

Delaware Direct Integrated Watershed Management Plan

Selection of Goals and Objectives
Delaware Direct Watershed Partnership
June 9, 2010

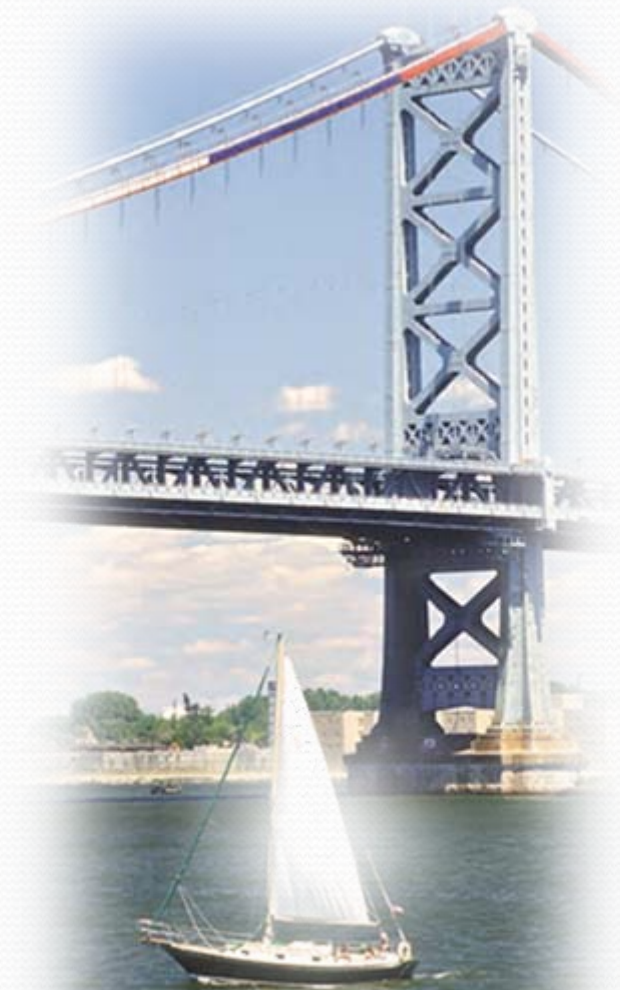


Planning from clear objectives

- **Goal:** a series of “wishes” for the watershed, not specifically measurable
 - *e.g., Improve river habitat and integrity of aquatic life along the Delaware River*
- **Objective:** a measurable parameter that leads toward the establishment of a target value
 - *e.g., 80 acres of restored tidal wetland habitat*
- **Management Option:** a technique, measure, or structural control that addresses one or more objectives
 - *e.g., Create a tidal wetland at pier 53*
- **Indicator:** used to characterize the current condition of a watershed area and can be used to measure progress toward goals as management options are implemented
 - *e.g., Acres of newly established tidal wetland areas in the Delaware Direct Watershed*

Delaware Direct Watershed Goals

- **Habitat and Living Resources**
- **In-river Flow Conditions**
- **Water Quality and Pollutant Loads**
- **River Corridors**
- **Flooding**
- **Quality of Life**
- **Recreation**
- **Stewardship, Communication, and Coordination**



Habitat and Living Resources: Improve river habitat and integrity of aquatic life.

Objective 1.1	Improve diversity and relative abundance of resident and migratory fisheries
Objective 1.2	Increase habitat areas in inter-tidal zones

In-river Flow Conditions: Reduce the impact of urbanized flow on living resources

- | | |
|---------------|---|
| Objective 2.1 | Decrease combined sewer overflow volume from the baseline condition for small frequent storms of one inch or less (first flush) |
| Objective 2.2 | Decrease area contributing to the combined sewer system along the riverfront corridor where feasible |
| Objective 2.3 | Consolidate or modify outfalls as necessary to support instream habitat restoration projects |

Water Quality and Pollutant Loads: Improve dry and wet weather river water quality to reduce the effects on public health and aquatic life

Objective 3.1	Reduce wet weather loadings of bacteria, BOD and TSS
Objective 3.2	Meet water quality criteria in dry weather within the Delaware Estuary
Objective 3.3	Identify recreational uses of the Delaware River in the region and the risks associated with primary contact
Objective 3.4	Reduce 's impact on fish consumption advisories by implementing the PMP for PCBs in the Delaware River
Objective 3.5	Reduce CSO volume and frequency
Objective 3.6	Implement floatables control
Objective 3.7	Perform I/I studies, sewers cleaning, inspections and repairs
Objective 3.8	Implement EPA's Nine Minimum Controls for CSOs
Objective 3.9	Ensure compliance with stormwater regulations
Objective 3.10	Incorporate current climate change science to model salt line movement and freshwater flow in order to predict future conditions and ensure that water treatment plants are adequately protected under regional water policy
Objective 3.11	Research the various sources of sodium and chloride in the Philadelphia region of the Delaware River, and use source water protection activities to prevent increases
Objective 3.12	Research the sources of disinfection byproduct precursors and any changes that may occur in these sources due to land cover and climate changes

River Corridors: Protect and restore river corridors, buffers, floodplains, and natural habitats, including wetlands

Objective 4.1 Inventory and protect existing wetlands

Objective 4.2 Restore X acres of established tidal wetland habitat

Objective 4.3 Identify and pursue opportunities for wetland creation for stormwater treatment

Objective 4.4 Increase the length of protected naturalized rivers edge

Objective 4.5 Integrate open space and habitat into waterfront development and utilize existing and vacant/abandoned lands

Flooding: Identify flood-prone areas and decrease flooding.

Objective 5.1 Regularly clean and maintain storm inlet throughout the watershed

Objective 5.2 Decrease street and basement flooding

Objective 5.3 Research the impacts of future sea level rise on the Delaware Waterfront

Objective 5.4 Mitigate the effects of sea level rise along the Delaware River, especially at PWD facilities

For Discussion June 9, 2010

Quality of Life: Enhance the community environmental quality of life

Objective 6.1 Implement green stormwater infrastructure, particularly focusing on corridors that provide a direct connection to the Delaware River.

Objective 6.2 Reduce trash and debris from Philadelphia outfalls in the Delaware River

Recreation: Enhance and improve recreational opportunities and public amenities

Objective 7.1	Increase community access points to the Delaware River in
Objective 7.2	Implement projects to reduce the effects of CSO on recreational areas
Objective 7.3	Increase passive and active recreational opportunities along waterfront

Stewardship, Communication, and Coordination:

Foster community stewardship and improve inter-governmental, state, and stakeholder cooperation and coordination on a watershed basis (slide 1 of 2)

Objective 8.1 Increase visits to the waterfront through stewardship and education

Objective 8.2 Convene Delaware Direct Watershed Partnership to coordinate implementation projects to maximize stormwater management in community projects and planning initiatives during the conceptual design phase

Objective 8.3 Engage new partners in public-private partnerships

Objective 8.4 Encourage and support neighborhood-based programs to implement green stormwater infrastructure in each neighborhood within the Delaware Direct Watershed

Objective 8.5 Increase the number of special service districts to promote the use of and assist with maintenance of green stormwater infrastructure

Stewardship, Communication, and Coordination:

Foster community stewardship and improve inter-governmental, state, and stakeholder cooperation and coordination on a watershed basis (slide 2 of 2)

Objective 8.6	Coordinate among communities and governments along the Delaware River
Objective 8.7	Increase the number of users of the Early Warning System
Objective 8.8	Establish a partnership website that serves as a resource for collaboration
Objective 8.9	Increase the amount of water quality data collected from the Tidal Delaware River through inter-agency partnerships
Objective 8.10	Partner with public agencies to implement green practices on public property

Green City, Clean Waters

Green Streets and Land-based Initiatives
Delaware Direct Watershed Partnership

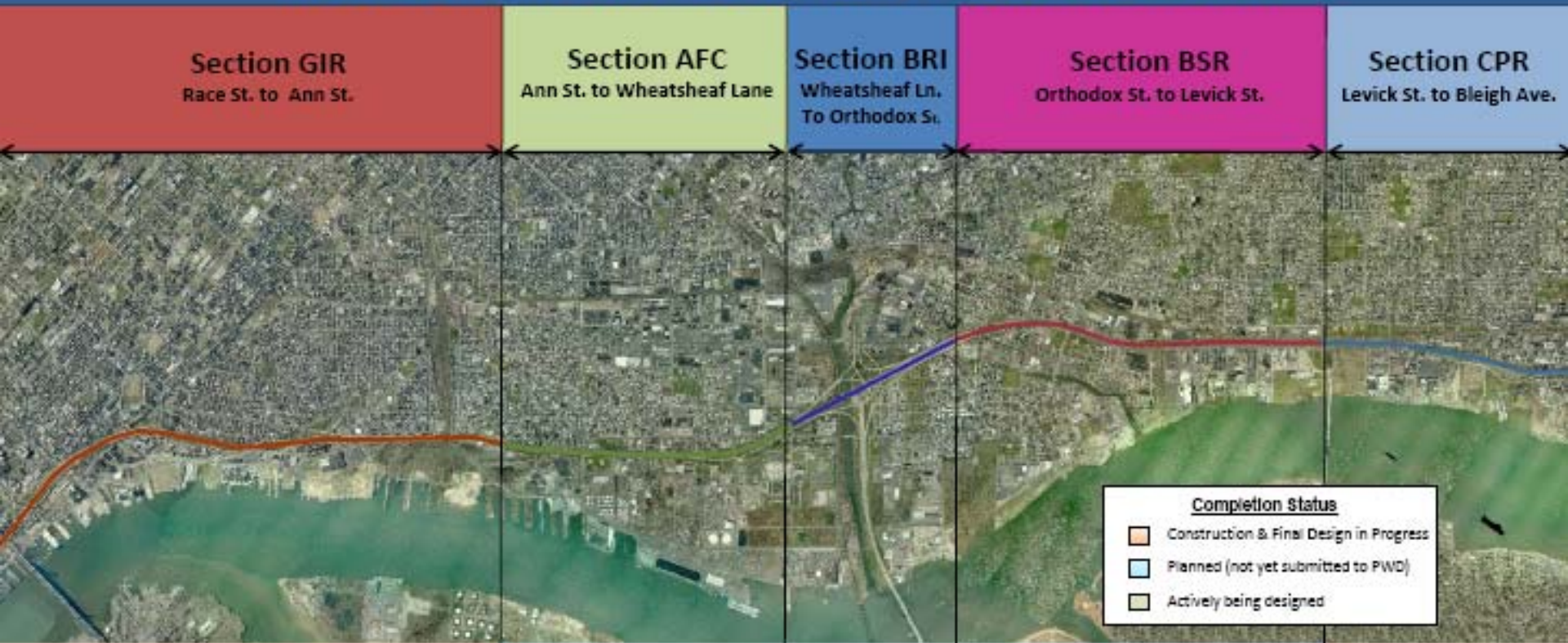
June 9, 2010



Highest Priority Connector Streets and Green Streets Feasibility

							Plans			
Street Name	Partner Priority	Potential Lead Org.	Parallel Project Timing	Project Opportunities	PWD challenges	Project Partners	North Delaware Master Plan	New Kensington CDC Riverfront Plan	Northern Liberties Waterfront Plan	Central Delaware Civic Vision
Levick Street	Highest	DRCC	Lardner Point park-construction starting soon, trail head, connector may be longer term	Provide link to Lardner Point Park & East Coast Greenway Right lane striped for no travel	Slopes. Difficulties btw bicyclists and pedestrians due to traffic patterns.	PennDOT, PWD, PHS	<input checked="" type="checkbox"/>			
Frankford Ave	Highest	DRWC / NKCDC	Temporary (potentially permanent) Re-routing trolley onto Frankford soon (poss. During next phase-2011). Immediate need to investigate if we want to in add green stormwater infrastructure.	Construction beginning for trolley lines allows for integration of green infrastructure. NKCDC streetscape project.	Limited ROW, Some drainage areas are small	PennDOT, SEPTA, PWD, PHS		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Spring Garden Street	Highest	DRWC / PEC	PEC is seeking money for re-design.	East Coast Greenway trial connection. Wide cartways and ROW allows for opportunities for green infrastructure if re-designed.	Utility conflict. Funding. Leadership.	DVRPC, PennPraxis, PWD, PHS, NLNA, SRDC, etc.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Race Street	Highest	PHS/DRWC	Race Street Pier completed by Spring 2011	PHS has funding for design. DRWC committed to raising funds for implementation of Connection to Race Street Pier.	Difficulties btw bicyclists and pedestrians due to traffic patterns, some separate and contributing areas.	DRWC, PWD, PHS				
Washington Avenue	Highest	PWD	PWD SFR project in design, Street Reconstruction for 2014.	Connection to Pier 53, PWD SFR, East Coast Greenway: southern connection from Schuylkill Banks Trail to Delaware Trail	Some trees in place already	DRWC, PEC, SRDC, PHS				<input checked="" type="checkbox"/>

I-95 Expansion Phases – Currently Proposed Schedule



Section GIR

Section	Construction Scheduled
GR0 – Temp. Riverfront Access Ramp	Sept 2008
GR1 – Columbia to Ann	March 2011
GR2 – Shickelman to Columbia	March 2012-2014
GR3 – Columbia to Ann	March 2013
GR4 – Columbia to Ann	March 2013
GR5 – Columbia to Ann	March 2015

Section CPR

Section	Construction Scheduled
AF1 – Allegheny Interchange	September 2011
AF2 & 3	March 2013

Section BRI

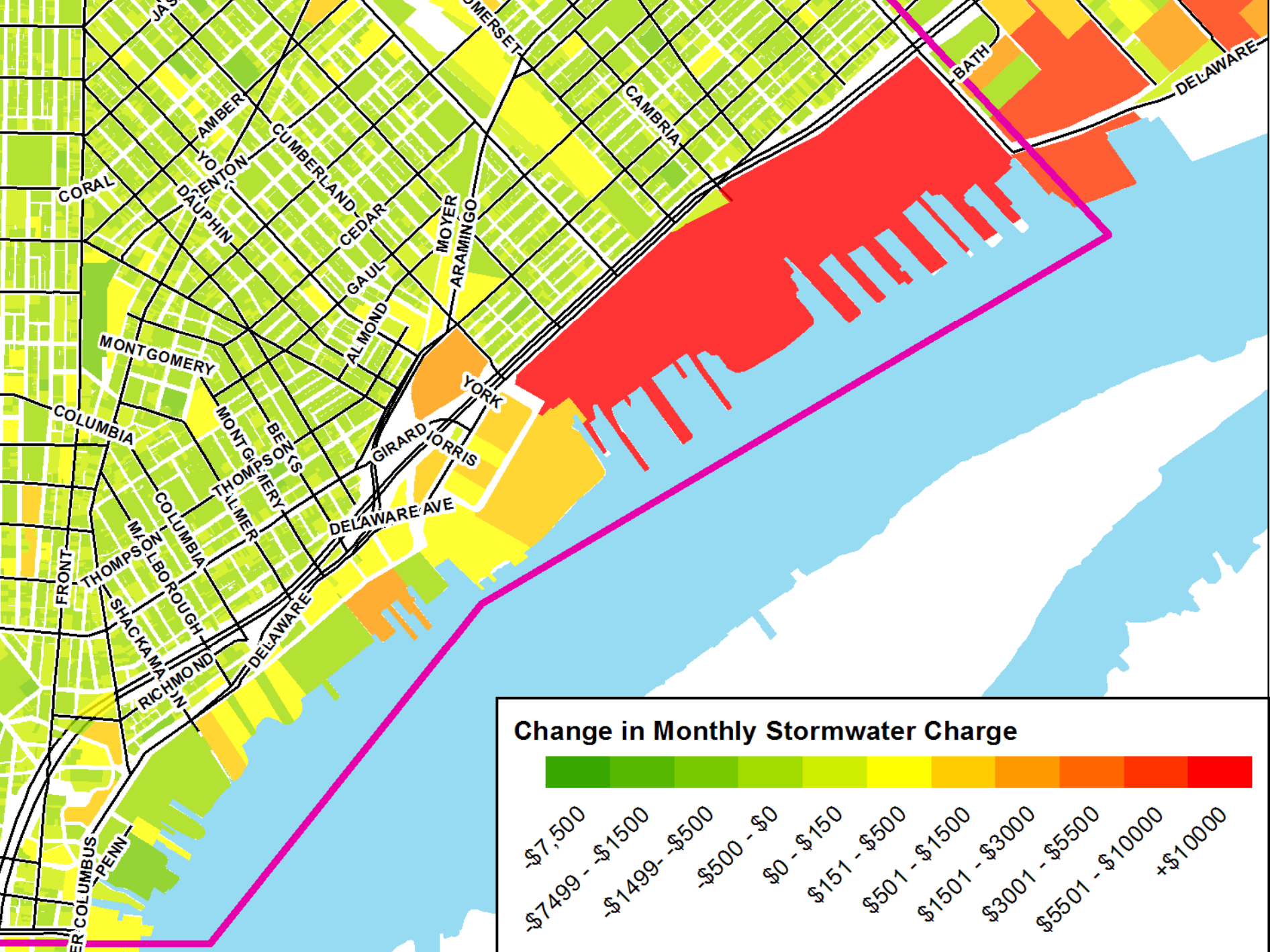
Section	Construction Schedule
BRI3	2012-2015
Betsy Ross Interchange	
Temp. River Access ramp	

Section BSR

Section	Construction Status
BSR	March 2013

Section CPR

Section	Construction Scheduled
CPI (Local Streets)	Started 2009
CPU (Utility Rel.)	March 2010
CP2 (Widening)	March 2011



Change in Monthly Stormwater Charge

- \$7,500
- \$1499 - -\$1500
- \$500 - -\$500
- \$0 - \$0
- \$151 - \$150
- \$501 - \$500
- \$1501 - \$1500
- \$3001 - \$3000
- \$5501 - \$5500
- +\$10000

8 Green Programs

Public Lands

- Streets
- Schools
- Public Facilities
- Open Spaces



**Springside School “Water Wall” and
Rain Garden
Philadelphia, PA**

**Saylor Grove Stormwater Wetland
Philadelphia, PA**



**Friends Center Green Roof
Philadelphia, PA**



Private Lands

- Industrial/Commercial/Institutional
- Homes
- Parking
- Alleys, Driveways and Walkways