PUBLIC INFORMATION MEETING
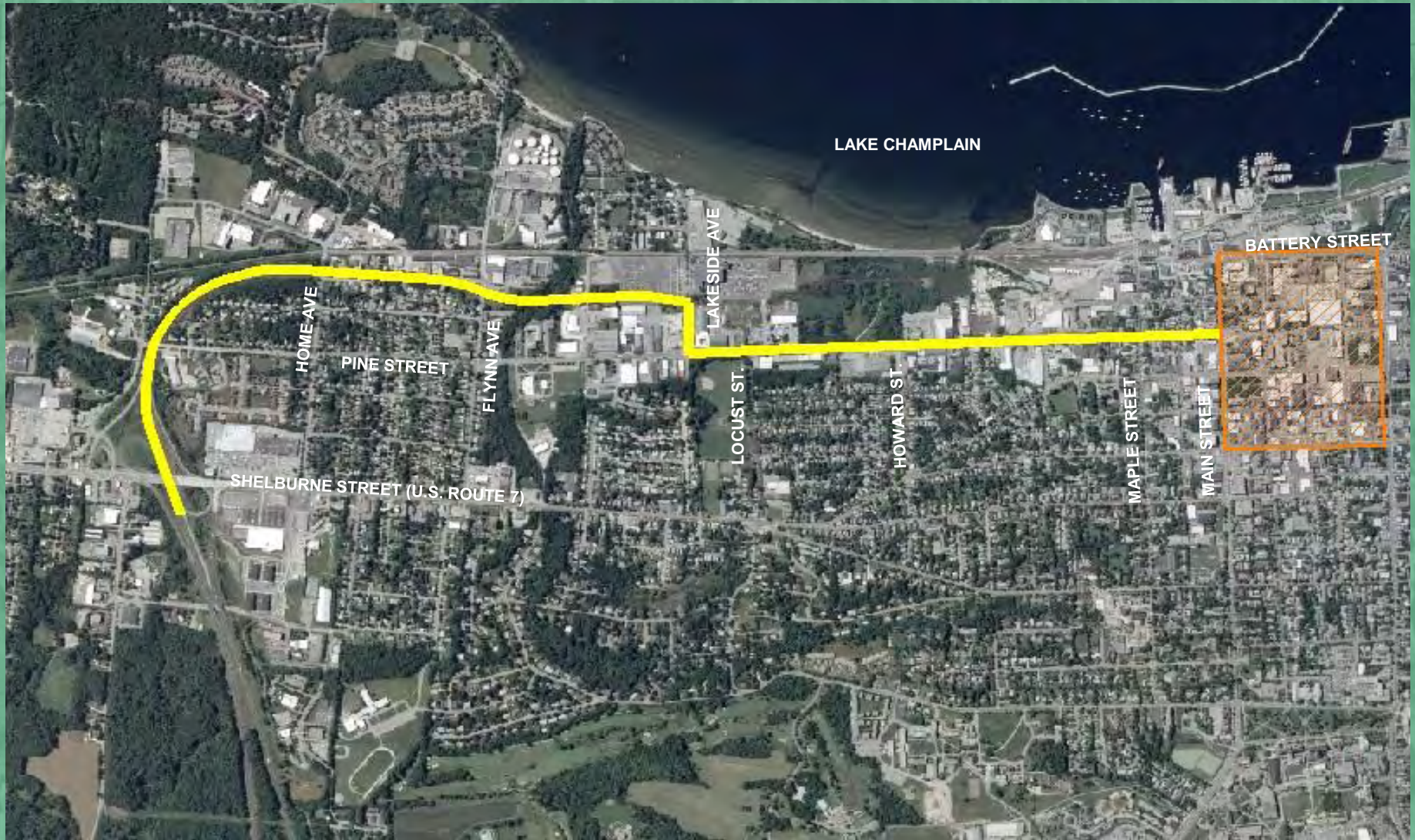
Champlain Parkway
Burlington, Vermont

Environment

June 10, 2010

Champlain Parkway

LAKE CHAMPLAIN

BATTERY STREET

HOME AVE

PINE STREET

FLYNN AVE

LAKESIDE AVE

LOCUST ST.

HOWARD ST.

MAPLE STREET

MAIN STREET

SHELBURNE STREET (U.S. ROUTE 7)
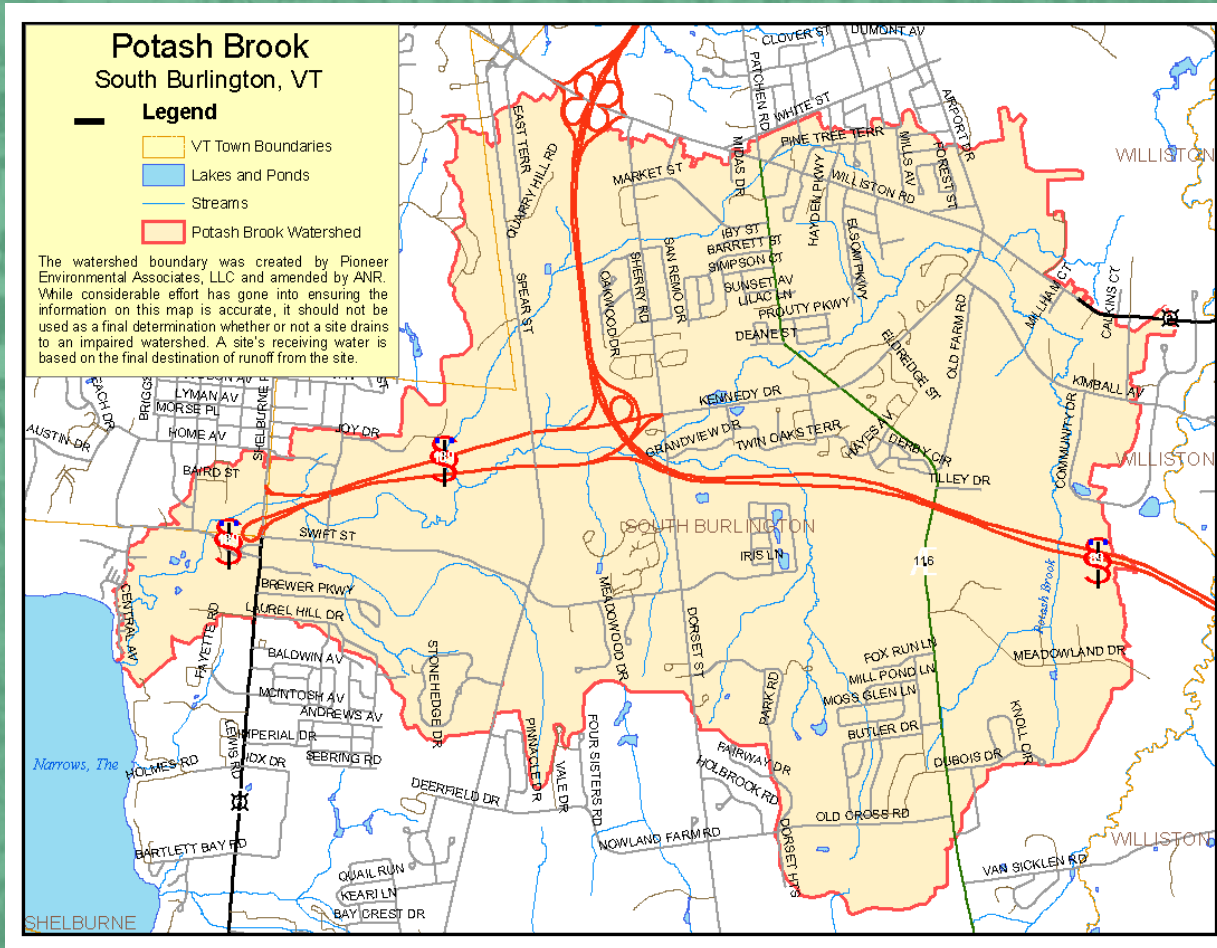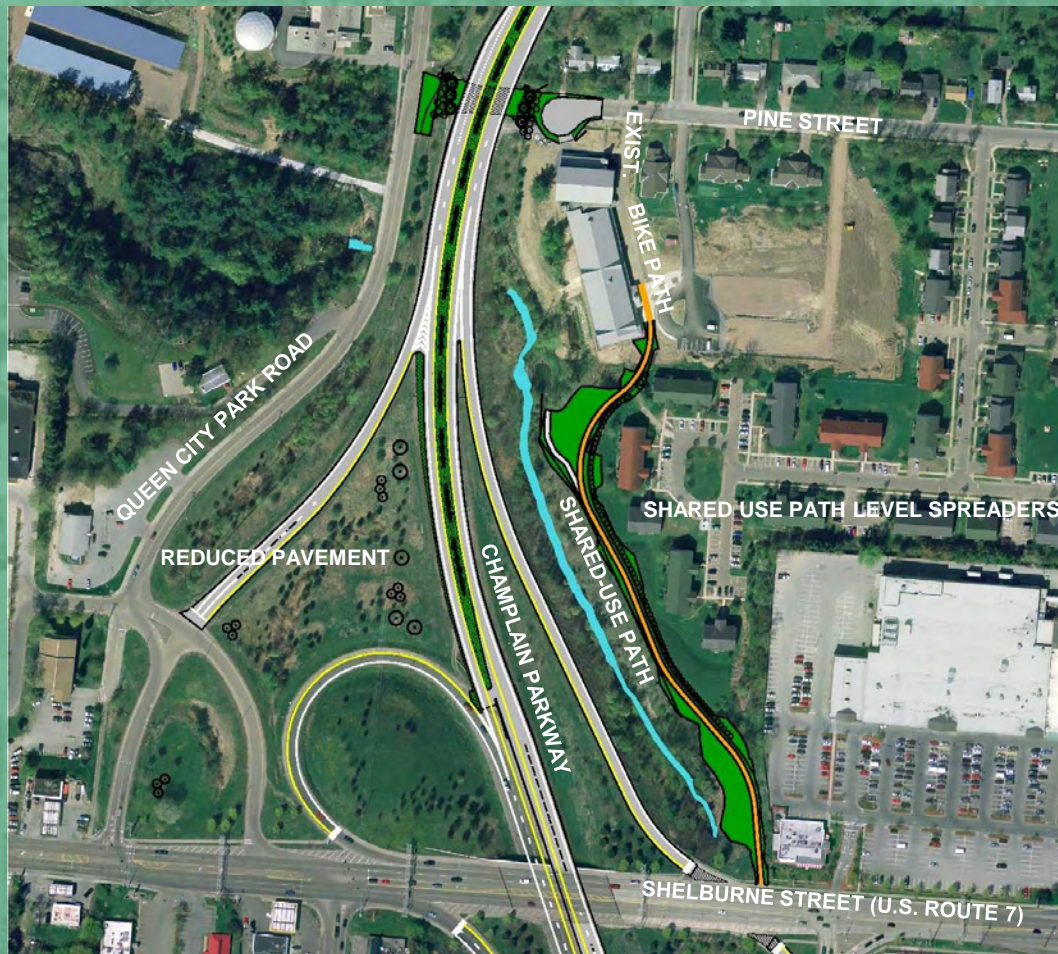
STORMWATER WATERSHEDS WITHIN THE CHAMPLAIN PARKWAY CORRIDOR

- **Potash Brook – Listed as Impaired on 303(d) list**

- **Englesby Brook – Listed as Impaired on 303(d) list**

- **Oakledge Tributary**

- **Barge Canal/Lake Champlain**

- **Burlington Main Wastewater Treatment Plant**
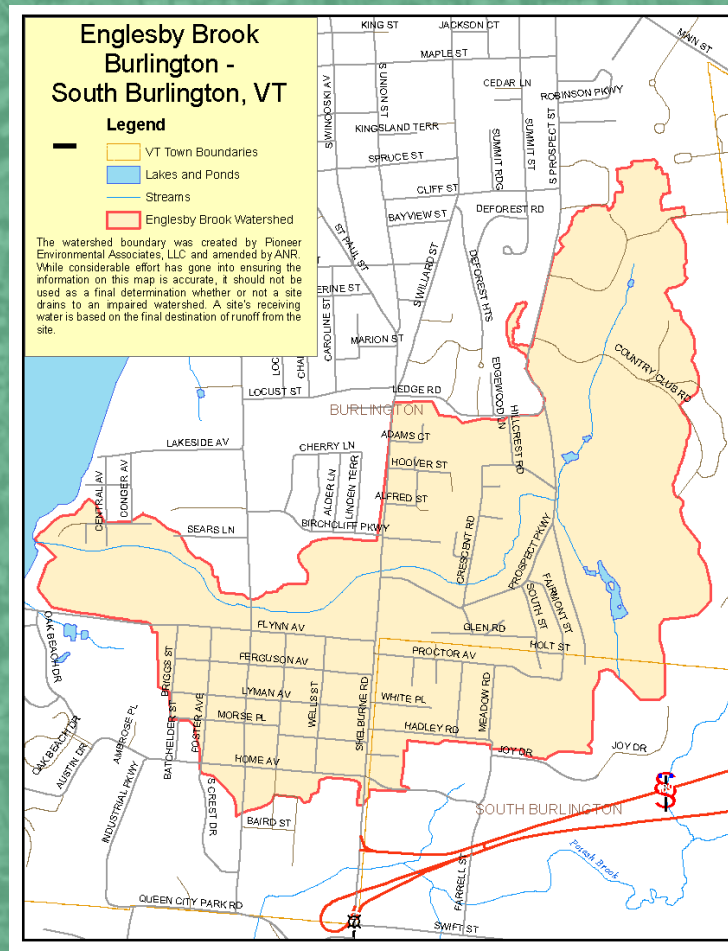
Potash Brook Watershed

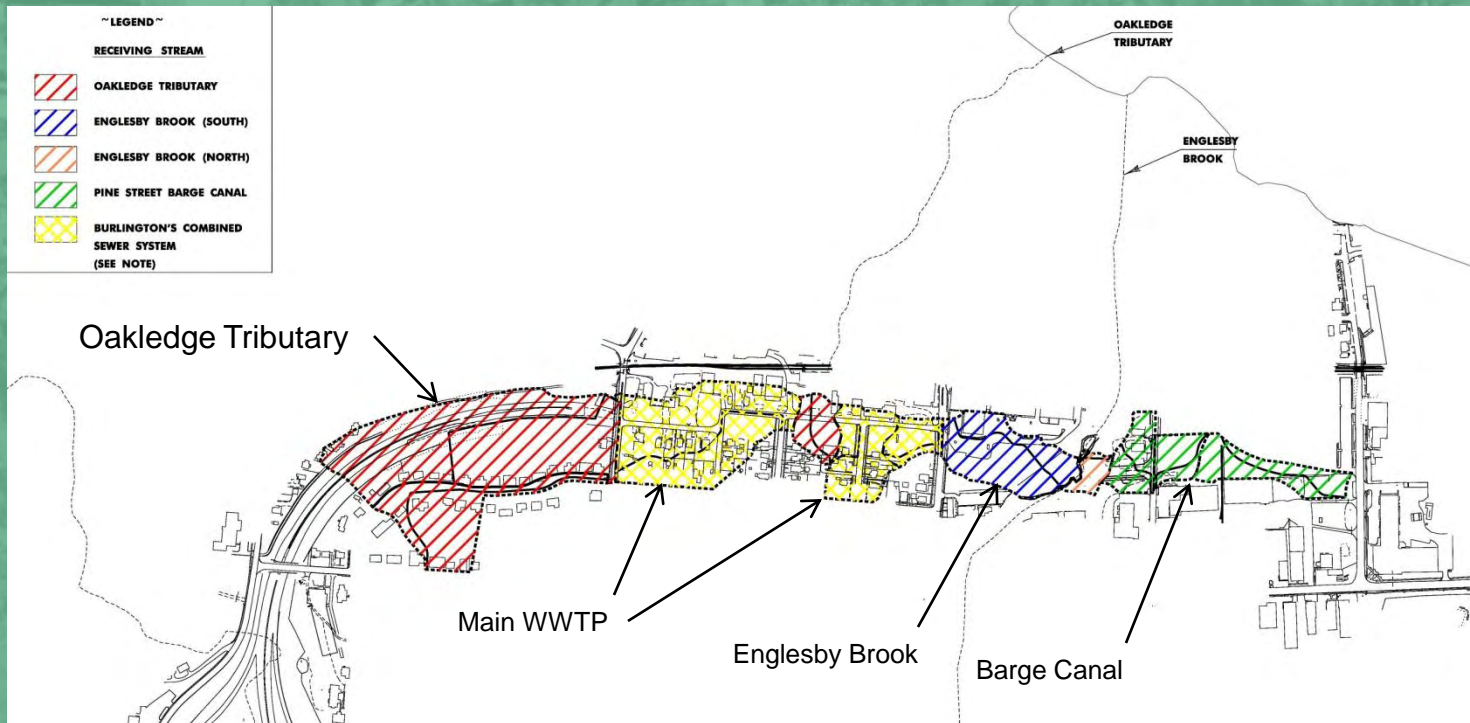# Improvements within Potash Brook Watershed

POTASH BROOK WATERSHED IMPACTS

- **NET REDUCTION IN IMPERVIOUS SURFACE 0.66 ACRES**

- **ESTIMATED REDUCTION IN SEDIMENT LOAD TO POTASH BROOK = 300 Pounds/Year**
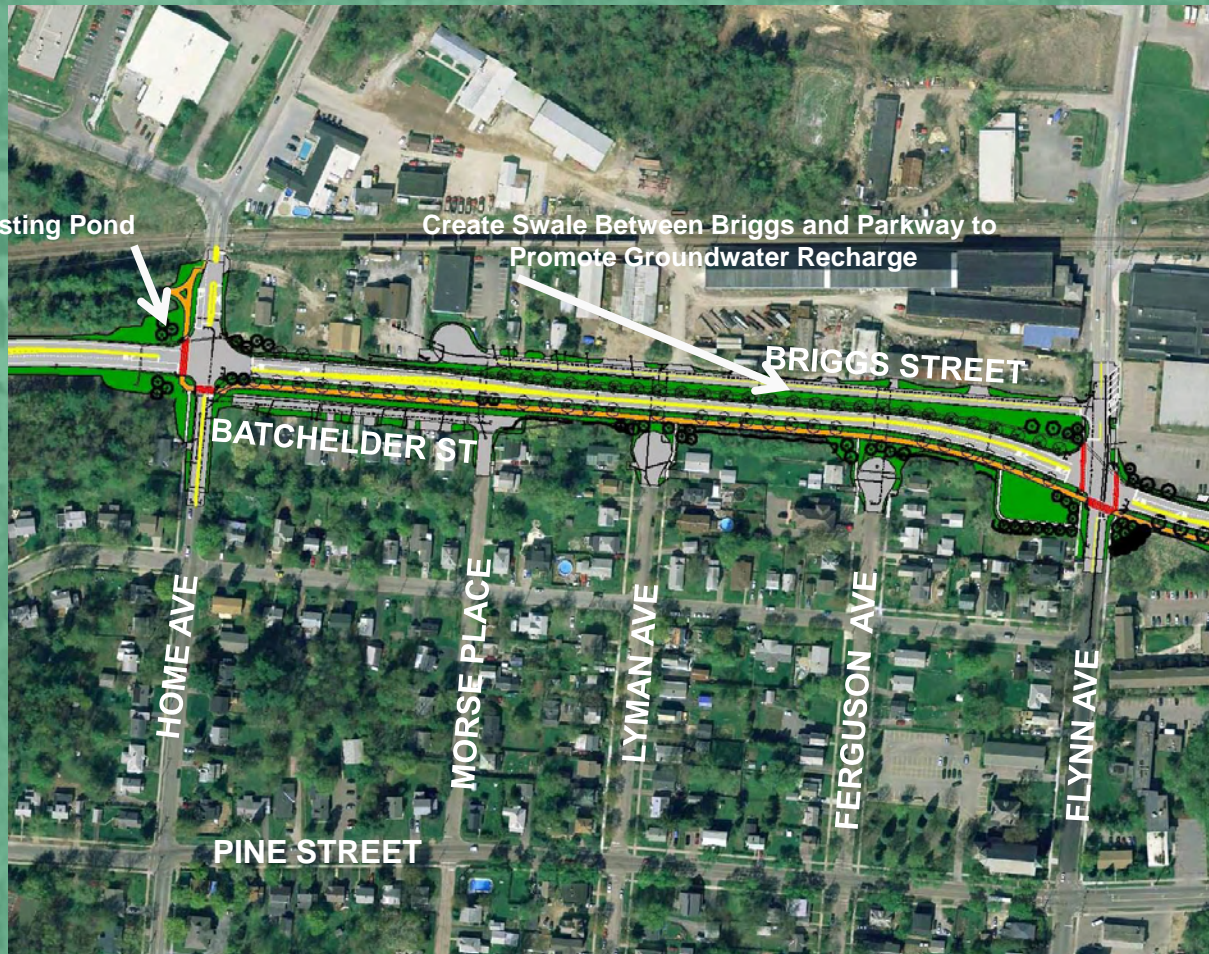
Englesby Brook Watershed

Existing
Sub-Watersheds Pine Street to Lakeside Avenue

Stormwater Improvements
Home Avenue to Flynn Avenue

Stormwater Treatment Systems - Englesby Brook
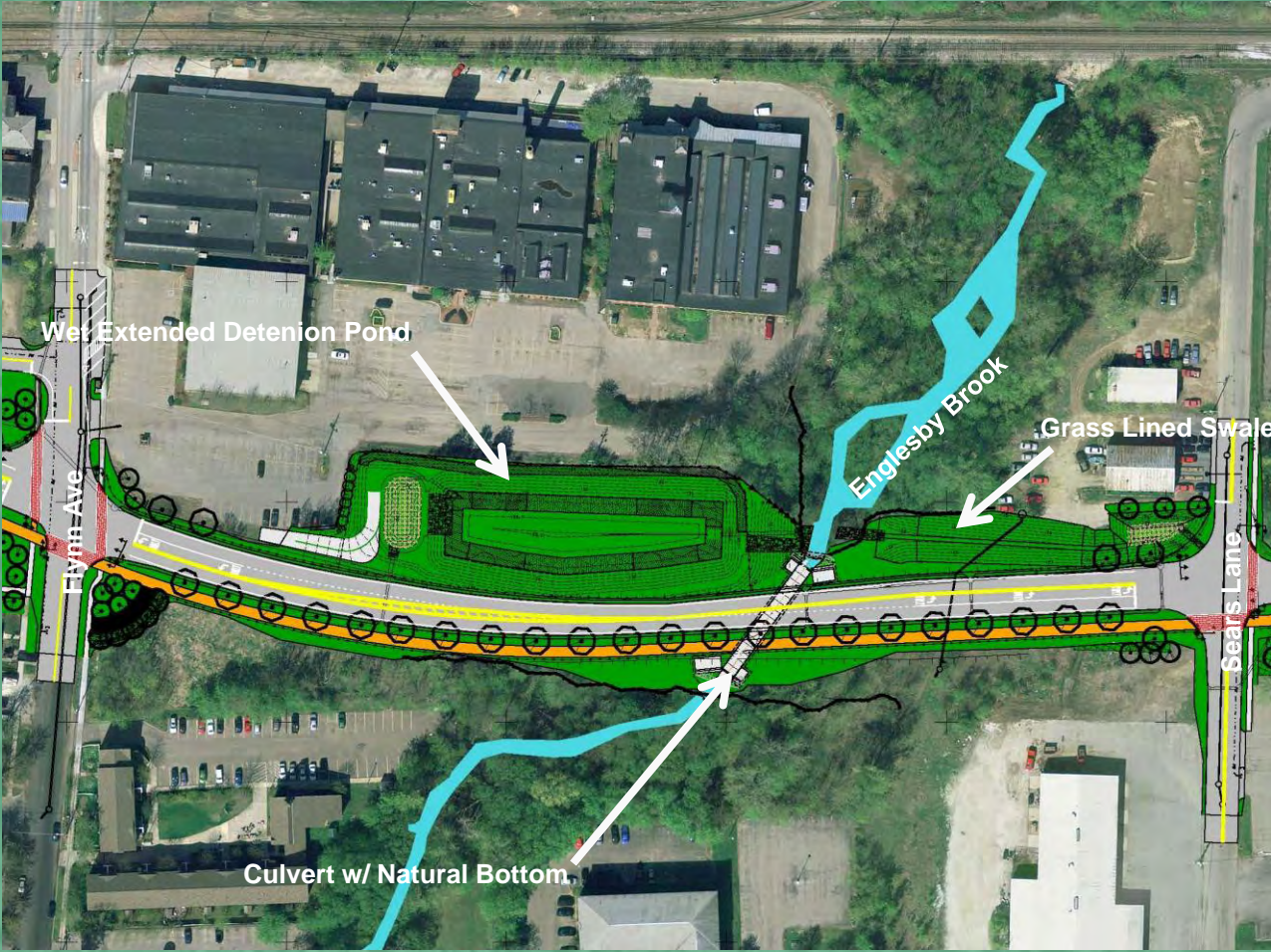
Hydrologic/Hydraulic Performance Wet Extended Detention Pond

Event	Rainfall (inches)	Pre-development Conditions			Post-development Conditions	
		Peak Runoff to Englesby Brook (cfs)	Peak Runoff to Oakledge Tributary (cfs)	Peak Discharge to Sewer (cfs)	Inflow (cfs)	Outflow (cfs)
Water Quality Storm (WQ_V)	0.9	N/A	N/A	N/A	11.08	0.78
Channel Protection Storm (Q_1)	2.1	N/A	N/A	N/A	23.69	0.88
Overbank Flood Storm (Q_{10})	3.2	21.46	26.66	7.81	53.17	11.63

Hydrologic/Hydraulic Performance Grass Lined Swale

Event	Rainfall (inches)	Pre-development	Post-development	
		Peak Runoff to Englesby Brook (cfs)	Inflow (cfs)	Outflow (cfs)
Water Quality Storm (WQ_V)	0.9	N/A	2.21	1.70
Channel Protection Storm (Q_1)	2.1	N/A	4.85	4.03
Overbank Flood Storm (Q_{10})	3.2	0.34	8.71	7.57

Combined Performance of Wet Extended Basin and Swale

Event	Rainfall (inches)	Pre-development Peak Runoff to Englesby Brook (cfs)	Post-development Outflow (cfs)
Overbank Flood Storm (Q_{10})	3.2	21.70	12.45

Estimated Sediment Loadings to Blanchard Beach

Receiving Stream		Pre-development Sediment Loading (lbs/year)	Post-development Sediment Loading to STP (lbs/year)	Post-development Sediment Loading from STP (lbs/year)
"Oakledge Tributary"		2,515	0	0
Englesby Brook	(Pre-devel.)	1,234		
	(Post-devel.)		7,915	1,583
Total Loading at Blanchard Beach		3,749		1,583

Reduction at Blanchard Beach 3,749 – 1,583 = 2,166 lbs/yr
However, Hannaford Decision says – No Net load Increase to Englesby Brook (1,583 > 1,234) or 349 additional lbs/yr.
 So Project Needed an Additional Offset

Offset Improvement at Flynn Ave Co-op
Foster Street Outfall

New Sediment Removal System

Englesby Brook

Foster Street Outfall

Sediment Load Summary

- **Englesby Watershed Restoration Plan – Prepared by the Center for Watershed Protection Estimates 3,766 lbs/yr from Foster Street Outfall**

- **New Sediment Removal Device will remove 80% = 3,013 lbs/yr**

- **Englesby Brook will see a net reduction of 3,013 – 349 = 2,664 lbs/yr**

- **Blanchard Beach will see a net reduction of 2,664 + 2,166 = 4,829 lbs/yr**

Lakeside Avenue Sand Filter

Lakeside Avenue

Outfall to Barge Canal
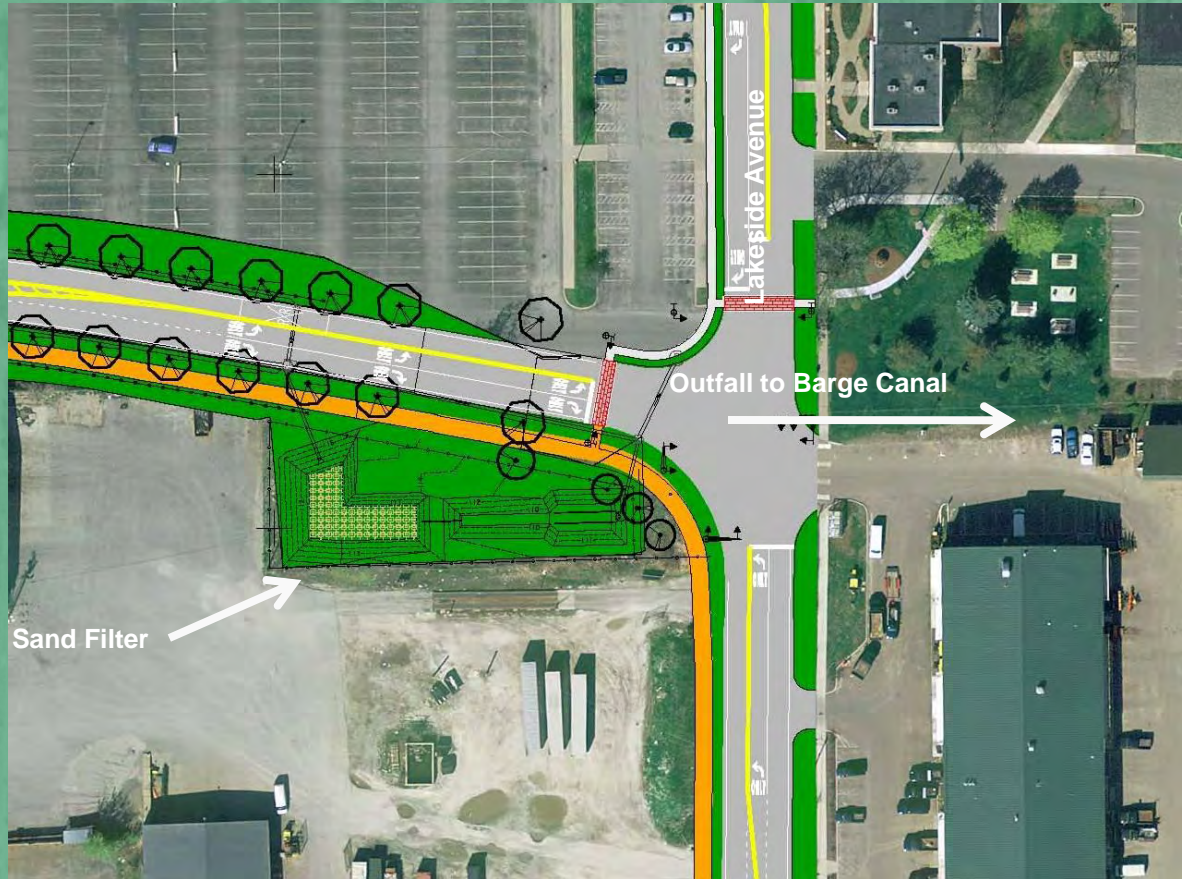
Sand Filter

Lakeside Sand Filter Performance

Hydrology and Hydraulic Performance

Event	Rainfall (inches)	Pre-development	Post-development			
		Peak Runoff to Barge Canal (cfs)	Peak Runoff From Site (cfs)	Inflow (cfs)	Outflow (cfs)	Peak Outflow to (cfs)
Water Quality Storm (WQ_V)	0.9	N/A	1.35	1.35	0.04	0.04
Channel Protection Storm (Q_1)	2.1	N/A	2.70	1.92	0.23	0.82
Overbank Flood Storm (Q_{10})	3.2	13.85	5.93	2.86	1.42	3.27

Sediment Performance

Receiving Stream	Pre-development Sediment Loading (lbs/year)	Post-development Sediment Loading to STP (lbs/year)	Post-development Sediment Loading from STP (lbs/year)
Pine Street Barge Canal	1,559	1,073	215

Wetlands

- **Functions and Values of Wetlands**
  - **Surface and groundwater quality**
  - **Flood water storage**
  - **Fish and wildlife habitat**
  - **Threatened and Endangered Species habitat**
  - **Erosion control**
  - **Open space and aesthetics**
  - **Recreation**
  - **Education**

- **Vermont Wetland Rules**
  - **Adopted by Water Resources Board to identify and protect functions and values of significant wetlands**
  - **Establishes a 3-tier classification of wetlands**
  - **Class One and Class Two wetlands are considered significant and are identified on National Wetland Inventory Maps**
  - **Water Resources Board has determined that Class Three wetlands do not provide functions at a significant level**

Project Delineated Wetlands

Champlain Parkway
Wetland N Impact

CHAMPLAIN PARKWAY

POTASH BROOK

SHARED-USE PATH

AREA OF IMPACT
0.03 ACRE

SHELBURNE STREET (U.S. ROUTE 7)

Champlain Parkway
Wetland H/I Impact

CHAMPLAIN PARKWAY

ENGLESBY BROOK

AREA OF IMPACT
0.47 ACRE
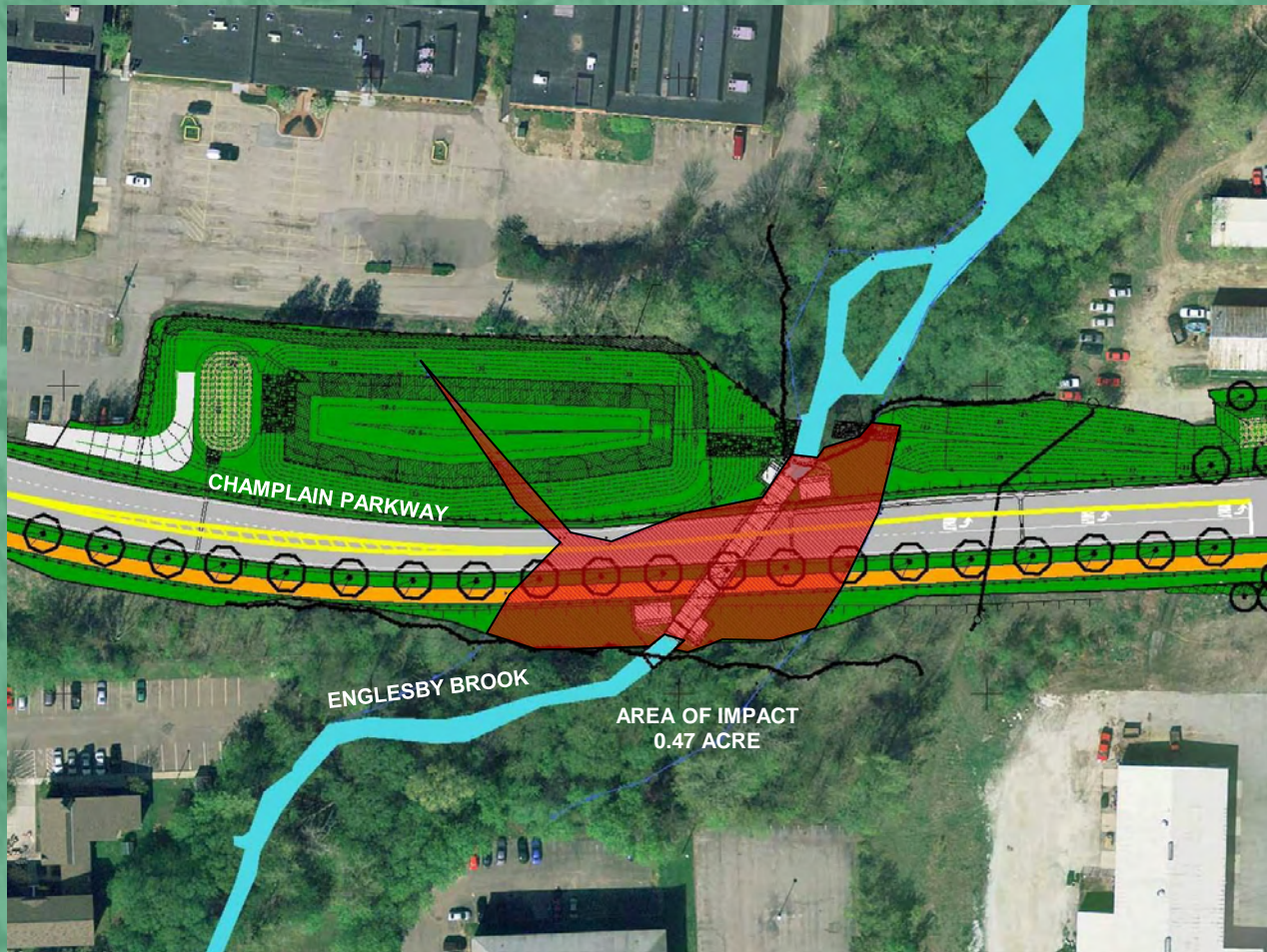
Champlain Parkway
Wetland A Impact

Champlain Parkway
Wetland Impacts

Wetland Area	Vermont Wetland Class	Approx. Wetland Size (acres)	Wetland Impact (acres)
Wetland A	III	0.190	0.190
Wetland B	III	0.012	0.000
Wetland C/D	III	0.138	0.000
Wetland E	III	0.145	0.000
Wetland F	III	0.320	0.000
Wetland G	II	N/A *	0.000
Wetland H/I	III	0.782 **	0.473
Wetland J	III	0.005	0.000
Wetland K	III	0.010	0.000
Wetland L	III	0.056	0.000
Wetland M	III	0.010	0.000
Wetland N	III	0.080	0.031
Wetland O	III	0.306	0.000
Wetland Y	II	0.467 ***	0.000
Wetland Z	III	0.049	0.000
Wetland AA	III	0.009	0.000
Wetland BB	III	0.013	0.000
Wetland CC	III	0.049	0.000
Wetland DD	II	***	0.000
Wetland EE	III	0.018	0.000
Total	---	2.593	0.694

Environmental Permits Needed

- **Vermont General Permit – USACOE Section 404 Procedures**
    - **Regulates placement of fill or dredged material into "waters of the U.S.", which includes all wetlands in Vermont**

- **Section 401 Water Quality Certification – VANR**
    - **Ensures Vermont water quality standards are not violated by activities within the waters of the U.S.**

- **Construction General Permit 3-9020 (2006) for Stormwater Runoff from Construction Sites – VANR**

- **Act 250**

- **Stormwater Discharge**
    - **VANR has approved a permit for the project from the US Route 7 Interchange to Lakeside Avenue**
    - **Additional permit may be needed for Lakeside Avenue to Main Street**

- **Water Supply - Permit to Construct**

- **Water Supply – Wastewater Disposal**

Project Information

- **Contact:**

  Burlington Department of Public Works
  645 Pine Street
  Burlington, Vermont 05401
  (802) 863-9094

- **Websites:**   www.dpw.ci.burlington.vt.us

  www.champlainparkway.com

Information Booths

- **Mobility**

- **Environment**

- **Neighborhoods/Community**

- **Economic Development**