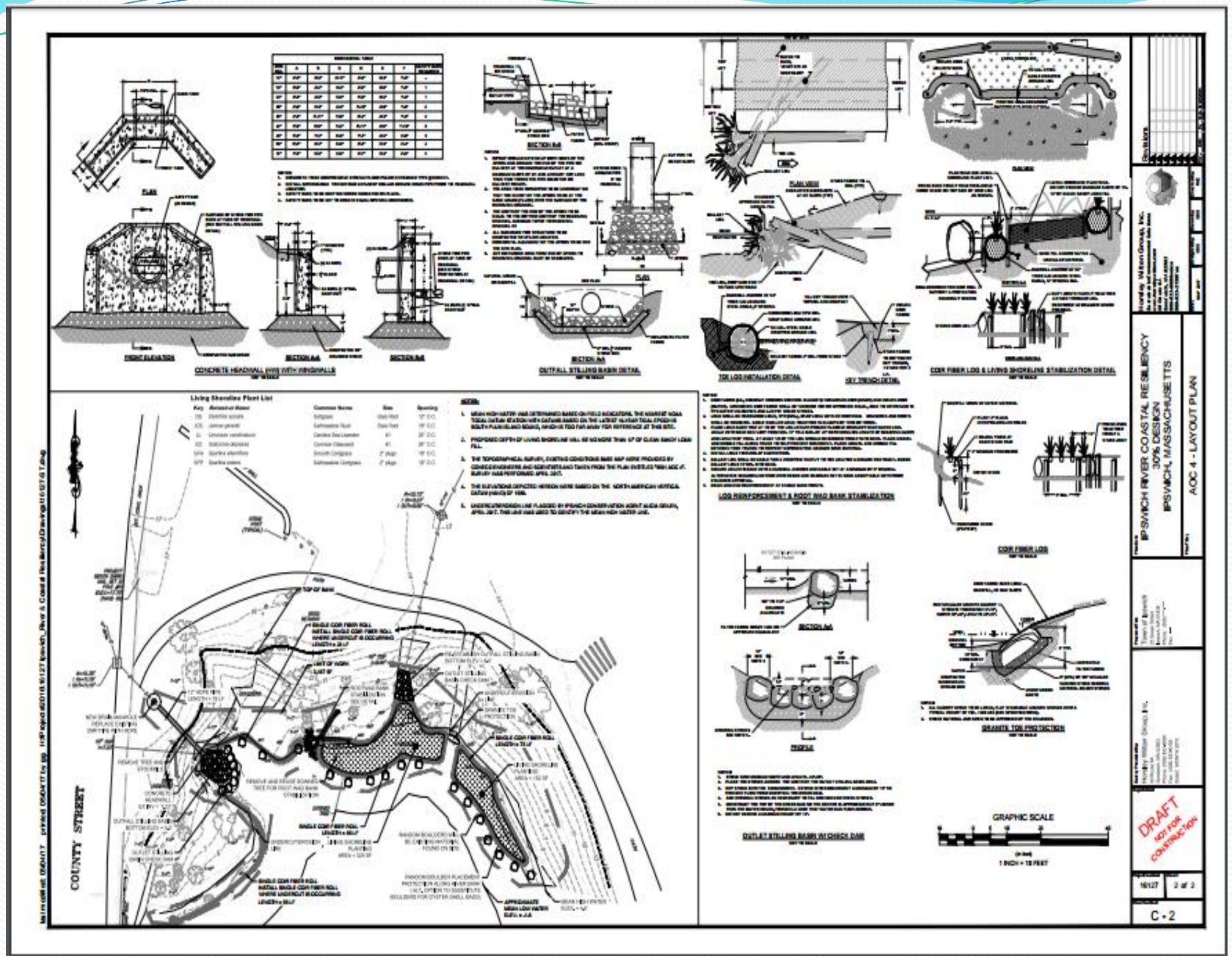
- Add curbing along Water Street from Green Street to a new catch basin before Summer Street to better control stormwater runoff;
- Relocate boulders in tidal zone, restore slat marsh, and fill areas of undercut bank, and;
- Protect toe of slope with coir fiber logs planted with native grasses and/or shrubs.


WATER STREET
GREEN STREET
IPSWICH RIVER
B-3
TYPICAL CROSS SECTION - OPTION 1
TYPICAL CROSS SECTION - OPTION 2
COIR FIBER LOG & LIVING SHORELINE STABILIZATION DETAIL
COIR FIBER LOG
GRAPHIC SCALE
1 INCH = 10 FEET
IPSWICH RIVER COASTAL RESILIENCY
30% DESIGN
IPSWICH, MASSACHUSETTS
AOC 1 - LAYOUT PLAN
DRAFT
NOT FOR CONSTRUCTION
C - 1

Area of Concern 4:

Adjacent to Riverwalk, near County Street Bridge where bank is eroding primarily from failed culvert and increased flood waters, as well as minor erosion from foot traffic, threatening the Riverwalk and the main sewer line.

- Replace one culvert, headwall, and catch basin in County Street, and add a splash pad;
- Repair splash pad from second culvert under Riverwalk;
- Protect toe of slope with coir fiber logs planted native grasses and/or shrubs and a boulder sill;
- Maintain a dedicated a path to the river between the new salt marsh areas.


CONCRETE HEADWALL (HW) WITH WINGWALLS
OUTFALL STILLING BASIN DETAIL
TOE LOG INSTALLATION DETAIL
KEY TRENCH DETAIL
COIR FIBER LOG & LIVING SHORELINE STABILIZATION DETAIL
LOG REINFORCEMENT & ROOT WAD BANK STABILIZATION
COIR FIBER LOG
GRANITE TOE PROTECTION
OUTLET STILLING BASIN W/ CHECK DAM
GRAPHIC SCALE
1 INCH = 10 FEET
COUNTY STREET
IPSWICH RIVER COASTAL RESILIENCY
30% DESIGN
IPSWICH, MASSACHUSETTS
AOC 4 - LAYOUT PLAN
DRAFT
NOT FOR CONSTRUCTION
C - 2

Plan For Other Areas Of Concern

AOC 1b: Water Street at end of Summer Street

- replace culvert and headwall and possibly add catch basin(s);
- stabilize bank with coir fiber blanket planted with native grasses and/or shrubs, protect toe of slope with coir fiber logs planted with native grasses and/or shrubs and restore salt marsh;
- create a Task Force to study public access, and if possible add small public access pier with seasonal floats for launching non-motorized boats and dinghies for moorings.

AOC 2: Behind Town Hall near Green Street

- likely re-construct a revetment to protect sewer line,
- possible water access point for people.

How You Can Help Reduce Erosion Of Coastal Bank

A. Do not store boats on coastal bank.

State regulations prohibit the storage of boats on tidal flats, salt marsh, and coastal bank. As of March 1, 2017, the Town is enforcing this prohibition.

Holders of a licensed mooring near Water Street can talk with the Police Department to obtain a permit to store dinghies at a newly-expanded dinghy dock at the Town Wharf.

B. When accessing the river for canoeing, kayaking, or paddle boarding, launch at a public boat launching area whenever possible.
Carry, don't drag, your boat.
Step on rocks, not plants.

C. When walking along the river, stay on trails.
Do not step on fragile wetland plants or tree roots.

D. Support the Ipswich Waterways Advisory Committee's efforts to improve public access to the river for non-motorized boating: Task Force to be formed in the summer.

E. Get involved in invasive plant removal projects undertaken by conservation groups such as Mass Audubon and the Ipswich Open Space Program.

F. Prevent stormwater runoff from rain and snowmelt by reducing pavement and other impervious surfaces. Establish vegetated areas that help water soak into the ground.

G. Support the Ipswich Department of Public Works' projects for improved stormwater management.

H. Always pick up dog waste and dispose of it properly.

Presentation Re-cap

The coastal bank acts as a buffer, helping to protect our homes and our municipal infrastructure from flooding and other storm damage.

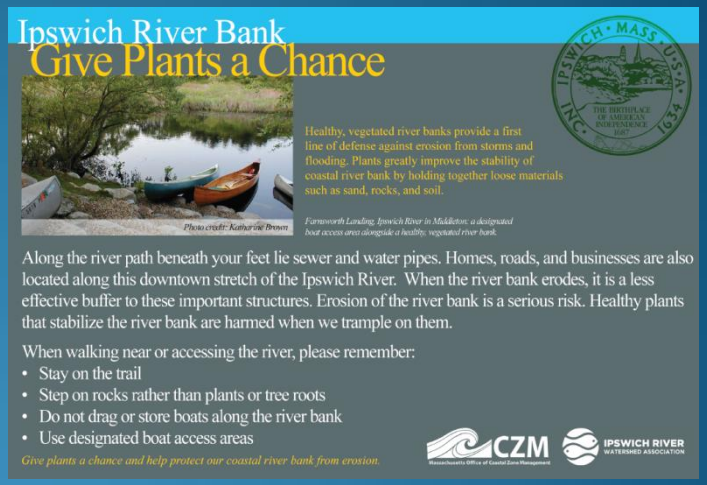
When the river bank erodes, it becomes a less effective buffer to these important community assets.

Thank you for your help in reducing coastal bank erosion and restoring and protecting the Ipswich river bank.

Next Steps

Phase 1 project concludes at end of June:

- 30% design plans
- draft first environmental permit
- educational signage installed along river



Planning and seeking support for Phase 2:

- Task force to study and make recommendations on access to the river in project area
- Final design plans and permitting for AOC 1c & 4
- Advance designs for AOC 1b & 2 to 30%
- Continued education & outreach

Comments? Questions?

For more information, go to: www.pie-rivers.org/ipswichriverbankproject

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Thank you for coming!

Special thanks to CZM for the funding that made the study and this presentation possible.