



CAPISIC BROOK WATERSHED MANAGEMENT PLAN KICKOFF LETTER

11/10/2009

Bringing Back the Capisic Brook -

PLANNING FOR LONG-TERM SUSTAINABLE MANAGEMENT

The Capisic Brook is one of the last remaining intact urban streams in the City of Portland.

The City has made significant investment in its combined sewer overflow abatement program in this watershed. The next step of establishing a watershed-based restoration plan will allow the City to improve long-term water quality and to ultimately realize the full benefits of this community resource.

The Plan will build upon previous studies to present a cohesive strategy for management of the brook and its watershed, consistent with the recommendations of the Sustainable Portland report, and will set a path to meeting both state and federal clean water standards.

Long-term sustainable management of water resources is only possible with an engaged community, supportive local policy, a pragmatic financing strategy and political support. The most scientifically-sound and comprehensive management plans are of little value without these elements.

Our collaborative approach is:

- ▷ Identify key conveners and stakeholders to engage.
- ▷ Summarize the watershed restoration needs.
- ▷ Utilize social marketing research to develop residential outreach strategy.
- ▷ Evaluate policy necessary for long-term watershed sustainability.
- ▷ Identify stormwater improvement projects and mechanisms, including costs and benefits.
- ▷ Determine the appropriate financial plan for implementation.



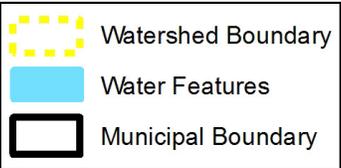
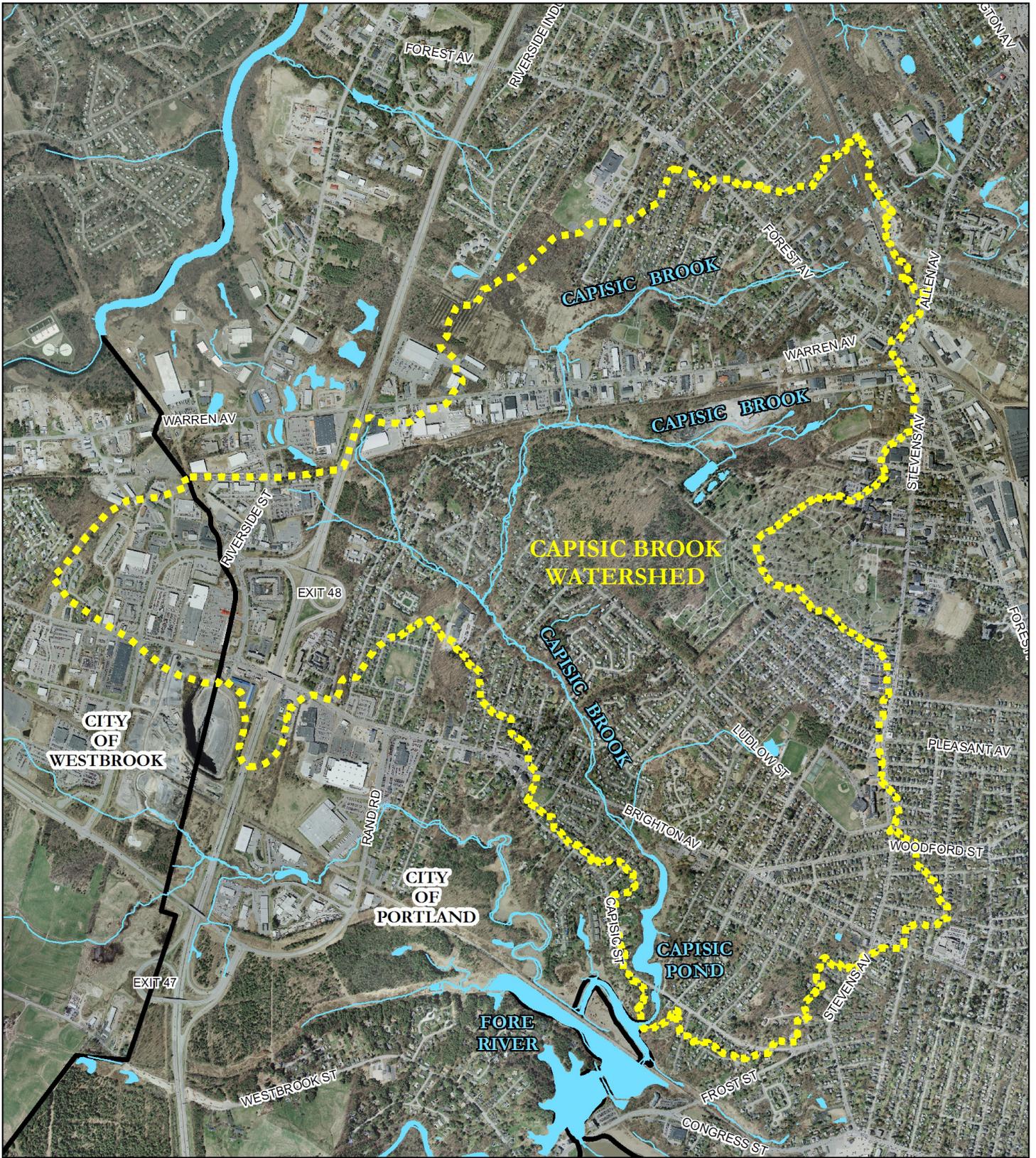


Figure 1: Capisic Brook Watershed



Data Sources: City of Portland, Maine DEP, & CCSWCD



Department of Public Services
Land & Infrastructure Management
City of Portland, Maine

Capisic_Brook_CFUP2.1map.mxd
December 2008

PROJECT KICKOFF

12/10/2009



PORTLAND MAINE

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Public Services Department
Michael J. Bobinsky, Director

November 25, 2009

RE: Capisic Brook Watershed Plan – Kick-Off event December 10, 2009

As the City of Portland continues its Water Quality Improvement initiatives, we have identified the Capisic Brook watershed as the “highest priority watershed” in our Stormwater Program Management Plan. This urban impaired stream drains an area of nearly 1,500 acres within Portland and Westbrook before it flows into the Fore River and currently does not meet the MeDEP’s water quality classification target. Dense residential and concentrated areas of commercial/light industrial development, and the network of roads have contributed to water quality problems in Capisic Brook. The City has spent considerable time and expense to abate combined sewer overflows (CSO) in this watershed; with added efforts in stormwater pollution abatement, we see the restoration of this brook as possible.

Portland recently received a grant from Maine DEP for nearly \$100,000 to develop a watershed restoration and management plan over the next year. The plan will focus on the causes of stormwater pollution within the watershed, with the goal of significantly improving water quality. For this planning effort to succeed, a strong stakeholder involvement process must be developed from the beginning.

In that spirit, we invite you to a project kick-off meeting on Thursday, December 10th from 10:00am -11:30 in Room 24 at City Hall, 389 Congress Street, Portland. The meeting will include an overview of the project including review of project objectives, key tasks and timeline, a discussion of sources and causes of impairment, and a “brainstorming” session to identify critical stakeholders to help guide the planning process. I have included an attachment that summarizes the basic elements of the process, as well as a map which roughly identifies the topographical boundaries of the watershed.

Please RSVP by December 4th to let us know if you are planning to attend or if you are unable to attend, but are still interested in participating in the watershed planning effort. I can be reached at 207-874-8848 or via email at dar@portlandmaine.gov.

Sincerely,
CITY OF PORTLAND

Douglas A. Roncarati, Jr.
Stormwater Program Coordinator

Pc: Michael Bobinsky, Director, Public Services Department
Katherine Earley, PE, Engineering Manager
David Margolis Pineo, Deputy City Engineer
Don Kale, Maine Department of Environmental Protection
Zach Henderson, Woodard & Curran



MEETING AGENDA

This Meeting:	Capisic Brook Watershed Management Plan Kickoff
Date/Time:	10AM – 11:30AM, December 10, 2009
Location:	Portland City Hall – Room 24, 389 Congress St.



Meeting Objectives

Shared understanding of scope of project, roles of team members and timeline

List of project meeting conveners and stakeholders

Agenda

- Introductions
- Overview of Project Work Plan and Timeline for Project Team Meetings
- Conveners and Team Member Roles and Responsibilities
- Identify Conveners for Project Teams
- Introduction to the Watershed
 - Watershed Statistics and Demographics – Watershed Figure
 - Previous Studies and Previous Recommendations Review
- Identify Stakeholders
- Next Steps
- Meeting Review – Plus/Delta



**Capisic Brook Watershed Management Plan
Kickoff Meeting
December 10, 2009
10:00 AM-11:30 AM
Portland City Hall Room 24**

Meeting Objectives:

1. Discuss the scope of work and the timeline of the project.
2. Define the project teams.
3. Help everyone identify where they will participate as formal team members.
4. Brainstorm a potential stakeholder list.

Attendees:

Name	Affiliation	Phone	E-mail
Barry Sheff Zach Henderson Doug Roncarati Robyn Saunders Ryan Hodgman David Ladd Nelle Hanig Eric Dudley Mike Bobinsky Kathi Earley Nicole Clegg Brad Roland Molly Casto Don Kale Jeff Dennis Doug Sherwood Mike Murray Barbara Barhydt	Woodard & Curran Woodard & Curran City of Portland GZA/MTA Maine DOT Maine DEP City of Portland City of Westbrook City of Portland City of Portland City of Portland City of Portland City of Portland DEP-Portland DEP-Augusta City of Portland City of Portland City of Portland	CONCEALED	

Overall Project Success:

Provide opportunity for a collaborative approach to defining problems and solutions and to develop an appropriate financial strategy for implementation.

Meeting Minutes:

Barry Sheff, Woodard & Curran (W&C) provided a Project Kick-Off Binder to each attendee and walked everyone through the contents, including overview of the project scope, project team descriptions, a project timeline and draft figures of the study watershed area.



Doug Roncarati, City of Portland Project Manager, gave an overview of Capisic Brook and some of the basic elements of the work plan. He stated that the goal is to work with residents, landowners and business people to better understand where they are in the watershed, how they contribute and participate in the watershed, and how their daily activities may impact water quality. The hope is to bring everyone together over the next year to address this.

Basic Elements of Plan:

- Identify & engage watershed stakeholders in the planning process.
- Summarize the watershed restoration needs, building upon previous watershed studies and planning efforts to develop a cohesive strategy for managing the brook and its watershed.
- Develop an outreach strategy aimed at helping landowners understand how their daily activities can impact the health of the watershed and how they can be better watershed stewards; the city also received another grant of nearly \$11,000 from the CBEP to develop a watershed landowner survey that will help us learn more about the target audience of our outreach strategy.
- Evaluate municipal policies that effect land use and water quality and develop recommendations for long-term watershed sustainability.
- Identify stormwater improvement projects and management strategies including costs & benefits.
- Develop a realistic funding strategy that will ensure successful implementation of the restoration plan.

Zach Henderson, W&C Project Manager, provided more detail about the project work plan, indicating that the next step will be to develop an outreach strategy.

A grant through the Casco Bay Estuary Partnership will be used to develop a watershed survey to get an idea of what landowners think about their watershed, what they know about it, what they might be willing to do to make changes to improve water quality. The survey should be available in January and data collected through the survey will assist the Marketing Initiative Project Team to develop a social marketing report which will define specific methods for behavior change within the residential community. By June 2010, the marketing report should be developed.

The next element of the planning process would be to evaluate municipal policies that affect land use and its impact on water quality. The Planning Policy Project Team will be working closely with the City of Portland (and Westbrook) Planning departments to enhance zoning, standards, or other watershed policies. By April 2010, a memo should be available summarizing recommendations.

Another key aspect of the plan is to identify critical stormwater improvement projects and management strategies including the cost and benefits of implementing these. Woodard and Curran will be working closely with the City and Retrofit Project Team to identify those areas. A technical memo will be delivered in May of the coming year



which outlines the identified structural and non-structural strategies that provide the greatest benefit for the watershed.

The possible financing of the plan is critically important. Realistic funding strategies need to be developed that will ensure successful implementation of this restoration plan. By September 2010, the Financing Project Team should have an outline of the financing and staffing strategies for plan implementation.

The project teams are critical to the implementation of specific tasks. Significant work has already been done in this watershed including flooding evaluation studies, greenbelt master plans, and recreation plans. There has been public stakeholder processes throughout the development of these studies. There is considerable interest in the Capisic Pond at the receiving end (downstream) of the watershed area defined for this project. The Capisic Brook Watershed Management Plan will build on the existing plans and studies with a particular focus on improving and maintaining water quality within the watershed.

There are two public stakeholder meetings in the planning process and two targeted outreach meetings for commercial and residential stakeholders. The first public stakeholder meeting is expected in January or early February. Additionally, the project team meetings will be open and advertised to people who are interested in attending. The first stakeholder meeting will outline the project teams and will solicit commitments by the stakeholders for these teams. The first stakeholder meeting will also provide general information about the watershed and about the planning process. The second stakeholder meeting will be a presentation of the draft plan for public comment. The outreach meetings will be informal question and answer sessions for small groups of the interested public.

Comments from Attendees on Workplan:

- Need to Identify other Westbrook Plans, Master Plans or Studies within watershed
- Confirm Ownership of MTA and MDOT Roadways within the Watershed
- Define Land Use Distinctions as Shown in Land Use Figure
- Include tenants and not just owners in outreach
- Have non-governmental stakeholders on project teams
- Be open to communications beyond team meetings

Comments from Attendees on Vision for Capisic Brook Watershed Management Plan:

- Ultimately meet water quality standards
- Improve Capisic Pond
- Create reproducible model for other urban watersheds
- Generate interest in a City of Portland standing watershed/water resources committee or subcommittee
- Establish that stormwater management costs are real and are increasing

Conveners and Team Member Roles and Responsibilities:

As facilitator, Barry Sheff outlined the various project teams and the role of team members and key conveners. The following outlines the Kick-Off meeting attendees that committed to each team. Zach Henderson and Doug Roncarati will attend all project team meetings. The team roles are further defined in Section 4 of the Project Kick-Off Binder.



Retrofit Inventory Strategy /Technical Stormwater Management: Guides Development of Preliminary Structural & Non-Structural Stormwater Management Strategies for Further Consideration. Informed by Assessment and Research by Woodard & Curran.

- Brad Roland
- Jeff Dennis
- Ryan Hodgman
- Robyn Saunders
- Nelle Hanig

Planning and Policy Development: Identify Components of City Standards/Ordinances That Impact Development in the Watershed. Preliminary Recommendations for Refinements Developed by Woodard & Curran

- Jeff Dennis
- Barbara Barhydt
- Ryan Hodgman
- Molly Casto
- Kathi Earley
- Don Kale

Marketing Initiatives: Review Results of Watershed Questionnaire and Draft Social Marketing Strategy. Support Neighborhood/Residents Focus Group Meeting. Questionnaire by CCSWCD Draft Social Marketing Strategy by Water Words that Work (marketing subconsultant).

- Mike Murray
- David Ladd/Barb Welch
- Molly Castro
- Nicole Clegg
- Don Kale
- Doug Roncarati

Financing Strategy Team: Explore Financing, Organizational and Staffing Options for Implementation. Preliminary costs by Woodard & Curran.

- Mike Bobinsky
- Kathi Earley
- Jeff Dennis
- Don Witherill
- Barbara Barhydt
- Ryan Hodgman
- Don Kale



Identification of Potential Stakeholders:

Barry Sheff facilitated a brainstorming session to identify potential stakeholders to engage. The following were identified:

- | | |
|-------------------------------|--|
| University of New England | ME USGBC |
| Portland Housing Authority | Portland Trails |
| Chamber of Commerce | Breakwater School |
| Lois Winter | Derek Lovitch |
| Friends of Evergreen Cemetery | Commercial Tenants and Owners |
| Steve Scharf | University of Southern Maine |
| Portland Landbank | Cumberland County Soil Water Conservation District |
| Bob Haines | Conservation Law Foundation |
| Friends of Capisic Park | Casco Bay Estuary Partnership |
| Public Utilities | Friends of Casco Bay |
| Neighborhood Associations | University of Maine – Cooperative Extension |
| MEREDA | Westbrook Housing Authority |
| Don Hoffses | Maine Landscape and Nursery Association |
| Nonprofit Organizations | Maine Auto Dealer Association and other |
| Faith Based Organizations | Professional Associations |
| Portland Trails | |

The City's Energy and Environmental Sustainability Committee, which is a committee of the Council, will be asked to provide input on this list of stakeholders as well.

Stakeholder Outreach: (Tabled Due to Time)

Preliminary Key Conveners: For public informational meetings

Mike Bobinsky

Mike Murray

Next Steps:

Identify and engage key conveners for Stakeholder process.

Identify dates for 1st Stakeholder Meeting.

Identify dates for Retrofit Strategy Meeting.

Review and refine Capisic Brook residential outreach survey.



Plus/Delta Review of Meeting

+	Delta
Appreciate Good Participation Staying on Time Agenda Convenient Location Binder Helpful Maps Helpful Facilitation	Consider Lunch Time Meeting Parking Validation Coordinate Meeting Times with other Significant Meetings for Maximum Attendance Double-Sided Printouts



PUBLIC STAKEHOLDER MEETING

1/28/2010



MEETING AGENDA

This Meeting:	Capisic Brook Watershed Management Plan Stakeholder Meeting
Date/Time:	6PM – 8PM, January 28, 2010
Location:	Riverton School and Community Center Room 911, 1600 Forest Avenue

Meeting Objectives

- Stakeholder Understanding of Capisic Brook Planning Project
- Outline of Opportunities for Stakeholder Participation
- Get Stakeholder Input on Value(s) of Capisic Brook Watershed

Agenda

- **Welcome and Project Overview**
 - Introductions
- **Project Workplan**
 - Where is the Capisic Brook Watershed? And What is a Watershed?
 - Why is this Project Important?
 - How are WE all responsible for Water Quality?
 - What the Plan is considering?
 - How can YOU be involved in this process?
- **Questions, Discussion and Who Else Should Be Involved?**

Break

- **Identify Value of Watershed to Community**
- **Next Steps**
- **Meeting Plus / Delta**
- **Closing Remarks**

Bringing Back the Capisic Brook

PLANNING FOR LONG-TERM SUSTAINABLE MANAGEMENT

This Plan is funded by the City's sewer rate payers and the MaineDEP –
Water Quality Management Planning Grants (ARRA 2009)

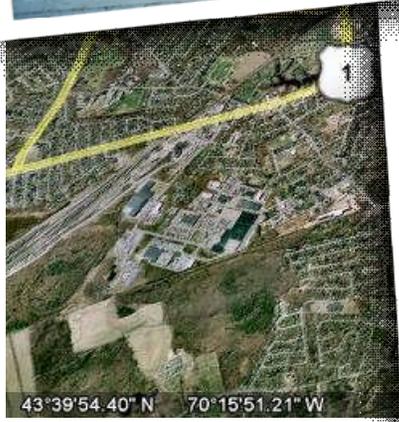




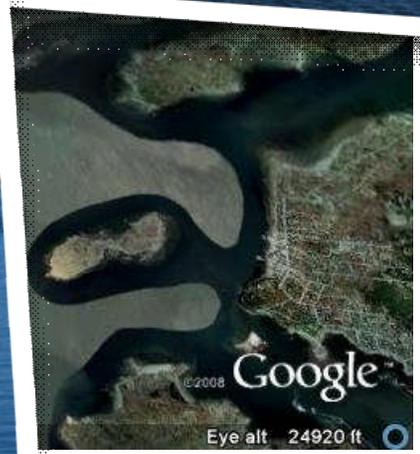
The Cipsisic Brook Watershed?

- 1500 Acres
- Primarily Residential, Schools, and Parks
- Riverside Street and Warren Avenue Commercial Area
- Identified as Urban Impaired Stream by MaineDEP Requiring Special Management

A Tributary of the Casco Bay



43°39'54.40" N 70°15'51.21" W



Why is this Project Important?



Where does the Runoff Come From?



43°40'13.28" N 70°18'29.96" W

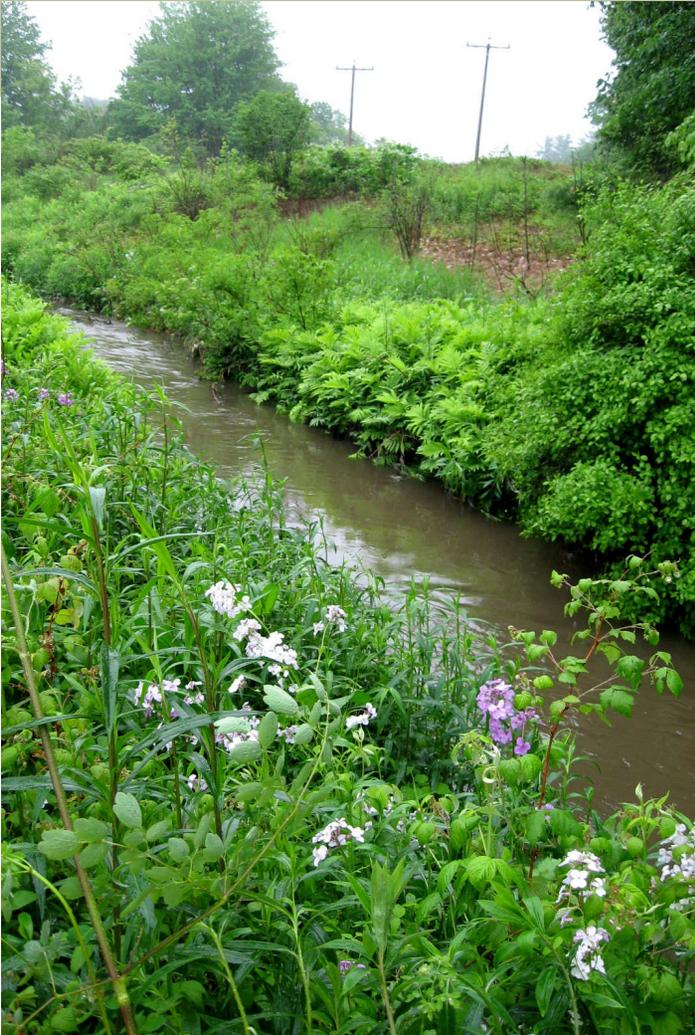
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The Solution will involve everyone



What is the Plan Considering?



- Drainage Infrastructure Operations and Maintenance
- Targeted Outreach for Pollution Prevention
- Structural Stormwater Fixes
- Municipal and State Pollution Prevention
- Planning Policy and Guidance
- Land Conservation and Public Access
- Integration with Combined Sewer Overflow Abatement
- Financial Planning

How Can You Be Involved?

- **Technical Project Teams**

- Stormwater Management and Retrofitting
- Planning and Policy
- Marketing and Outreach
- Financing

- **Informal Small Group**

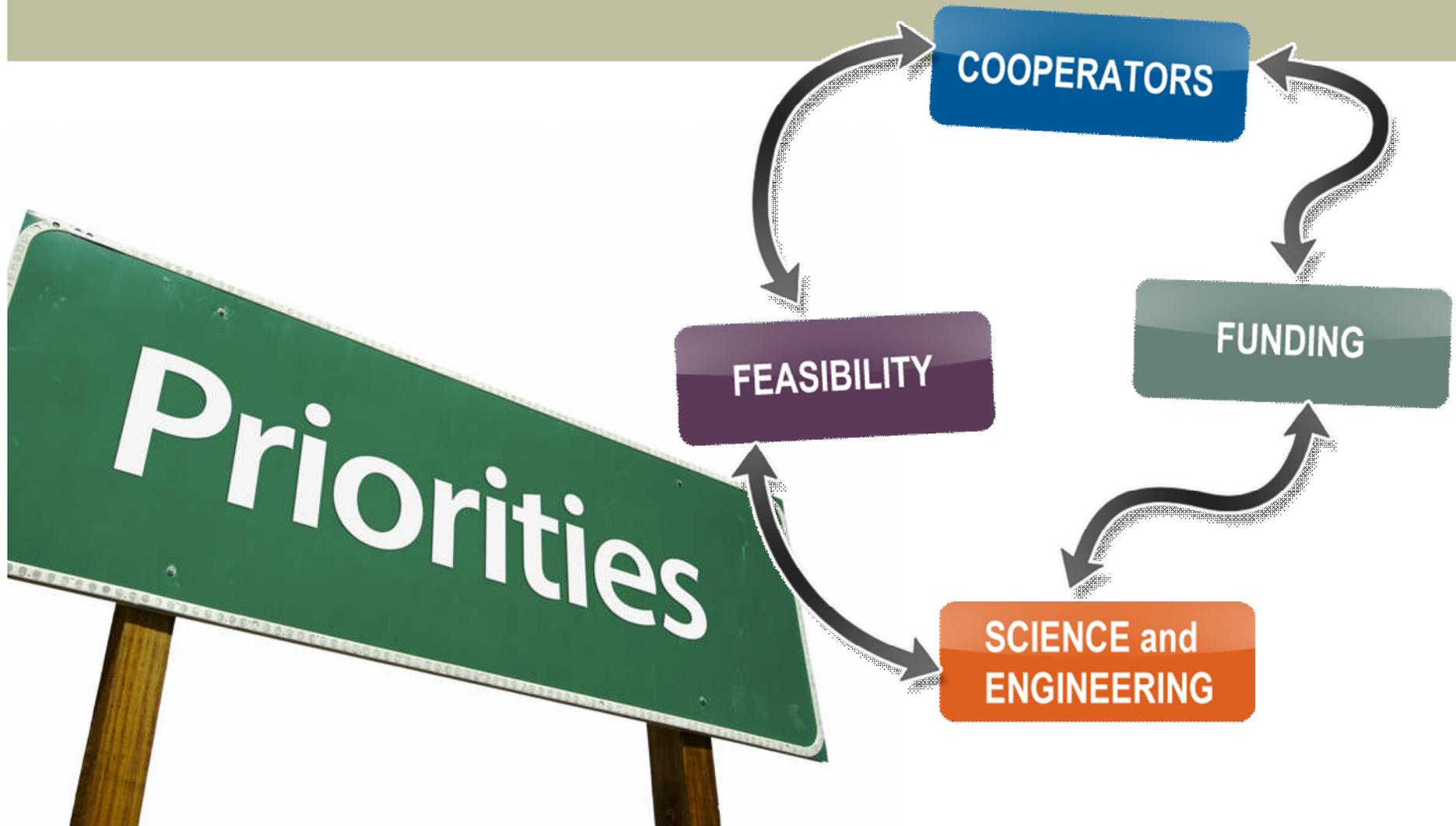
Meetings

- Neighborhood Walk and Talk
- Commercial Considerations

- **Outreach Material Focus Group**



What are the Priorities for a Sustainable Watershed?





KICKOFF MEETING NOTES

This Meeting:	Capisic Brook Watershed Management Plan Stakeholder Meeting
Date/Time:	6PM – 8PM, January 28, 2010
Location:	Riverton School and Community Center Room 911, 1600 Forest Avenue

Meeting Objectives

1. Understanding of Capisic Brook Watershed Planning Project;
2. Outline opportunity for participation; and
3. Get input on what stakeholders value in the watershed.

Attendees (see attached lists)

- ~ 40 total
- ~ 15-20 watershed residents
- ~ 7-10 representing non-profit/institutional (1-2 with schools)
- ~ 2 business / neighborhood associations / owners of large property

Meeting Notes

Copies of a meeting agenda, synopsis of the Project approach, and map of the watershed were provided to attendees upon arrival.

Mike Bobinsky, Director of Public Services, City of Portland, provided a Welcome and introduction to the Project, asked for a show of hands to approximate the number of attendees that lived within the watershed, were associated with non-profits or institutions, and were with businesses, neighborhood associations or owners of large property. He mentioned the meeting would address pollution and degradation of the Capisic Brook and the ways in which our daily activities affect the watershed.

Doug Roncarati, Stormwater Program Coordinator, City of Portland, spoke about the collection and use of previous data as a project basis, and encouraged collaboration between the City, its business owners and its residents.

Barry Sheff, Woodard & Curran (W&C), explained the objectives of the meeting, reviewed the meeting agenda, and gave an overview of the teams and group meetings that attendees could sign up for and participate in.

Zach Henderson, W&C, provided a PowerPoint presentation that gave an overview of the Project work plan and touched upon the following points:

- Where is the Capisic Brook Watershed? What is a Watershed?
- Why is this Project Important?
- How are WE all responsible for Water Quality?
- What is the Plan considering?
- How can YOU be involved in this process?

The floor was opened to attendees for questions and comments.

Barry Sheff, W&C Project Manager, recorded the general discussion topics, values of the watershed to the community, and the plus / deltas of the stakeholder meeting on flip charts.

Stakeholder Response to Work Plan

- Concern over exclusion of Capisic Pond from study watershed.
- Desire to enhance Capisic Pond and surrounding wildlife habitat.
- Two premier bird watching locations in the State located within the watershed.
- Interest in retention and expansion of public access.
- Respect for privacy; Brook corridor is privately owned and should be used for utility easements, not public access trails.
- Recreational resource and success story as model for other stream restoration.
- Increased public education and awareness regarding behavior changes and link to Casco Bay.
- Most resident attendees would like additional wildlife: fish, turtles, etc, while few others prefer it to be a “drainage ditch” to be used for flood control.
- The poor quality of Capisic Brook is appropriate for an urban “drainage course.”
- Need for publicly available project updates and background information.
- Lack of vegetative clearing and maintenance has contributed to flooding..
- Potential need for further data collection.
- Property values are linked to watershed and water quality.
- Education and best practices for landscapers are important.

Questions, Issues and Concerns

- Pay attention to hot spots within the watershed.
- Definition of urban impaired stream in this context
- Watershed Boundary may have some flaws.
- Is there a permanent source of streamflow?
- Does Maine make water quality standards exceedingly difficult compared to other states?
- Landscaping Professional Organizations need to be a part of the process.
- Dog walking and dog waste clean up is a challenge.
- Cityline: email systems for meetings within the City can be utilized for information distribution.
- Project website could be valuable information sharing tool.

Identify Value of Watershed to Community

- Fish and wildlife, especially bird watching
- Healthy ecosystems
- Flood control
- Property values
- Public Access (retain and expand)

- Preserve green space; serene location
- Promote BMP yardscaping
- Respect for private property
- Create a model success story
- Recreational resource
- Location of trails
- How planning and development occurs within the watershed
- Region's economic viability
- Opportunity for experiential education
- Public recognition that stormwater infrastructure has a cost.

Plus / Delta Review of Meeting

+	Delta
Time	Healthy Snacks
Location	Non-bottled Water
General Information	Information Availability – Project Website Needs
Use of Schools to Advertise/Notice	Recognize Technical Language Barriers / Acronyms

Sign-up Sheets

- Informal Site Meeting;
- Financing Plan Project Team;
- Marketing Project Team;
- Planning Policy Project Team; and
- Retrofit Project Team.

Note: The following project team sign up sheets include staff or agency personnel that previously accepted roles on the project teams prior to Public Meeting.

CAPISIC BROOK WATERSHED

Planning Meeting

January 24, 2010



Name	Address	Email or Phone	I Live in Watershed	Stay Updated on Watershed Activities
Roy Koster	CMP - 83 Edison Drive, Augusta, ME 04333	CONCEALED	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lois Winter	50 Alden Circle Portland, ME 04102		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Peggy & Steve Shapiro	16 Wolcott Street Portland, ME 04102		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Robyn Saunders	GZA/MTA		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Robert Denton	27 Rockland Avenue - Rosemont		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Curtis Bohlen	CBEP		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Penelope Reilly	12 Harvey Street		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Fred Dillon	18 Davis Street		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Jesse O'Brien	15 Label - Portland, ME		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Christina Stacey	27 Raymond Road - Portland, ME		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Greg E Bjork	27 Raymond Road		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Jeff Dennis	DEP Augusta		<input type="checkbox"/>	<input type="checkbox"/>
Don Kale	DEP Portland		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Kirsten Ness	99 Warwick Street - Portland, ME		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Robert C. Hains	250 Holm Avenue		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Kristel Sheesley	18 Colonial Rd - Portland, ME 04102		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Andy Graham	43 Macy Street		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Denise Harlow	Riverton		<input type="checkbox"/>	<input type="checkbox"/>
Kathi Earley	DPS		<input type="checkbox"/>	<input type="checkbox"/>
David Robinson	407 Capisic		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Obie Philbrook	301 Capisic Street		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Turner Kruysman	29 Wayne Street		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Colleen Tucker	36 Willow Lane		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Anne Callender	19 Commercial Street		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Doug Sherwood	Portland Public Schools		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Arlene Dimillo	271 Capisic Street		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Dave Owen	Maine Law School		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Derek Lovitch	29 Woodland Road - Pownal, Maine	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Annette Rogers	14 Baxter Blvd	<input type="checkbox"/>	<input type="checkbox"/>	
Mark Dromgoole	117 Anderson Street	<input type="checkbox"/>	<input type="checkbox"/>	
George A. Flaherty	61 Dohe Drive	<input type="checkbox"/>	<input type="checkbox"/>	
Jamie Fitch	CCSWCD - 35 Maine Street - 04062	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

CAPISIC BROOK WATERSHED
Project Team Sign Up
Retrofit Inventory Strategy



Name	Preferred Contact Information (Email, Phone, etc.)
Andy Graham	CONCEALED
Brad Roland	
Jeff Dennis	
Ryan Hodgman	
Robyn Saunders	
Nelle Hanig	
Rhonda Poirier	

Retrofit Inventory Strategy

Identify and engage technical team members for attendance at one (1) meeting that will guide the development of the structural and non-structural stormwater management strategies for further consideration in the planning effort. The stormwater management strategies will be informed by watershed assessment and research conducted by Woodard & Curran and through previous studies conducted by the City. The preliminary strategies will be delivered to the team prior to meeting.

CAPISIC BROOK WATERSHED
Project Team Sign Up
Planning/Policy Initiatives



Name	Preferred Contact Information (Email, Phone, etc.)
David E. Robinson	CONCEALED
Andy Graham	
George A. Flaherty	
Kirsten Ness	
Jeff Dennis	
Barbara Barhydt	
Ryan Hodgman	
Molly Casto	
Kathi Earley	
Don Kale	
Rhonda Poirier	

Planning/Policy Initiatives

Identify and engage team members for attendance at two (2) meetings that will identify key components of the City of Portland Zoning and stormwater management standards which may impact sustainable Capisic Brook development and redevelopment. Prior to team meeting, preliminary recommendations for planning/policy revisions will be developed by City and Woodard & Curran.

CAPISIC BROOK WATERSHED
Project Team Sign Up
Marketing Initiatives



Name	Preferred Contact Information (Email, Phone, etc.)
Andy Graham	CONCEALED
Jami Fitch	
Turner Kruysman	
Jesse O'Brien	
Mike Murray	
Barb Welch	
Molly Casto	
Nicole Clegg	
Don Kale	
Karen Hutchins	

Marketing Initiatives

Identify and engage team members for attendance at one (1) meeting that review results of watershed questionnaire and will present draft social marketing strategy. Additionally, this team will be responsible for supporting the Neighborhood Focus Group meeting effort. Draft social marketing strategy will be informed by Cumberland County Soil and Water Conservation District Questionnaire and preliminary draft developed by Water Words that Work, LLC, which will be delivered to team prior to meeting.

CAPISIC BROOK WATERSHED
Project Team Sign Up
Financing Plan



Name	Preferred Contact Information (Email, Phone, etc.)
Robert C. Hains	CONCEALED
Mike Bobinsky	
Kathi Earley	
Jeff Dennis	
Don Witherill	
Barbara Barhydt	
Ryan Hodgman	
Don Kale	

Financing Plan

Identify and engage team members for attendance at two (2) meeting that will explore financing, organizational and staffing options for implementation of the proposed watershed improvement recommendations. Preliminary plan costs based on draft plan will be developed by Woodard & Curran prior to team meeting.

CAPISIC BROOK WATERSHED INFORMAL SITE MEETING



Name	Residential or Commercial Property	Willing to Host
Andy Graham	CONCEALED	<input type="checkbox"/>
Robert C Hains		<input type="checkbox"/>
Kirsten Ness		<input type="checkbox"/>
Colleen Tucker		<input type="checkbox"/>
Turner Kruysman		<input type="checkbox"/>
Anne Callender		<input checked="" type="checkbox"/>



RETROFIT INVENTORY STRATEGY TEAM MEETING

2/25/2010



MEETING AGENDA

This Meeting:	Capisic Brook Watershed Management Plan Retrofit Inventory Strategy Team
Date/Time:	10AM – 1PM, February 25, 2010
Location:	Portland City Hall – Room 209, 389 Congress St.

Meeting Objectives

- Confirmation of role of Retrofit Inventory Strategy Team
- Obtain input, refine and achieve consensus on Opportunities
- List additional data needs and responsibilities
- Shared understanding of next steps and interim deliverables

Agenda

- Introductions
- Brief Overview of Retrofit Inventory Strategy Team
 - Guide the spatial focus of structural retrofit inventory
 - Inform and develop non-structural stormwater improvements
- Review of Watershed Data
 - Watershed Statistics and Demographics
 - Previous Studies and Previous Recommendations
- Structural Retrofit Inventory and Opportunities (see attached Components of a Sustainable Watershed)
 - Update by Team Members on:
 - Turnpike Widening
 - MDOT Projects, and
 - Portland CSO Abatement Program
 - West and East Branch Detention System Review and Discussion
 - Target Catchments Review and Discussion
 - Prioritization of Opportunities for Structural Retrofit Inventory
- Non-Structural Strategies and Opportunities (see attached Components of a Sustainable Watershed)
 - Proposed Actions Review, Discussion
 - Identify existing programs, responsible entities, sources of information (i.e. contacts)
 - Identify additional data needs
 - Prioritization of Opportunities for Non-Structural Strategies
- Next Steps
- Meeting Review – Plus/Delta



COMPONENTS OF A SUSTAINABLE WATERSHED:

Proposed Structural and Non-Structural Opportunities and Actions necessary for Capisic Brook

Pollution Prevention and Best Management

Commercial/Industrial

Pavement Management (Winter Deicer, Pavement Sealers, Temperature Control, Toxics Management)

Landscape Management

Waste/Trash Management

Municipal

Street Maintenance (Winter and Summer)

Street Trees (Temperature Control)

Residential

Yardscaping

Pet Waste Management

Runoff Management (Rainbarrels, Raingardens, etc)

Toxics Management

Illegal Dumping

Temperature Control (Tree Planting)

Structural Stormwater Management

Structural Retrofits for Critical Catchments

Drainage System Management and Operations

Catchbasin Cleaning

Pipe and Manhole Maintenance and Replacement

Inlet and Outlet Stabilization

Land Conservation and Educational Access

Critical Conservation Acquisitions

Critical Educational Nodes for Stream Access and Education

Combined Sewer Overflow Abatement

Tier 3 Long Term Control Plan

Others?

In each case:

1. Who would be the responsible entity?
2. Are there specific geographic target areas?
3. Priority Actions
4. What is the cost?



MEMORANDUM

TO: Retrofit Inventory Project Team
FROM: Zach Henderson, WC and Doug Roncarati, City of Portland
DATE: February 22, 2010
RE: Capisic Brook Restoration and Management Rationale

Enclosures: Subwatershed Figures with targeted catchments, Excerpts from Capisic Brook Flood Control Reevaluation 1999 and Stormwater Management Glossary of Terms

The following memo provides background information and assumptions for the identification of structural and non-structural opportunities in the Capisic Brook watershed. The memo has been subdivided into three primary sections: Previous Recommendations, Existing Conditions and a Structural Retrofit Inventory Strategy.

The watershed is approximately 1400 acres and contains five subwatersheds: the North Tributary, East Tributary, West Tributary, Middle Tributary, and Lower Tributary. Additionally, the Maine Department of Environmental Protection (Maine DEP) has further subdivided the watershed into catchments. Catchments generally represent the land area that discharges stormwater runoff at a discrete location and in sufficient quantity to warrant consideration for further management. Each catchment has a unique identifier as described by the Maine DEP and is included as a label on the figures.

Previous Recommendations: The Capisic Brook watershed has been previously studied for flood control and greenway master planning, in addition to Maine DEP stream studies and other natural resource inventories. This information has been reviewed and compiled in *Section 1 – Introduction* of the Capisic Brook Watershed Management Plan (Plan) and is summarized below. Some of the following recommendations have been implemented. Specific information on the East and West Branch detention basins has been included in the additional materials distributed to the Retrofit Strategy Team.

Infrastructure Improvements

1. Continue separation of the City's CSO system in order to eliminate input of sanitary wastewater into the stream thus significantly reducing nutrient and bacterial loads;
2. Construct the West Branch and East Branch Detention Basins to provide flood control and, if possible, develop the area around the basin to be used for active recreation play fields, and walking and hiking trails.
3. Reduce NPS runoff by replacing impervious cover with pervious material and channeling runoff through treatment/infiltration systems; and
4. Implement the following structural improvements to control overbank flooding:
 - a. Extension of the Capisic Pond Dam weir;
 - b. Increase conveyance by executing channel improvements as outlined in the DeLuca-Hoffman Flood Control Study;
 - c. Install a 4' x 8' box culvert at Capisic Street;



- d. Install a 48" diameter culvert adjacent to the existing culvert at Lucas Street;
- e. Install a second 3' x 6' concrete box culvert at Taft Avenue; and
- f. Install a 3' x 9' box culvert at Holm Avenue.

Planning and Outreach

1. Implement non-structural strategies to provide long-term improvements, including implementation of Education Stations and other outreach and education, pollution prevention, water quality monitoring, and policy and planning initiatives to reduce the likelihood for pollutants to enter the stream;
2. Increase the dissolved oxygen concentration in the stream through a managed reduction of stream water temperatures and a reduction in the discharge of nutrients to the stream;
3. Physically enhance the riparian zone and area around detention basins, including the replanting of native trees and restoring the natural morphology of Capisic Brook;
4. Develop a periodic maintenance schedule for the Capisic Brook channel system, including review of the channel for erosion and sedimentation, identification of debris accumulation and removal;
5. Reduce sewer system and septic leaks by inspecting and maintaining systems;
6. Utilize a road sweeping program to reduce road sand in stormwater and snow melt runoff during winter months; and
7. Encourage responsible development: Smart Growth and Low Impact Development (LID).

Community and Ecological Value

1. Design and implement a greenway within the Capisic Brook watershed as described in the Greenway Master Plan;
2. Enhance aesthetic value through construction of small bridges over water control structures, interpretive signs, and plant material identification markers; and
3. Modify and dredge Capisic Pond to create an environment suitable for fish and other wildlife after upstream modifications have been carried out.

Existing Conditions: Currently *Section 2 – Existing Conditions* of the Plan is being developed. This section includes an evaluation of current conditions in the watershed, subwatershed and catchments. This evaluation provides a basis for development of the structural retrofit inventory strategy and targeted non-structural management opportunities. Please note: The following tables and text are taken from the current Section 2 and all table references occur in the plan.

Table 2-1: Impervious Area within the Watershed

Impervious Area	Acres	Percentage of Total Impervious Area by Type
Parking	137	31%
Buildings	119	27%
Roads	114	26%
Driveways	47	11%
Sidewalks	15	3%
Cemetery	10	2%
Other	2.2	<1%

In the Capisic Brook watershed, impervious cover is primarily located within residential and commercial areas. These areas comprise the majority of the watershed, with residential and commercial land uses making up 35% and 11% of the watershed, respectively. Other significant land uses include the Evergreen Cemetery and vacant land, which comprise 15% and 12% of the total watershed, respectively. The latter land uses consist of far less impervious area, and are less likely to contribute stormwater runoff during smaller storm events. These less developed lands are also likely to be maintaining the ecological integrity in the upper reaches of the Capisic Brook.

Impervious cover types are often uniquely distributed by land use. Commercial areas in the watershed contain over 66% of all parking areas but only 32% of the rooftop area. Conversely, over 50% of the rooftop area in the watershed is in residential areas. Roadways and driveways are also significant components of the impervious cover in residential areas. Rooftop, roadway, and parking impervious cover can have significantly different stormwater pollutant characteristics and should be considered differently under pollution prevention and management scenarios.

Impervious cover has been evaluated by subwatershed. The breakdown of impervious cover by subwatershed is included in Table 2-2 and is helpful to prioritize watershed improvement activity. The land use within the West Tributary subwatershed is largely commercial and the watershed area is 46% impervious area, with significant parking, roadway and building areas. The North Tributary subwatershed is primarily residential, but has a significant commercial district along Warren Avenue. Nearly half of the land in the Lower Tributary subwatershed is residential and most of the impervious area is roadway and buildings.

Table 2-2: Impervious Area by Subwatershed

Subwatershed	Subwatershed Area (Acres)	Impervious Surfaces (Acres)	Percent of Subwatershed Area covered by Impervious Surfaces	Percent of Subwatershed covered by Parking	Percent of Subwatershed covered by Roadway	Percent of Subwatershed covered by Buildings
West Tributary	339	155.5	46%	21%	11%	11%
North Tributary	370	99.8	27%	8%	6%	7%
East Tributary	220	47.5	22%	12%	3%	4%
Middle	80	17.8	22%	4%	6%	8%
Lower	413	123.5	30%	1%	10%	10%

The MaineDEP has divided the subwatersheds into individual catchments of 135 acres or less. Catchments are a discrete hydrologic unit. The precipitation that falls in a catchment eventually makes its way to a single outfall location. The outfalls may be a pipe or open channel. Catchments are an appropriate scale for recommendations for structural stormwater management.

Each catchment has been evaluated, as a component of this project, to assist in the identification of priority areas for further field evaluation. The percentage of each catchment covered by roadways and parking lots was determined. In catchments where roadways made up greater than 5% and parking greater than 10% of the drainage area were identified to guide further structural field evaluation and are listed in Table 2-3.

Table 2-3: Catchments Identified to Guide Field Evaluation for Structural Stormwater Management Considerations

Catchment ID	Catchment Area (acres)	Roadway Impervious Cover (% of Catchment Area)	Parking Impervious Cover (% of Catchment Area)	Subwatershed Location
M27	40.8	13.6	31.2	East
N1a	2.1	13.8	22.1	North
N3	9.2	15.5	36.0	North
N4	4.3	23.8	54.2	North
N6	4.0	20.8	37.9	North
N7	2.7	29.7	39.5	North
W7	42.3	14.4	10.8	West
W9	82.0	7.6	46.2	West
W10	2.1	17.8	53.2	West

Table 2-7 lists the inventory of roadways within the watershed and whether they are owned by the City, State, private, and the Maine Turnpike Authority (MTA).

Roadways	Linear Feet	Acres
Townway	97,162	80.6
Private	61	N/A
State	25,108	18.8
MTA	15,963	14.9

Structural Retrofit Inventory Strategy:

The objectives of this section of the memo are to define the;

- Structural retrofit inventory process,
- Specific stormwater quality and quantity BMPs that will be considered during the field evaluation, and
- Key assumptions.

Background

In general, the intent of a structural retrofit inventory is to identify specific locations within the study drainage areas that may allow the implementation of stormwater BMPs that have the potential to reduce stormwater volume discharges (i.e. infiltration, evapotranspiration) and/or reduce pollutant loading.

The basic process of the retrofit inventory is to select appropriate structural stormwater management BMPs

that minimize impact on existing infrastructure and provide the most efficient use of available space and financial resources.

The structural stormwater retrofit inventory generally follows the guidance of the Center for Watershed Protection's "Eight Step Approach to Stormwater Retrofitting". For the purposes of this project, the term retrofit is used to describe any engineered modification to existing infrastructure or land area(s) in order to improve stormwater quality or quantity runoff from impervious and developed land surfaces.

Retrofit Inventory Strategy

The retrofits identified through this evaluation are intended to provide a planning level evaluation of the likely cost and benefit of "disconnection" of impervious surfaces within the identified drainage areas. Detailed site survey, soil borings/test pits and engineering design will be required for the design, final sizing and installation of any stormwater retrofit.

The following outlines the proposed structural retrofit system types that will be considered during the field inventory. The names of stormwater BMPs vary regionally and the following systems as described are in reference to this study only. Design criteria may vary in other applications in other areas.

The systems identified below represent BMPs that can be utilized in a variety of conditions (e.g. well-drained soils, poorly drained soils, narrow right-of-way, existing landscaped areas, limited hydraulic head, etc.) and that have the potential to provide water quality and quantity benefits.

Soil Filter: Soil filter systems are vertical flow media filters that are typically vegetated with grass and/or landscape plantings. Often these systems are underdrained in poorly draining subsoils but can provide some volumetric losses via evapotranspiration and can be designed to promote infiltration below the underdrain if appropriate. Soil filter systems have the potential to reduce overall stormwater volumes and peak flows and have been shown to be successful for general pollutant load reduction.

Gravel Wetland: Gravel wetland systems are horizontal flow retention and filter systems. The gravel wetland utilizes temporary storage and settling and soil media filtration as the primary mechanism for pollutant removal. These systems are especially well-suited on poorly draining soils or in locations with limited hydraulic head. This is one of the UNH Stormwater Center's most successful systems for overall pollutant removal. These systems can also provide peak flow attenuation and minor volumetric reductions through evapotranspiration.

Raingarden: Raingarden systems are simple soil-modified depressions that provide settling and infiltration during small precipitation events and for small drainage areas. These systems as described in this study are not underdrained due to site constraints such as limited hydraulic head. These systems are particularly well-suited to residential locations where rooftop runoff discharges via drip edges, roof scuppers, or downspouts to an adjacent vegetated or lawn area. Raingardens would likely provide minor peak flow attenuation and pollutant removal for small storm events with the appropriate design.

Roof Runoff Storage: Roof runoff storage systems are above-grade cisterns that have the potential for beneficial reuse. In New England climates these systems are only appropriate during the non-winter months. These systems will be selected for sites where rooftop discharge locations are concentrated via exterior downspouts and if there is potential for exterior beneficial reuse of the stored runoff (i.e. adjacent landscaping). Roof runoff storage would likely provide peak flow attenuation and volumetric reductions for small storm events with the appropriate design.

Below-Grade Treatment Train: Proprietary below grade treatment trains are diverse but typically include a physical settling and filtration component. These systems are well suited to stormwater treatment on parcels with limited available surface area. The system considered for this project are the Contech® Hydrodynamic Separation and Filtration. The below grade treatment train is typically an off-line, flow through system and has a defined maximum flow through rate based on filter limitations. The below grade treatment train can



provide modest pollutant removals but does not provide peak flow attenuation or overall volume reductions unless designed with upstream storage. For this exercise, this system type will only provide filtration.

Below-Grade Storage with Below-Grade Filter: Below-grade storage with below-grade filter refers to a combination system designed to detain a particular volume of flow and provide filtration for that storage volume. These systems are well suited to areas where surface land use limits the development of a surface storage system and if stormwater is already routed via below-grade drainage infrastructure. The system considered for this study is a Stormtech™ chamber storage and “isolator row” filtration system. These systems have the potential to attenuate peak flows, provide pollutant removal and can provide volume reductions via infiltration in appropriate locations.

Below Grade Storage with Above-Grade Filter: Below-grade storage with above-grade filter refers to a combination system designed to detain a particular volume of flow and provide filtration for that storage volume. These systems are well suited to pervious areas where surface land use limits development of a surface storage system. The above grade filter is preferable to below grade filters for ease of maintenance, but is only applicable with sufficient hydraulic head and “daylighting” opportunity. The system considered for this study is a Stormtech™ Chamber storage and StormTreat™ filter system. This system has the potential to attenuate peak flows, provide pollutant removal and can provide volume reductions via infiltration in appropriate locations.

Esplanade Filter Box: Esplanade filter boxes refer to at grade, vertical flow, media filtration systems. These systems are well-suited to roadways or other developed areas where surface constraints limit installation of a soil filter. The Filterra™ tree box filters are used as model systems in this study and range in surface footprint from 24 sf to 91 sf of surface area. The filter has the potential to provide pollutant removal but does not provide peak flow attenuation or volume reduction. These systems must be placed just upstream of existing catch basins and are connected via underdrain piping. Overflows from the box filters are conveyed to existing drainage infrastructure.

Diversion to Buffer: Diversion to buffer systems are conveyance modifications for surface stormwater in order to promote the disconnection of impervious areas. Other names typically used are turnouts or curb breaks. The turnout to buffer is only identified in areas with sufficient buffer to provide water quality and quantity attenuation. This system is also identified in locations where manipulation of surface flows would be necessary to bring stormwater into an adjacent treatment system. Buffers have the potential to reduce pollutant load through settling and infiltration and reduce peak flows if sufficient soils, grades and depth of buffer is available.



Assumptions

The following outlines key assumptions, given the objectives of the project and inherent uncertainties related to stormwater management retrofits.

- Structural stormwater BMPs that reduce peak flows and have the potential to provide overall volume reductions, via infiltration and/or evapotranspiration, will be identified as a priority over systems that do not. Each retrofit opportunity location will identify one BMP based on the best professional judgment of the field inventory team.
- Above-grade stormwater management systems are preferable to below-grade systems for ease of maintenance.
- Soil conditions within the study area are primarily Hydrologic Soil Group C and D, which are not ideal for infiltration systems, but infiltration may be possible for small precipitation events (<0.5 inches/24 hours) and in specific locations. This particular precipitation event is typically represented by 80% of all precipitation events.

- Some retrofit opportunities identified in the field will not be feasible due to unknown constraints such as below ground utilities or property owner issues.
- Some inconsistencies may exist between defined drainage area boundaries and actual hydrologic boundaries. All data generated during the GIS analysis will rely on pre-defined boundaries and therefore should be considered for planning level analysis only.
- Certain structural BMPs (i.e. raingardens and roof runoff storage systems) may be generically recommended for residential areas. Site specific evaluation of private residential properties for structural stormwater management is beyond the scope of this project.

Retrofit Inventory Process

Potential retrofit opportunity locations will be identified through preliminary analysis of high-resolution aerial photography and storm sewer infrastructure maps.

The field retrofit evaluation will focus on the identification of underutilized landscape areas adjacent to directly connected impervious areas within the study drainage areas. Retrofit locations identified in this assessment will typically involve the use of underdeveloped or landscaped areas in medians, parcel setbacks or transportation-related Right of Way. The retrofits selected during this evaluation will not typically require a significant adjustment to current land use.

Field evaluation of stormwater retrofit opportunities will be accomplished through the use of digital data collection forms within ArcPAD and Global Positioning System (GPS) Trimble GeoXH equipment. Retrofit locations are identified in the field based on available land area, elevations of adjacent impervious area surfaces and surface slopes and the potential hydraulic head (change in elevation) between surfaces to be treated and proposed outlet inverts. The preferred structural BMP type will be selected for the site and the available surface area for the treatment area will be noted.

Specific site assessment will also consider possible surface constraints, contributing area land use, construction and maintenance access opportunities and potential permitting issues among others.

As a part of data collection, the surface area draining to each retrofit location will be delineated based on 2' contour data and field verification of overland flow paths. Individual drainage areas will be analyzed for percentage of impervious and landscaped areas based on available GIS data.

For this study, ideal water quality volumes (cubic feet) to be retained and treated are considered to be 1" of rainfall depth times the impervious drainage area and 0.4 inches of rainfall times the landscaped area. Each retrofit will be evaluated based on its ability to manage the water quality volume (WQV) and will be attributed with a percentage of WQV managed given available treatment area. In proprietary "flow-through" systems WQV retention is not possible. Manufacturer specified treatment areas will be used as a basis for determining the percentage of flow through rate achievable in the system. An ideal flow rate during the design storm would be 100% of manufacturer specification.

**CAPISIC BROOK WATERSHED
FLOOD CONTROL STUDY RE-EVALUATION
DRAFT FINAL REPORT**

PREPARED FOR:

**CITY OF PORTLAND
PUBLIC WORKS DEPARTMENT
55 PORTLAND STREET
PORTLAND, MAINE 04101**

PREPARED BY:

**DeLUCA-HOFFMAN ASSOCIATES, INC.
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(207) 775-1121**

SEPTEMBER 1999

will eliminate flooding of the roadway at Holm Avenue for storms in excess of the 25-year event.

Although modeling indicates flooding at Holm Avenue can be dramatically reduced, the extent of sedimentation which occurs between the Maine Turnpike and Holm Avenue could substantially affect the performance of these culverts and result in flooding. The success of hydraulic infrastructure improvements will greatly depend on the maintenance of this system, due to the intense winter sanding of the Maine Turnpike and sedimentation in this reach of Capisic Brook.

IV. WATERSHED MANAGEMENT

The Capisic Brook Watershed is approximately 1,683 acres (2.63 square miles) in size, with the Brook extending over three miles between the Capisic Pond Dam and Forest Avenue. Over 85% of the watershed flows through the Brook between Lucas Street and Dennett Street.

Accurate hydraulic modeling and maximum conveyance capacity of the channel network is a direct function of the conveyance conditions of the Brook Corridor. In December of 1998, and May of 1999, personnel from DeLuca-Hoffman Associates, Inc. performed a site walk of the Capisic Brook Corridor and identified areas of the channel in need of maintenance, through cleaning, stabilization and rehabilitation.

A memorandum of the site walk and noted deficiencies for the areas in need of rehabilitation was prepared following this site walk. A copy of the memorandum is included as part of Appendix C. The memorandum outlines a series of corrective measures which will further improve the conveyance capacity of the channel network.

Periodic and frequent review of the "State of the Brook" is an essential aspect to maintaining a hydraulically efficient channel network. The City of Portland should develop a periodic maintenance schedule for maintaining the Capisic Brook channel system. Aspects of this maintenance plan should at a minimum include review of the channel for erosion and sedimentation, identification of debris accumulation and removal.

With a drainage area the size of the Capisic Brook Watershed and limitations on the effectiveness of hydraulic improvements, the only effective means of reducing the flood levels is the reduction of the peak flow either by intercepting and diverting flow from the brook or attenuation of flows by upstream stormwater management facilities.

The Greenbelt Study, as a follow-up to the NRCS Study, incorporated two offline storage facilities into the recommended plan, with the intent of reducing peak flow from the 25-year storm. The Greenbelt Study did not specifically address the design requirements of the two offline storage facilities other than stating that the peak flows to the Brook could be reduced by 50% during the 25 year storm event. A brief description of the locations and the anticipated flow reduction for the 25-year storm was provided in the Greenbelt Study. Acquisition of land is essential to provide the degree of storage required for reduction of peak flows by 50% for the 25-year storm event.

DeLuca-Hoffman Associates, Inc. has reviewed the two potential sites identified in the Greenbelt Study for the use of offline storage facilities. The first site is located in the vicinity of the Maine Turnpike between Exit 8 and Holm Avenue. The other site is located in a region between the Maine Central Railroad (MCRR) and the Evergreen Cemetery.

West Branch Stormwater Management Facility

The Greenbelt Study proposed an offline storage facility between Holm Avenue and the northbound lanes of the Maine Turnpike. This proposed offline facility, referred to as Detention Area 12, proposed to reduce peak flow for the 25 year storm event by 50%. DeLuca-Hoffman Associates, Inc. has done field reconnaissance and reviewed the aerial photogrammetric mapping of this area as well as the Taft Avenue, Holm Avenue, and Turnpike culvert crossing data.

DeLuca-Hoffman Associates, Inc. has reviewed the flood control measures outlined in the Greenbelt Study for *Focus Area 5 – Taft Avenue to Westbrook* and found a brief, albeit generic, description of the detention facility requirements for Detention Area 12. Reference was made to modeling results indicating that 350,000 cubic feet could be detained during the 25 year storm event.

DeLuca-Hoffman Associates, Inc. has reviewed the hydraulic model data and results versus actual topography of this area. Review of the data indicates that extensive excavation will be required to provide additional storage volume in the area between Holm Avenue and the Maine Turnpike. Use of the existing Brook Corridor as a detention facility is nearly impractical due to the potential of adverse upstream effects. Downstream tailwater effects indicate that this area is continually inundated with stormwater even during the 5 year storm event.

Hydraulic modeling, including the proposed culvert replacement at Pinecrest Road Extension, indicates that peak flows overtop the Brook Crossing at Holm Avenue and Taft Avenue during the 5-year storm events.

Downstream improvements are required to make detention of this area viable. Hydraulic modeling indicates that the installation a second 3' x 6' box culvert at Taft Avenue and replacement of the 30" diameter culvert at Holm Avenue culvert with a 3' x 9' box culvert will reduce flooding in this area and tailwater effects in the vicinity of the proposed stormwater management facility.

Physically, construction of a detention facility to service the West Branch of Capisic Brook appears viable, providing that land acquisition is feasible. The schematic stormwater management facility for the West Branch depicted on Figure D-2, contained in Appendix B, was developed based on peak flow reduction during the 25 year storm of approximately 50%, similar to the initial goals of the Greenbelt Study.

The watershed area tributary to the Turnpike stormwater management facility is approximately 232 acres. Hydrologic modeling indicates that a 48% reduction of peak flows may be attained for the 25 year storm event based on this conceptual regional stormwater management facility. The stormwater management facility requires approximately 33 acre-feet of storage to provide this level of peak flow reduction for the 25 year storm.

The West Branch stormwater management facility is schematic in nature. Actual peak flow reduction will be a function of the available storage and outflow characteristics of this facility. However, as a conceptual stormwater management facility, if it is implemented with the proper downstream culvert improvements, it will achieve two goals, 1) mitigation of flooding in the Taft and Holm Avenue neighborhoods and 2) reduction of peak flows in the lower reaches of the watershed.

Implementation of this stormwater management facility is a critical element in the mitigation of flooding within the Capisic Brook Watershed. The benefits of peak flow reduction from the stormwater management facility will be realized in the immediate Taft and Holm Avenue neighborhoods as well as the lower reaches of the watershed.

East Branch Stormwater Management Facility

The Greenbelt Study identified an area between the Maine Central Railroad and Evergreen Cemetery as a potential offline storage facility site. The original site was intended to provide a 50% reduction of peak flows from the 25 year storm event, based on a preliminary design referenced as part of the Greenbelt Study.

DeLuca-Hoffman Associates, Inc. reviewed the flood control measures outlined in the Greenbelt Study for *Focus Area 7 – North Evergreen Cemetery Area*, which indicated 455,000 cubic feet could be detained during the 25 year storm event resulting in the 50% reduction in peak flow. The watershed tributary to this stormwater management facility is approximately 631 acres in size with peak flows during the 25 year storm event of 305 cfs. DeLuca-Hoffman Associates, Inc. was unable to obtain any additional information on the preliminary offline storage facility described in the Greenbelt Study; however, our office performed a preliminary assessment of the storage requirements and determined that a storage volume of approximately 1,780,000 cubic feet (40.9 ac-ft) is necessary to reduce peak discharge from the 25 year storm by 50 percent. Reduction of peak flows under larger storm events is a critical component to mitigation of downstream flooding.

Initially, a schematic offline detention basin was developed for the East Branch of Capisic Brook. Review of the aerial photogrammetric mapping of this area of the Capisic Brook Watershed revealed a relatively large region of undeveloped land. DeLuca-Hoffman Associates, Inc. and the City of Portland reviewed the site and determined it to be cost prohibitive based on the extensive volume of excavation required to reach the Brook level.

Further review of the Brook Corridor revealed a vast expanse of available storage area within the confines of the Brook between the Pinecrest Road and Penwood Drive neighborhoods. Figure D-1 contained in Appendix B represents the schematic design of the East Branch Stormwater Management Facility. Hydraulic modeling indicates that a significant level of flooding occurs within these reaches of Capisic Brook. The primary source of flooding is the restricted hydraulic capacity of the Sunset Lane culvert.

The Sunset Lane culvert was rehabilitated in the fall of 1996, as a result of the damage incurred by the October 1996 storm. The rehabilitation of the Sunset Lane culvert was limited to improving the structural integrity and did not significantly alter the hydraulic capacity of the culvert.

Hydraulic modeling of the Sunset Lane culvert indicates approximately 6.2 feet of headloss occurs as a result of the peak flows from a 25 year storm event. The headloss which occurs at the Sunset Lane culvert exacerbates upstream flooding of the Brook Corridor due to increased water surface elevations at the Sunset Lane Brook Crossing.

In lieu of the flooding which occurs in the Brook Corridor and the extensive available storage, the prospect of harnessing the available storage in the Brook Corridor for attenuation of peak flows was investigated. A schematic on-line detention basin was developed which consists of the construction of a stream crossing, approximately 1,400 feet upstream of the Sunset Lane Brook crossing along with the expansion of the upstream storage capacity along the brook corridor (Refer to Figure D-1 & Figure CS-1 in Appendix B). The stream crossing would act as an outlet control structure during larger storm events, similar to the current configuration of the Sunset Lane culvert. This would regulate peak discharge while temporarily storing approximately 48 acre-feet of water within the expanded stream corridor during the 25-year storm event.

The initial flooding which occurs between the proposed crossing and Sunset Lane would be reduced due to attenuation of peak flows detained at the East Branch Stormwater Management Facility (SWMF). The increased storage capacity in the Brook Corridor will be used for storage and attenuation of peak flows during larger storm events. Alteration of a portion of the Brook Corridor upstream of the proposed crossing will provide additional storage capacity.

The construction of the improvements associated with the East Branch Stormwater Management Facility significantly reduces the peak flows from this branch of the Capisic Brook. The reduction in peak flows due to the East Branch Stormwater Management Facility reduces the burden on downstream hydraulic conveyance structures, thereby, reducing the flood levels for the 25 year storm event within the lower reaches of the Capisic Brook Watershed.

Capisic Brook Watershed Flood Study Re-evaluation
 Additional Infrastructure Improvements
 Preliminary Opinion of Probable Cost

West Branch Storm Water Management Facility

Item	Description	Unit	Quantity	Unit Price	Amount
1	Traffic Control, Mobilization & Demobilization	LS	1	\$15,000.00	\$15,000.00
2	Site Preparation & Clearing	Acre	9	\$3,000.00	\$27,000.00
3	Common Excavation	CY	156250	\$7.00	\$1,093,750.00
4	Loam & Seed	Unit	110	\$300.00	\$33,000.00
5	Riprap	SY	475	\$30.00	\$14,250.00
6	Stream Diversion	LS	1	\$30,000.00	\$30,000.00
7	Outlet Control Structure	LS	1	\$45,000.00	\$45,000.00

Subtotal \$1,258,000.00

Note:

- 1.) This estimate does not include any costs associated with land acquisition, easements, legal or engineering fees. It is anticipated approximately 10 acres of land would be disturbed as part of the stormwater management facility project.
- 2.) This estimate does not include any cost for rock removal associated with blasting or other specialty means of rock excavation.
- 3.) The Costs provided in this estimate is based off of typical unit prices experienced in the region. The ENR Construction Cost Index for this estimate is 6117 as of September 1999. This probable cost should be adjusted based on the current construction cost index.

Construction	\$1,258,000.00
Engineering/Design	\$88,000.00
Contingency	\$314,500.00

Total \$1,660,500.00

Capisic Brook Watershed Flood Study Re-evaluation
 Additional Infrastructure Improvements
 Preliminary Opinion of Probable Cost

East Branch Storm Water Management Facility

Item	Description	Unit	Quantity	Unit Price	Amount
1	Traffic Control, Mobilization & Demobilization	LS	1	\$25,000.00	\$25,000.00
2	Site Preparation & Clearing	Acre	8	\$3,000.00	\$24,000.00
3	Common Excavation	CY	115,000	\$7.00	\$805,000.00
4	Loam & Seed	Unit	80	\$300.00	\$24,000.00
5	Riprap	SY	800	\$30.00	\$24,000.00
6	Relocation of 18" WSIS	LF	1,000	\$125.00	\$125,000.00
7	Wetland Mitigation Plantings	Allow	1	\$95,000.00	\$95,000.00
8	Miscellaneous Surface Restoration	LS	1	\$65,000.00	\$65,000.00
9	Outlet Control Structure	LS	1	\$75,000.00	\$75,000.00

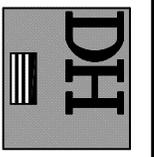
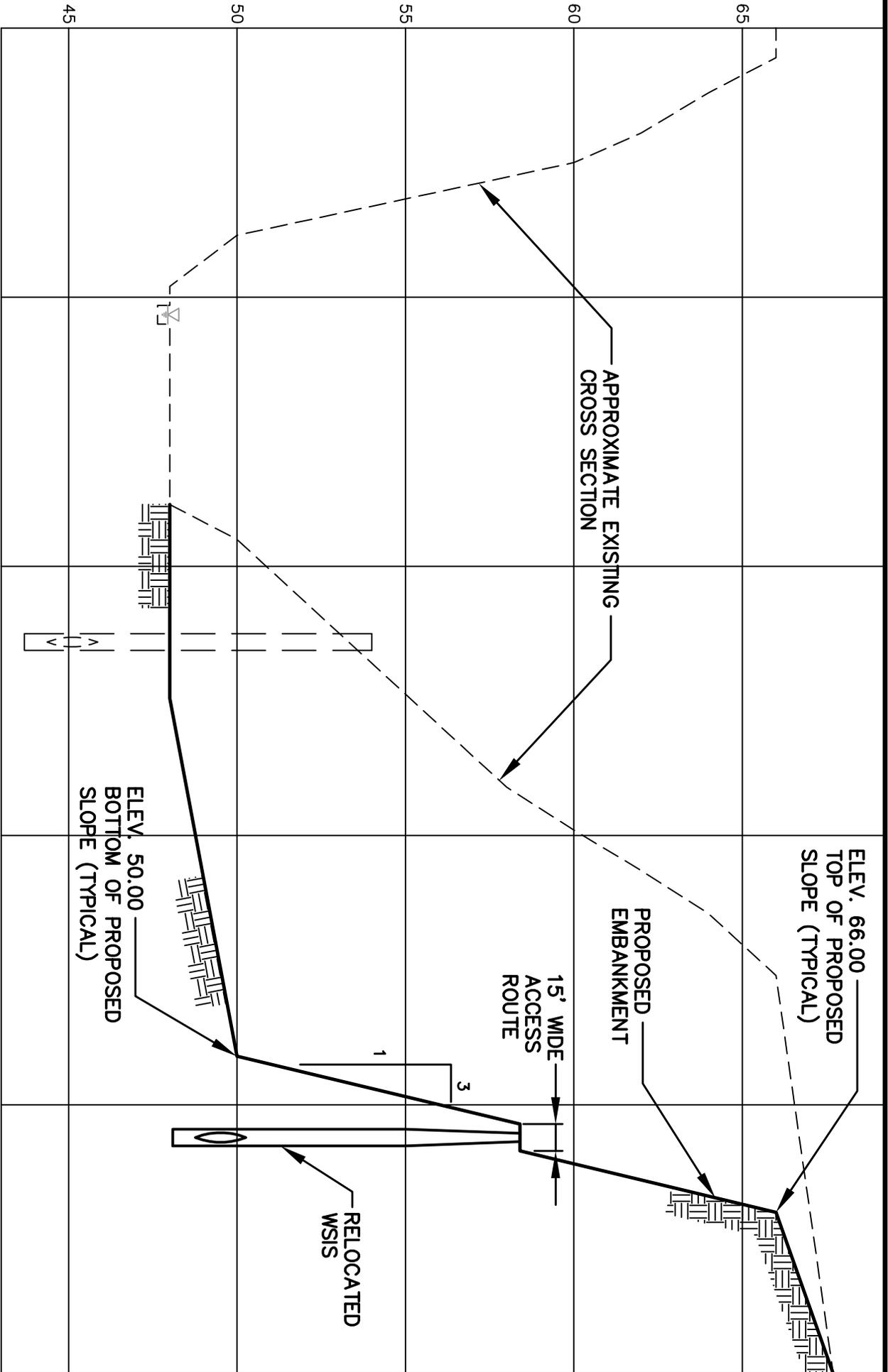
Subtotal \$1,262,000.00

Note:

- 1.) This estimate does not include any costs associated with land acquisition, easements, or legal fees. It is anticipated approximately 8 acres of land would be disturbed as part of the stormwater management facility project.
- 2.) This estimate does not include any cost for rock removal associated with blasting or other specialty means of rock excavation.
- 3.) The Costs provided in this estimate is based off of typical unit prices experienced in the region. The ENR Construction Cost Index for this estimate is 6117 as of September 1999. This probable cost should be adjusted based on the current construction cost index.

Construction	\$1,262,000.00
Engineering/Design	\$88,000.00
Contingency	\$315,500.00

Total \$1,665,500.00

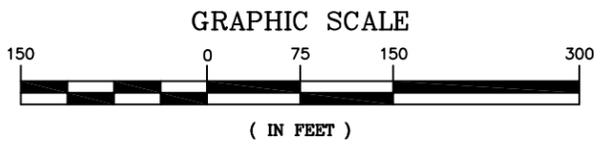
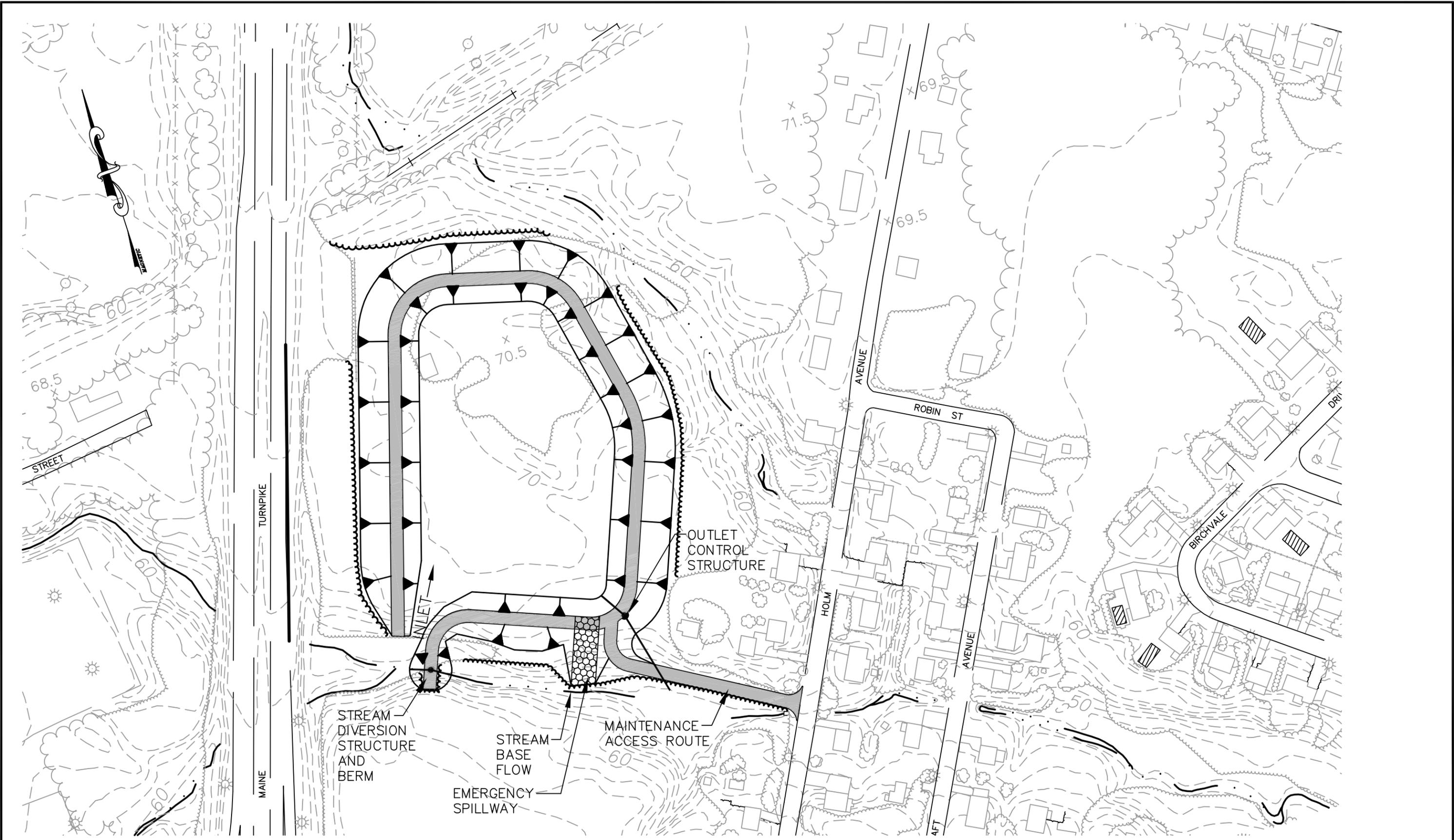


Deluca-Hoffman Associates, Inc.
 Consulting Engineers
 778 Main St., Suite 8
 South Portland, ME 04106
 Tel. (207) 775-1121 Fax. (207) 879-0896

**TYPICAL CROSS SECTION
 OF EAST BRANCH DETENTION
 AREA LOOKING UPSTREAM**

Designed	CJO	Date	04/16/99
Drawn	CDD	Scale	N.T.S.
Checked	JAL	Job No.	1359.31

**FIGURE
 CS-1**



CONCEPTUAL TURNPIKE STORAGE FACILITY

DH
DeLuca-Hoffman Associates, Inc.
Consulting Engineers
778 Main Street
South Portland, Maine 04106
207-775-1121

Designed	CJO	Date	04/19/99
Drawn	LA	Scale	N.T.S.
Checked	JAL	Job No.	1359.31

FIGURE
D-2



MEETING NOTES

This Meeting:	Capisic Brook Restoration and Management Rationale
Date/Time:	10AM – 1PM, February 25, 2010
Location:	Portland City Hall Room 209, 389 Congress Street

Meeting Objectives

1. Confirmation of role of Retrofit Inventory Strategy Team;
2. Obtain input, refine and achieve consensus on Opportunities;
3. Discuss Opportunities regarding Structure v. Non-Structural;
4. List additional data needs and responsibilities of the Team;
5. Discuss preliminary recommendations, ideas and costs; and
6. Shared understanding of next steps and interim deliverables.

Attendees

- ~ 9 Retrofit Inventory Strategy Team Members, 1 Note Taker
 - Zach Henderson (W&C)
 - Garnet Valliere (W&C; Meeting Minutes)
 - Doug Roncarati (Portland Stormwater Program Coordinator)
 - Dave Margolis-Pineo (Portland Engineering Staff)
 - Brad Roland (Portland Public Services PE; CSO & Stream Focus)
 - Jeff Dennis (MEDEP)
 - Robyn Saunders (GZA, Environmental Consultant for ME Turnpike Authority)
 - Rhonda Poirier (MEDOT, Augusta)
 - Ryan Hodgman (MEDOT Southern Region Environmental Coordinator)

Meeting Notes

Brief Overview of Retrofit Inventory Strategy Team:

- ☐ Copies of a meeting agenda, Memorandum, and maps of the watershed were provided to attendees upon arrival and group introductions were made to accommodate meeting minutes.
- ☐ Zach Henderson explained the objectives of the meeting, reviewed the meeting agenda, and meeting objectives.

Review of Watershed Data:

- ☐ Memo and maps were presented and discussed.
- ☐ Zach Henderson noted that Zoning Figure has been updated from previous version.
- ☐ Subwatershed delineation was completed and provided to Project Team (Team).
- ☐ Team commented that middle and lower tributary should be renamed to middle and lower as they are not tributaries.

- ☐ Jeff Dennis commented that the west tributary was not covered under the stream protection overlay district which should be included in the planning and policy team discussion.
- ☐ Zach Henderson provided review of previous Capisic Pond, Greenway or Stream studies and report recommendations being carried forward as basis for Capisic Brook Watershed Plan (shown below with [Previous Recommendations-Blue/Comments-Black](#)).

Infrastructure Improvements

- Continue separation of the City's CSO system in order to eliminate input of sanitary wastewater into the stream thus significantly reducing nutrient and bacterial loads.
 - ☐ Brad Roland indicated that the City is moving forward with CSO separation in watershed.
- Construct the West Branch and East Branch Detention Basins to provide flood control and, if possible, develop the area around the basin to be used for active recreation play fields, and walking and hiking trails.
 - ☐ The Team discussed value of east and West Branch detention basins and determined that East Branch detention basin would not be appropriate for further consideration.
- Reduce NPS runoff by replacing impervious cover with pervious material and channeling runoff through treatment/infiltration systems.
 - ☐ Viable generic recommendation will be fine tuned through retrofit inventory
- Implement the following structural improvements to control overbank flooding:
 - a. Extension of the Capisic Pond Dam weir.
 - ☐ Completed
 - b. Increase conveyance by executing channel improvements as outlined in the DeLuca-Hoffman Flood Control Study.
 - ☐ Team was in agreement that conveyance improvements are generally inconsistent with watershed restoration goals.
 - c. Install a 4' x 8' box culvert at Capisic Street.
 - ☐ Completed
 - d. Install a 48" diameter culvert adjacent to the existing culvert at Lucas Street.
 - ☐ Completed
 - e. Install a second 3' x 6' concrete box culvert at Taft Avenue.
 - ☐ Not Completed, will be considered as part of West Branch detention system
 - f. Install a 3' x 9' box culvert at Holm Avenue.
 - ☐ Not Completed, will be considered as part of West Branch detention system

Planning and Outreach

The following were considered viable recommendations and will be considered further as part of Plan development:

- Implement non-structural strategies to provide long-term improvements, including implementation of Education Stations and other outreach and education, pollution prevention, water quality monitoring, and policy and planning initiatives to reduce the likelihood for pollutants to enter the stream;
- Increase the dissolved oxygen concentration in the stream through a managed reduction of stream water temperatures and a reduction in the discharge of nutrients to the stream;
- Physically enhance the riparian zone and area around detention basins, including the replanting of native trees and restoring the natural morphology of Capisic Brook;
- Develop a periodic maintenance schedule for the Capisic Brook channel system, including review of the channel for erosion and sedimentation, identification of debris accumulation and removal;
- Reduce sewer system and septic leaks by inspecting and maintaining systems;
 - ☐ Doug Roncarati indicated that under the Portland's Stormwater Program Management Plan, the city is required to identify septic systems within the watershed that are 20+ years old by the end of the current permit year (June 30th).

- Utilize a road sweeping program to reduce road sand in stormwater and snow melt runoff during winter months;
 - Robyn Saunders indicated that costs per mile were determined from Long Creek WMP and can be shared with the Team.
- Encourage responsible development: Smart Growth and Low Impact Development (LID).

Community and Ecological Value

- Design and implement a greenway within the Capisic Brook watershed as described in the Greenway Master Plan;
 - The Team discussed public access concerns expressed by stakeholders. The Team agreed that specific educational access will be considered further in Plan.
- Enhance aesthetic value through construction of small bridges over water control structures, interpretive signs, and plant material identification markers; and
 - Will be considered further as part of educational access considerations
- Modify and dredge Capisic Pond to create an environment suitable for fish and other wildlife after upstream modifications have been carried out.
 - The Team agreed that Capisic Pond restoration efforts will be considered under separate planning process, but acknowledged that Capisic Pond improvements will be gained through implementation of the Plan.

Structural Retrofit Inventory and Opportunities (see attached Components of a Sustainable Watershed)

- Turnpike Widening Update:
 - Robin indicated that Exit 48 Bridge will be replaced with further information available in July. Bridge replacement would not likely include stormwater retrofits which will be considered are part of the widening. Turnpike widening is approximately five (5) years out and would include a third lane, survey data has been collected for this section of roadway and will be shared with Doug Roncarati. Zach Henderson asked if MTA would consider stormwater retrofits for off-turnpike parcels as a part of widening planning given adjacent run-on from private facilities. Robyn Saunders indicated she would review request with MTA. Team discussed possibility of integration of West Branch detention facility with widening project.
- MDOT Projects Update:
 - Ryan Hodgman provided GIS figure showing upcoming planned projects in vicinity of watershed currently no projects planned within Capisic Brook watershed Ryan Hodgman recommended that the team forward requests for stormwater integration into pavement overlay projects through PACTS. Team discussed whether specific stormwater retrofit locations should be identified on state roadway corridors or if segments of state road be identified for general stormwater mitigation. It was decided that general stormwater mitigation was most appropriate allowing MDOT flexibility and professional judgment during design efforts.
 - Ryan Hodgman indicated that 2012-2013 project requests from PACTS for Pavement Preservation can include requests to address stormwater runoff where appropriate and should be provided to PACTS this Spring.
- Portland CSO Abatement Program Update:
 - Previously discussed
- West and East Branch Detention System Review and Discussion
 - East branch detention basin will not be considered further due to site constraints, including the need for extensive excavation and forest removal within the Evergreen Cemetery conservation area in order to construct the basin. West branch detention branch will be considered based on DeLuca-Hoffman design, but modified for water quality treatment.
- Target Catchments Review and Discussion

☞ Zach provided map showing location of target catchments based on GIS evaluation of impervious cover within catchment areas. Zach Henderson indicated that these targets assist in the identification of priority areas but should not be considered as the only catchments during retrofit inventory. Team agreed that priority areas including Exit 48 Commercial Area/Riverside Street and Warren Avenue Commercial District should be the focus of structural retrofit inventory. Some stormwater contributing areas outside of defined catchments should be considered along Warren Avenue priority area if drainage concentrates along railroad corridor. Public and private discharges and retrofits should be considered in the retrofit inventory. Large residential areas will be addressed through pollution prevention efforts. Doug Roncarati indicated that structural retrofits could be considered opportunistically during municipal roadway capital improvements, but would not require specific retrofit inventory. The Team decided Sagamore Village was a target catchment that should be considered during retrofit inventory due to size and city ownership.

- **Prioritization of Opportunities for Structural Retrofit Inventory**

☞ Priority areas for structural retrofiting will include the Exit 48 Commercial Area/Riverside Street, Warren Avenue Commercial District and Sagamore Village. Existing stormwater management features and drainage areas will be preferred locations for retrofits within these areas. Specific below ground retrofits may be generally identified for cost estimating purposes only. Roadways in these areas will be assessed for general implementation of retrofits given traffic numbers, esplanade availability and utility constraints but specific locations will not be defined.

Non-Structural Strategies and Opportunities (see attached Components of a Sustainable Watershed)

☞ Team was asked to review the non-structural strategies and opportunities and provide comments to Doug Roncarati and Zach Henderson. No further discussion given time constraints.

Questions, Issues and Concerns

☞ Doug Roncarati was concerned that TMDL for Capisic Brook may be promulgated prior to finalization of Watershed Management Plan. Team expressed concern over synthesis of TMDL recommendations and Plan recommendations. The Team would prefer Plan act as restoration plan for Capisic Brook. The Team requested that Jeff Dennis provide update on this issue.

☞ Zach Henderson requested storm drain infrastructure mapping from MDOT and MTA.

☞ Brad Roland indicated that capital improvements may be occurring in and around Deering High School and Team may want to consider as a demonstration education access project, despite that fact that area is outside the watershed.

Plus / Delta Review of Meeting

+	Delta
Location	Absence of Eric Dudley-City of Westbrook Parking at City Hall



PLANNING AND POLICY TEAM MEETING

4/1/2010



MEETING AGENDA

This Meeting:	Capisic Brook Watershed Management Plan Planning and Policy Initiatives Team
Date/Time:	10AM – 1PM, April 1, 2010
Location:	Woodard & Curran – Conference Room 1 41 Hutchins Drive, Portland

Meeting Objectives

- Confirmation of role of Planning and Policy Initiatives Team
- Understand Rationale for Preliminary Recommendations
- Obtain Input on Preliminary Recommendations
- Identify other possible Planning and Policy Recommendations
- Shared understanding of next steps and interim deliverables

Agenda

- Introductions
- Project Status
- Role of Planning and Policy Initiatives Team
- Planning and Policy Role in Sustainable Stormwater Management
- Presentation of Preliminary Recommendations
- Discussion and Prioritization
- Next Steps
- Meeting Review – Plus/Delta



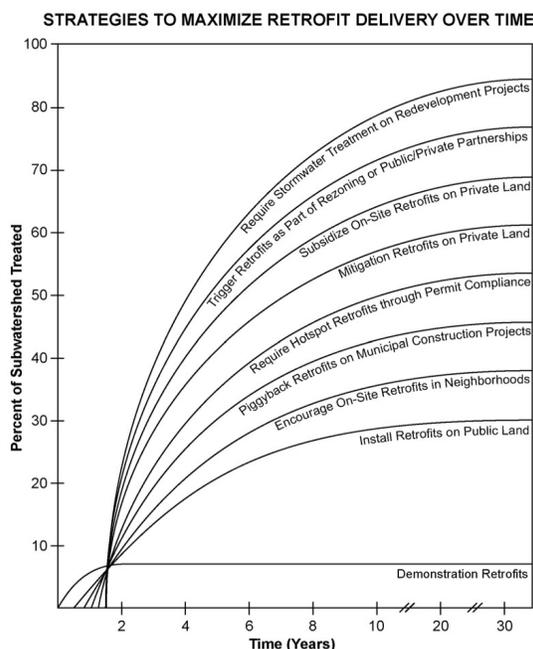
MEETING TALKING POINTS AND NOTES

This Meeting:	Capisic Brook Watershed Management Plan Planning and Policy Initiatives Team
Date/Time:	10AM – 1PM, April 1 and April 22, 2010



The Role of Planning and Policy in Sustainable Stormwater Management

- Land use, and consequently stormwater discharges and pollutant loads, is largely directed by local zoning. The National Stormwater Quality Database uses land use types (e.g. residential, commercial, industrial) as a basis for classifying pollutant concentrations in stormwater runoff. Maximum impervious cover ratios and other dimensional requirements of municipal zones can be used as indicators of future build out scenarios.
- Andy Fisk, MaineDEP - Director Bureau of Land and Water Quality, during a recent panel discussion expressed his view that proactive watershed restoration planning is probably the best method to improve water quality over the long term in urban water bodies. He indicated that this burden cannot be borne by single municipal entities alone and will likely require regional planning and perhaps a reconfiguration of the way land use permits are issued.
- The American Rivers publication, *Local Water Policy Innovation – A Road Map for Community Based Stormwater Solutions*, indicates that “local environmental protection ultimately relies on local solutions. “Regardless of federal laws, our local and regional water quality will not be protected unless we take action at home.” The report goes on to identify why local policy is important to stormwater management, including;
 - Local governments have the experience and authority to regulate land use,
 - Zoning process is ideal for stormwater regulations,
 - Local governments can remove barriers to Low Impact Development (LID),
 - Local action is vital to the federal Clean Water Act permitting system, and
 - Individuals have great power to create change on a local level.



- The Center for Watershed Protection indicates that requiring stormwater retrofits during redevelopment as the most effective method to achieve maximum water quality improvements over time in impaired water bodies.
- The City of Portland currently has specific Technical Design Standards and has the authority to regulate how built areas are designed and developed.



Preliminary Recommendations and Talking Points

- Innovative Stormwater Management Design
 - Off-Street Parking Standards – Compact Car and Allowable Reductions for Joint Use/Alternative Transportation

Current Compact Spaces Standard: Any parking lot may be designed with a maximum allowance of 35 percent compact spaces over and above the required minimum number of spaces by the zoning ordinance. The space shall have a minimum design of 7-1/2 feet wide by 15 feet long.

Preliminary Recommendation: Allow 35% or more of required minimum off-street parking to be composed of compact car parking spaces. Commercial/retail facility compact spaces shall be 8 feet by 15 feet long. Consider resizing all (non-compact) parking spaces and reduce the length (9x16)

Meeting Notes:

- Consider a required number of compact spaces.
- Need to consider compact space size by type of use (i.e. Hancock Lumber or fast-food retail may not be appropriate for compact spaces). Requiring compact spaces may be problematic at these locations.

Current Joint Parking Use Policy: Joint or Shared use of parking is not specifically allowable in Capisic Brook commercial zone (B4) unless special circumstances. Parking reductions below minimum parking standards may require Board of Appeals approval.

Preliminary Recommended Shared Use, Multi-Modal, Alternative Transportation Policy: Off-street parking requirements may be reduced if the applicant demonstrates that off-street parking proposed is adequate for the use based upon parking demand/supply study for the project and/or consideration of the availability of transit service, joint use or other alternative transportation.

Meeting Notes:

- Fee in lieu of parking being proposed on peninsula may be worth considering in some cases in Capisic.
- Utilize parking study to demonstrate needs for anything beyond minimum number of spaces.
- Integration with Transit stops may be appropriate for parking reductions. ID locations of transit stops within watershed.
- Consider setting a maximum number of spaces by use.
- Can't eliminate minimum parking required; commercial parking in neighborhoods, other issues. .
- Planning Board looking for community wide Transportation Demand Management which may assist in parking reductions.

Key Definition:

Transportation demand management or travel demand management (both TDM) is the application of strategies and policies to reduce travel demand (specifically that of single-occupancy private vehicles), or to redistribute this demand in space or in time.

There is a broad range of TDM measures, including:



- *Transportation Management Associations: leverage public and private funds to increase the use of ridesharing and other commuting options that reduce traffic congestion and improve air quality*
- *Including or improving pedestrian-oriented design elements, such as short pedestrian crossings, wide sidewalks and street trees.*
- *Requiring users of parking to pay the costs directly, as opposed to sharing the costs indirectly with others through increased rents and tax subsidies.*
- *Including and improving public transportation infrastructure, such as subway entrances, bus stops and routes.*
- *Subsidizing transit costs for employees or residents.*
- *Bicycle-friendly facilities and environments, including secure bike storage areas and showers.*
- *Providing active transportation (AT) facilities including bike lanes and multi-use trails.*
- *Flex-time work schedules with employers to reduce congestion at peak times*
- *Congestion pricing tolls during peak hours.*
- *Road space rationing by restricting travel based on license plate number, at certain times and places.*
- *Workplace travel plans*
- *Roadspace reallocation, aiming to re-balance provision between private cars which often predominate due to high spatial allocations for roadside parking, and for sustainable modes.*
- *Time, Distance and Place (TDP) Road Pricing, where road users are charged based on when, where and how much they drive. Some transportation experts believe TDP pricing is an integral part of the next generation in transportation demand management.[13]*

▪ **Street and Traffic Standards –Drainage and Curbing**

Current Drainage Standard: Requirements for curbing on roadways and parking areas create the necessity for closed drainage systems in many cases.

Preliminary Recommendation: Clarify or modify requirements to eliminate curbing to accommodate open drainage systems, or consider adding sections to the street and parking design standards that specifically allow for curb breaks or no curbing as a part of post-construction stormwater management plans.

Meeting Notes:

- *Maintenance of public vs. private infrastructure concerns.*
- *Design challenges to fit sidewalk access with open drainage.*
- *Winter Maintenance challenges.*
- *Public perception of streetscape/ beauty is not consistent with open drainage.*
- *Curbing provides safety, road edge stability and drainage routing.*
- *Context sensitive design should include stormwater management.*
- *Consider allowance for “Open Drainage” as part of redevelopment.*

▪ **Parking Lot/Parking Space Design – Parking Space Dimensions**

Current Standard: The standard parking space is 9' x 19'.



Preliminary Recommendation: Modify standard to 8.5' x 18

Meeting Notes:

- *No major concerns or comments. Standard should be consistent with minimum recommended standard stall sizing.*

▪ Pervious Pavement Installations

Current Standard: Pervious pavements are precluded from use due to current design standards.

Preliminary Recommendation: Modify the Technical Design Standards to allow and encourage the use of pervious pavements (porous asphalt, pervious concrete, pervious pavers, as examples) within the right-of-way and on private property, and as appropriate.

Meeting Notes:

- *Pervious pavement should be considered or required for overflow parking (i.e. parking beyond minimums).*
- *Will CH500 Revisions accommodate reductions in overall impervious through the use of pervious pavements. Consider pervious surfaces as a "reduction" in impervious surface.*
- *Current city code allows its use but design standards don't exhibit it. Developers desire a predictability in process and the standards should show design standards in order for them to be used.*
- *Encourage use of pervious pavement inside and outside right of way.*

○ Specifications for Enhanced Stormwater Management

▪ Loam Specifications and Installation

Currently, the City of Portland Technical Design Standards Manual does not define loam or provide specifications for loam and loam placement. As land is developed, infiltration tends to decrease and stormwater runoff increases in both rate and volume due to increases in impervious area, soil crusting, and soil compaction.

Studies indicate that the addition of organic material and mechanical tillage has shown potential to reduce runoff from compacted soils after construction from 36 to 91 percent. Residential development of single family homes typically provides 50% or more of open space, making the soil profile of a residential parcel a potential water management and water storage resource.

Numerous states have adopted soil specifications and management Best Management Practices specifically for stormwater control. The Maine Department of Transportation (MaineDOT) does define Loam in Section 615 of the MaineDOT Standard Specifications but area preparation and final organic content percentages are not consistent with other stormwater management guidance.

Preliminary Recommendation: Develop a Loam specification and installation specification that may at a minimum meet MaineDOT standards.

Meeting Notes:

- *Consider the impacts of certification and verification on staff time.*
- *Concern that encouraging loam will require sod use which may have unintended consequences.*
- *Specification should be developed in a way that can be achievable for local contractors. Material should be locally required.*



- Direct Connection of Private Stormwater Drainage to Combined Sewer System

Currently the section of code that deals with public sewer connection limitations indicates that “no person shall make” connection of drainage infrastructure to sanitary sewer, but does not require separation of these connections during combined sewer separation projects. Additionally, stormwater and other “unpolluted” drainage may be discharged to storm sewer or combined sewers.

Preliminary Recommendation: Modify the language to require (existing, new, re-) development in combined sewer areas to consider all on-site retention (versus detention) before connection to combined sewer is allowed. Modify existing language to require private drainage infrastructure to be connected to storm sewer system during combined sewer separation project.

- Direct Connection of Private Stormwater Drainage to Separated Storm Sewer System

Currently the section of code that deals with public sewer connection limitations indicates that “no person shall make” connection of drainage infrastructure to sanitary sewer, but does not require separation of these connections during combined sewer separation projects. Additionally, stormwater and other “unpolluted” drainage may be discharged to storm sewer or combined sewers.

Preliminary Recommendation: Modify this section to encourage use of on-site retention and other best management practices to reduce potential for direct connection of drainage infrastructure to municipal stormwater drainage system.

Meeting Notes (these notes relate to both of the “Sewer” bullets above):

 - Evaluate as part of Tier III – CSO Abatement model result and possible benefits to the CSO overflows in Capisic
 - Provide options and creativity with incentives
 - Continue to refine ordinance with onsite retention
 - ❖ **Strengths:**
 - Encourage, not mandatory
 - Add range of what could be appropriate BMP’s, this may make sense in Technical Standards Manual
 - ❖ **Weaknesses:**
 - Awareness
 - Education of benefit of disconnect to individual
 - Restrictions in funding
 - Range of cost for individual homeowner
 - Potential impact on annual reporting under MS4 permit/maintenance
 - ❖ **Opportunities:**
 - Funding mechanism similar to other Downspout Disconnect programs within CSO drainage areas – Downspout Disconnection programs have been shown to be a highly cost-effective Combined Sewer Overflow abatement strategy and may also have benefits for stormwater water quality management in appropriate locations.
 - ❖ **Threat:**



- In some CSO drainage areas it may be better for rooftop discharge to continue to WWTP if it does not contribute to CSO events
 - Disconnection programs for CSO control or stormwater control need to provide careful guidance to landowners to make sure disconnection is handled appropriately
- Stormwater Management During Redevelopment Projects (private, municipal)
- It is not clear whether redevelopment projects require stormwater management when not regulated by the state stormwater law.
- Preliminary Recommendation: Clearly define redevelopment. Require some level of stormwater quality management during redevelopment projects of certain size thresholds. Consider reducing the volume requirement as appropriate for the City from state standards (1" off impervious area / 0.4" off developed landscaped area) :to make stormwater management less expensive or more manageable on small sites.
- Meeting Notes:
- Maine DEP has/is developing a redevelopment flowchart, as part of its Chapter 500 revisions, which may be a good reference document
 - Portland City Council prefers consistency with state statute as opposed to differing standard
 - Team agreed that reducing "percent of area treated" may be preferable to reduced volume requirements which create inconsistency with state design manuals
 - ❖ **Strengths:**
 - May provide clarity for developer applicants versus current status of city's stormwater policy
 - Currently under Ch. 500 redevelopment projects are frequently exempt from stormwater water quality management increasing the need for this level of regulation in impaired watersheds
 - Implementation would offset excessive public costs through active retrofit program
 - ❖ **Weaknesses:**
 - Threshold for stormwater management requirements at Minor Site Development /Level 2 (minimum) therefore would not pick up residential properties
 - Would likely meet criticism from commercial landowner community
- Capisic Brook Watershed Overlay Zone
- Preliminary Recommendation: Develop an overlay zone to incentivize redevelopment through more flexible zoning requirements. Modify zoning to allow more flexibility (maximum impervious surface ration, as example) in zones within the Capisic Brook to attract redevelopment as a means to offset costs associated with stormwater requirements.
- Meeting Notes:
- Incentives for redevelopment should focus on Zone B-4 and particular components of Zoning Regulations that could be modified to enhance redevelopment opportunities
 - Attendees did not generally support including an Overlay Zone as a recommendation
 - ❖ **Strengths:**



- Could be good anti-sprawl measure to incentivize redevelopment in this Zone
 - Could offset increased stormwater costs
 - ❖ **Weaknesses:**
 - May not be very applicable given watershed's built out status
 - Considerations beyond current zoning standards (i.e. non-phosphorous fertilizers, other ordinance measures)
 - ❖ **Threat:**
 - Given that the watershed is mostly developed and many existing properties may not meet code, this recommendation may not provide considerable incentives

- Stream Protection Overlay District in Capisic Brook

Currently the Stream Protection Overlay District does not extend up the Western, Northern or Eastern Tributary of Capisic Brook (see attached figure).

Preliminary Recommendation: Expand the Stream Protection Overlay District into unprotected segments of Capisic Brook. Modify the language within the overlay zone to maintain streamside vegetation.

Meeting Notes:

 - Define specific areas for inclusion
 - ❖ **Strengths:**
 - Could raise recognition within Capisic about the need for maintenance of streamside vegetation.
 - ❖ **Weaknesses:**
 - Tied to shoreland zone; look at purpose statement of current overlay district
 - Apply additional standards but could conflict within other watersheds
 - ❖ **Opportunities:**
 - To extend shoreland zone restrictions within Capisic Brook stream tributaries

- Identify Solutions to Winter Deicer related Chloride Issues

Numerous studies have established that chlorides from winter deicers can severely compromise freshwater environments, can pollute groundwater supplies and are detrimental to infrastructure and automobiles. There is increasing exposure within the state associated with this issue as a result of the Maine Road Salt Risk Assessment project report (<http://mcspolicycenter.umaine.edu/?q=RoadSalt>)

Preliminary Recommendation: Develop a subcommittee of the Interlocal Stormwater Working Group to dialogue with local, state, and regional organizations dedicated to identifying long-term solutions to winter deicer issues.

Meeting Notes:

 - All agree to include preliminary recommendation as written.
 - Research alternative technologies.

- Other Planning Concerns



Preliminary Recommendation: Promote stormwater management enhancements for state and MTA projects through PACTs project requests or during other transportation planning efforts.

Meeting Notes:

- Difference of opinion existed whether PACTS requests for stormwater integrated projects would be allowed under federal funding essentially forcing municipalities to pay for the stormwater treatment portion of the project.
- MDOT representative indicates that there are a variety of ways that requests could include stormwater best management during pavement preservation requests

Preliminary Recommendation: Establish a financial mechanism to secure/purchase land for conservation and restoration efforts within the Capisic Brook Watershed.

Meeting Notes:

- Build on existing city or state programs and examine current studies that identify key conservation lands in City
- ❖ **Opportunities:**
- Build additional support for the identification of properties that support watershed restoration efforts
- Collaborate with the Land Bank Commission.
- Evaluate tax acquired and city-owned properties within watershed.

+

Delta

<i>Room Good</i>	<i>Timely Start</i>
<i>Good Visuals</i>	<i>Not Enough Time</i>
<i>Great Location</i>	
<i>Middle of Day</i>	
<i>Avoid Later in Day</i>	

**CAPISIC BROOK WATERSHED
Planning/Policy Initiatives**

April 1, 2010



Name	Preferred Contact Information (Email, Phone, etc.)
Dan Goyette	CONCEALED
Doug Roncarati	
Eric Dudley	
Kathi Earley	
George Flaherty	
Dave Robinson	
Kristel Sheesley	
Zach Henderson	
Don Kale	
Rhonda Poirier	
Barbara Barhydt	
Robyn Saunders	
Molly Casto	
Jeff Dennis	
Dan Skolnik	
David Margolis-Pineo	
Barry Sheff	

Planning/Policy Initiatives

Identify and engage team members for attendance at two (2) meetings that will identify key components of the City of Portland Zoning and stormwater management standards which may impact sustainable Capisic Brook development and redevelopment. Prior to team meeting, preliminary recommendations for planning/policy revisions will be developed by City and Woodard & Curran.

SOCIAL MARKETING INITIATIVES

5/13/2010



MEETING AGENDA

This Meeting:	Capisic Brook Watershed Management Plan Marketing Initiatives Team
Date/Time:	10AM – 1PM, May 13, 2010
Location:	Woodard & Curran – Conference Room 1 41 Hutchins Drive, Portland

Meeting Objectives

- Confirmation of Role of Marketing Initiatives Team
- Provide Overview of Project Status
- Understand Rationale for Draft Social Marketing Campaign
- Obtain Input on Draft Social Marketing Campaign
- Shared Understanding of Next Steps and Interim Deliverables

Agenda

- Introductions
- Project Status
- Role of Marketing Initiatives Team
- Importance of Outreach in Sustainable Stormwater Management
- Presentation of Draft Social Marketing Campaign
- Discussion
- Next Steps
- Meeting Review – Plus/Delta

Marketing Initiatives Team Description

Identify and engage team members for attendance at one (1) meeting to review results of watershed questionnaire and discuss draft social marketing strategy. Additionally, this team will be responsible for supporting the Marketing Focus Group meeting effort. Draft social marketing strategy will be informed by Cumberland County Soil and Water Conservation District Phone Survey of watershed residents.

Capisic Brook Social Marketing Campaign

Proposed Goals and Audiences, Campaign Outline
Prepared for the City of Portland

5/13/2010

Eric Eckl

General Approach

- Here's what *doesn't* really work:
 - Treating watershed residents as a single group
 - Relying completely on the brook itself to provide the sole (or even primary) motivation for behavior changes
 - Providing a helpful list of behaviors for residents to choose from, as appropriate to their circumstances
 - Assuming the message we distribute are received and acted upon without tracking it somehow
- Here's why it doesn't work:
 - Most behaviors that affect brook are actually practiced by a minority of residents
 - First raising awareness of the brook and *then* citing it as a reason for changes in habits is indirect, roundabout, resource intensive, and prone to failure
 - Social factors -- approval or disapproval of neighbors -- are more compelling than environmental factors. They don't call it "social marketing" for nothing!
 - Comprehensive lists of tips typically devote insufficient attention to any one particular behavior
 - Successful campaigning always involves trial-and-error to determine which methods and messages are truly most effective

General Approach

- Here's what *does* work:
 - Identify residents likely to engage in specific behaviors that affect the brook, target them with specific messages, using appropriate channels
 - Lead message is about behavior -- known to be relevant -- introduce the brook after that
 - Include social messages (“don’t be the last on your block to...”) and other incentives for behavior change
 - Carefully record success of various outreach efforts, refine over time
 - Reach out on multiple occasions, provide feedback on progress, emphasizing broad participation from others and building a sense of momentum

Two Samples

Research Summary

- We have evaluated the Capisic Brook population in several ways
 - Demographic Profile: U.S. Census and InfoUSA data
 - Community Institutions: Relevant merchants and businesses
 - Telephone survey (Cumberland County Soil and Water District)
- **Our pre-campaign knowledge of the community is very strong, relative to other campaigns I have been a part of**

Research Summary

- Urban, residential neighborhood
- Ethnically, culturally homogenous (Over 90% Caucasian, speak English at home)
- Above average education and income levels
- Above average interest in current events, environmental issues
- “Liberal activists” outnumber “conservative activists” (as indicated by political donation history, magazine subscriptions, various memberships)
- **Below average rate of homeownership**

Recommended Audience and Goals

Rank	Audience and Behavior	Desired Behavior	Rationale
#1	Home/Lawn Owners	Responsible Lawn Care: Pesticide, Fertilizer, Clippings	Improper lawn care is high impact on the stream
#2	Car Owners	Wash car on grass or at car wash	Behavior is widespread and relatively easy to change -- good choice to involve community
#3	Dog Owners	Dispose of waste properly	Improper behavior is high impact, but those who do it are tough to persuade
#4	Home/Lawn Owners	Reduce runoff from property	Most homeowners have limited ability to address the problem, soil is poorly absorbent, anyway

Homeowners w/Yards



Criteria	# or %	Source
% of Households that own their home	Approx 60%	U.S. Census for surrounding counties, not exact watershed boundaries
# of Households that own their home	1620	
Wrong Behavior	Acknowledge they use fertilizer, pesticides, or refuse to answer	
% Households that report wrong behavior	36%	Phone Survey, conducted by Cumberland County Soil and Water Conservation District
# Households whose behavior we seek to change	583	
Marketing Considerations	<p>Can readily acquire mailing lists of homeowners Homeowners skew older, wealthier, and higher educated than population as a whole. According to survey, most oriented towards traditional marketing approaches and community institutions.</p>	

Car Owners/Washers

Criteria	# or %	Source
% of Households	89%	WikiAnswers.com. All sources report above 85%, but none of them are particularly authoritative
# of Households	2430	
Wrong Behavior	Wash car on driveway or street, or refuse to answer	
% Households that report wrong behavior	43%	Phone Survey, conducted by Cumberland County Soil and Water Conservation District
# Households whose behavior we seek to change	1045	
Marketing Considerations	<p>Can basically mail to all households in watershed, confident they own at least one car.</p> <p>This is the most common behavior related to our objectives. Car owners more closely match overall demographics of watershed than homeowners. Should blend traditional approaches with online to reach younger residents, students, who do not read newspaper or join neighborhood associations</p>	

Dog Owners

Criteria	# or %	Source
% of Households	32%	Phone Survey, conducted by Cumberland County Soil and Water Conservation District
# of Households	864	
Wrong Behavior	Leave waste on sidewalk, toss in woods, refuse to answer	
% Households that report wrong behavior	14%	Phone Survey, conducted by Cumberland County Soil and Water Conservation District
# Households whose behavior we seek to change	121	
Marketing Considerations	<p>Can acquire mailing lists of dog owners from city People who dispose improperly out of ignorance may be reachable. Those who are willful will be much harder. Homeowners more likely to own dogs than renters.</p>	

Goals and Audience Discussion

How it *Might* Work



“I know that half my advertising is wasted, I just don’t know which half”

-- *John Wanamaker*
1838-1922
Father of Modern Marketing

Fundamental Considerations

- Single topic messages generally outperform multi-topic messages
- Word-of-mouth from happy customers is the only *consistently* successful form of marketing
- All other promotional efforts may fail -- we must make an effort to learn which ones do, and why

Which Half is Wasted?

- **There are no methods to precisely measure *actual* changes in behavior at a population level. We must approximate this with other methods**
- Coupons can help us evaluate effectiveness of direct mail
- Website tracking help us evaluate effectiveness of mailings and “online buzz” (e.g. traffic spike after storm drain marking activity)
- Survey gathers self-reported information about changes in behavior

Sample Campaign Timeline



2011

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Public Relations				Major storm drain stenciling effort							Followup Telephone Survey		
Website				Website w/coupons and background info. Targeted web ads, and subscription.									
Lawn Care				Commence Lawn Care Mailings, merchant posters									
Car Wash						Commence car wash mailings, merchant posters							
Dog Doo				Raise dog doo issue at press conference, kickoff				Commence dog care mailings, merchant posters					

Preparation Involves

- Cutting the red tape on coupon
- Negotiating w/ local merchants
- Securing mailing lists
- Design and printing of materials
- Developing website
- Securing and formatting mailing list
- Organizing a major community activity, including elected officials

Kickoff Event

- The City will organize a major storm drain stenciling effort in the watershed, preferably using volunteers or school children from the neighborhood to maximize word-of-mouth buzz
- Local elected officials will be invited to participate and address community, to increase their buy-in in the effort
- Press activity and announcements will highlight the “bags in the storm drain” problem -- the most graphic and visible manifestation of the problem
- Ideally, the event immediately precedes the first mailing and appearance of posters in merchant windows

“The Capisic Coupons”

- The project partners will work together with local merchants to develop a suite of coupons for various environmentally preferable products and services
- Merchants will accept the coupons and place display ads in their store windows. Merchants will return coupons to project partners
- The project partners will mail the coupons, in postcard form, to targeted homeowners in the watershed on a monthly basis
- Analyze coupon returns on a monthly basis

“Capisic Coupon Website”



- Simple website features monthly coupons for download. Email signup to receive coupons automatically.
- Lists participating merchants
- Displays running tally of resident participation -- to create sense of momentum
- Tips for various eco-friendly behavior
- Background information on sewer separation/brook restoration
- Site is registered at Google local, Yahoo! local, Bing Local
- Web ads: Facebook, MySpace, Google, Yahoo!
- Website URL featured on monthly coupon, merchant posters
- Analyze web traffic patterns on a monthly basis, at same time as coupons are counted

Followup Survey

- After the coupon effort winds down, the project partners will conduct a followup survey, measuring
 - Awareness of the campaign
 - Recognition of stenciled storm drains
 - Target behaviors before and after
 - Awareness of Cipsisic Brook

Discussion

Capisic Brook Social Marketing Campaign

Proposed Goals and Audiences, Campaign Outline
Prepared for the City of Portland

5/13/2010

Eric Eckl

Recommended Audience and Goals

Rank	Audience and Behavior	Desired Behavior	Rationale
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MEETING NOTES

This Meeting:	Capisic Brook Watershed Management Plan Marketing Initiatives Team
Date/Time:	10AM – 1PM, May 13, 2010
Location:	Woodard & Curran – Conference Room 1 41 Hutchins Drive, Portland

Meeting Objectives

1. Confirmation of Role of Marketing Initiatives Team
2. Provide Overview of Project Status
3. Understand Rationale for Draft Social Marketing Campaign
4. Obtain Input on Draft Social Marketing Campaign
5. Shared Understanding of Next Steps and Interim Deliverables

Attendees:

Name	Affiliation	Phone	E-mail
Barry Sheff	Woodard & Curran	CONCEALED	
Zach Henderson	Woodard & Curran		
Doug Roncarati	City of Portland		
Eric Dudley	City of Westbrook		
Molly Casto	City of Portland		
Don Kale	DEP-Portland		
Mike Murray	City of Portland		
Barbara Welch	DEP - Augusta		
Turner Kruysman	Watershed Resident , Portland		
Mary Cerullo	Friends of Casco Bay		
Jami Fitch	CCSWCD		
Lois Winter	Watershed Resident and Cons. Wildlife Biologist		
David Margolis-Pineo	City of Portland		
Eric Eckl	WWTW		
Karen Hutchins	University of Maine		

Meeting Notes

Confirmation of Role of Marketing Initiatives Team

Identify and engage team members for attendance at one meeting to review results of watershed questionnaire and discuss draft social marketing strategy. Additionally, this team will be responsible for supporting the Marketing Focus Group meeting effort and informal watershed meetings (commercial and residential). Draft social marketing strategy will be informed by Cumberland County Soil and Water Conservation District Phone Survey of watershed residents.

Doug and Zach are looking for assistance on setting up informal watershed meetings this summer.

Rationale for Draft Social Marketing Campaign

Social Marketing campaign will specifically target residential community within Capisic Brook. Rationale for this is as follows:

- 35% of watershed area is residential, with approximately 2700 parcels
- 6% of watershed area's impervious cover occurs in the private residential parcels
- Providing management and treatment for runoff from so many parcels would largely require major reconstruction of city and state roadways and be prohibitively expensive
- Voluntary pollution prevention and watershed stewardship within the residential communities is preferred approach to stormwater runoff from these areas

Draft Social Marketing Campaign

Eric Eckl, Water Words that Work, Inc., provided a presentation on demographics research in the watershed, summary of results of watershed phone survey, and intended goals and audiences for discussion. Second part of presentation focused on draft outline of sample outreach campaign (Please see accompanying pdf of presentation).

Draft Prioritized Audiences and Goals

1. Home or Lawn owners – Utilize Stormwater-friendly lawn care
2. Car Owners – Take Car to Carwash
3. Dog Owners – Dispose of Waste Properly
4. Home or Lawn Owners – Reduce Runoff from Property

General Comments on Goals and Audiences

- Percentage of home ownership data in watershed may be skewed due to nature of demographics study by zip code.
- Dog owner numbers don't adequately include visitors to park areas and may be higher. Outreach effort may have to be supplemented by signage in public areas.
- Brook and streamside owner audiences should be considered as an additional audience; Need to work with streamside owners to preserve riparian vegetation and habitat

Car Washers

- Weakness: Concerns over actual impact of relatively infrequent car washing on stream ecology, once funding or incentives are gone will people continue to go to carwash?
- Strengths: Deliberate focused activity, easy to accomplish and supports local businesses (e.g. carwash).

Lawn Care

- Weakness: Lawn Care is very broad and may require focused effort on many topics, (e.g. tree planting/natural lawn versus fertilizer application).
- Strengths: Consistent message with statewide and regional efforts, "Green" effort increasing amongst service providers and product vendors.

Dog Owners

- Weakness: Small percentage of dog owners which engage in this activity may be difficult to reach.
- Strengths: Public (and dog) health and safety issue, ancillary benefits may reduce potential for catch basin clogging when dog waste baggies are disposed of improperly.

Runoff Reduction

- Weakness: Requires more technical skill and may require specialized labor, better suited to a municipal program with active management, watershed soils and development density not particularly well suited to activity, more expensive than other activities.
- Strengths: With proper installation, may have greatest benefit on Capisic Brook; provides active management of landscape that some residents may enjoy.

Marketing Initiatives Team Support for proposed Goals and Audiences

- #1 Home/Lawn Owners - Lawn/Yard Care: Unanimous support - Add natural lawn/yardscaping as possible message
- #2 Car Owners - Car Washing: Consensus on audience but further consideration for car maintenance outreach as well
- #3 Dog Owners - Pet Waste Disposal: Consensus on goal but some misgivings about likelihood of success
- #4 Home/Lawn Owners - Runoff Reduction: Unanimous
- #5 Streamside Home Owners - Vegetation Management: Property management behaviors particularly related to streamside vegetation management

Draft Campaign Discussion

- May be difficult to get merchants on board for coupons. Campaign will require careful work with merchants, vendors and service providers.
- People have a tendency to toss mailings.
- Might be more appropriate & effective to spread outreach efforts over several years rather than trying to target multiple audiences and multiple messages in a single year.
- Timeline gives equal weight to all Goals/Audiences which may not be appropriate based on impact to stream or numbers of residents we require for behavior change.
- Does the campaign miss Youth/School audience?
- Shift dog care issue timing to coincide with veterinarian trips in spring
- Shift lawn care to March instead of April-May
- Arm car wash owners with information on why this will benefit them.
- Don't forget one-on-one outreach or neighborhood socials as a part of overall marketing program.

Next Steps

1. Meeting Notes distributed
2. Background Information distributed to Team
3. Modified Campaign draft developed for review
4. Campaign Materials developed for review

Plus / Delta Review of Meeting

+	Delta
Time Good Diverse Representatives on Team Having Residents Actively Involved Good Facilities	Eric on phone Karen on phone Videoconference Spend more time on campaign timeline



/PLANNING AND POLICY INITIATIVES TEAM MEETING

7/29/2010



MEETING AGENDA

This Meeting:	Capisic Brook Watershed Management Plan Planning and Policy Initiatives Team
Date/Time:	10AM – 1PM, July 29, 2010
Location:	Woodard & Curran – Conference Room 1 41 Hutchins Drive, Portland



Meeting Objectives

- Reach consensus on draft recommendations
- Identify processes and responsible parties for draft recommendations
- Shared understanding of next steps and interim deliverables

Agenda

- Introductions
- Project Status
- Overview of Draft Recommendations
- Discussion
- Implementation Processes and Responsible Parties
- Next Steps
- Meeting Review – Plus/Delta



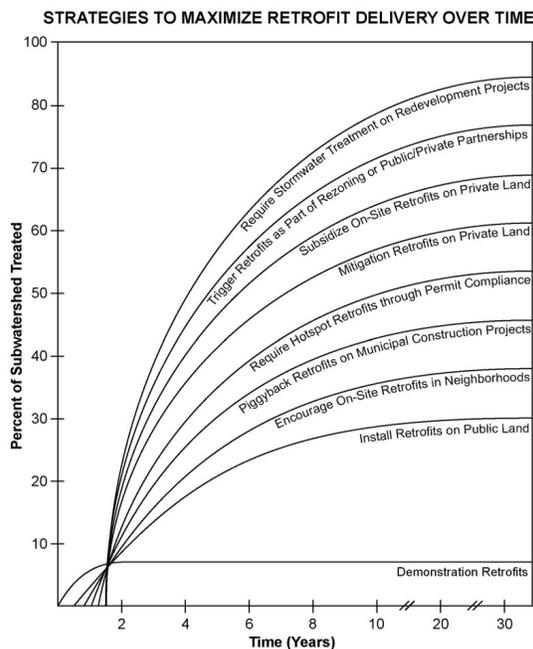
PLANNING AND POLICY RECOMMENDATIONS

This Meeting:	Capisic Brook Watershed Management Plan Planning and Policy Initiatives Team
Date/Time:	July 29, 2010 – 10AM



The Role of Planning and Policy in Sustainable Stormwater Management

- Land use, and consequently stormwater discharges and pollutant loads, is largely directed by local zoning. The National Stormwater Quality Database uses land use types (e.g. residential, commercial, industrial) as a basis for classifying pollutant concentrations in stormwater runoff. Maximum impervious cover ratios and other dimensional requirements of municipal zones can be used as indicators of future build out scenarios.
- Andy Fisk, MaineDEP - Director Bureau of Land and Water Quality, during a recent panel discussion expressed his view that proactive watershed restoration planning is probably the best method to improve water quality over the long term in urban water bodies. He indicated that this burden cannot be borne by single municipal entities alone and will likely require regional planning and perhaps a reconfiguration of the way land use permits are issued.
- The American Rivers publication, *Local Water Policy Innovation – A Road Map for Community Based Stormwater Solutions*, indicates that “local environmental protection ultimately relies on local solutions. “Regardless of federal laws, our local and regional water quality will not be protected unless we take action at home.” The report goes on to identify why local policy is important to stormwater management, including;
 - Local governments have the experience and authority to regulate land use,
 - Zoning process is ideal for stormwater regulations,
 - Local governments can remove barriers to Low Impact Development (LID),
 - Local action is vital to the federal Clean Water Act permitting system, and
 - Individuals have great power to create change on a local level.



- The Center for Watershed Protection indicates that requiring stormwater retrofits during redevelopment as the most effective method to achieve maximum water quality improvements over time in impaired water bodies.
- The City of Portland currently has specific Technical Design Standards and has the authority to regulate how built areas are designed and developed.



Draft Recommendations

(responsible parties to be identified at Team meeting and costs associated with each recommended action to be considered by Finance Team)

City of Portland Technical Standards

Section I – Street Design, Alignment and Grade Standards

▪ Drainage and Curbing

Current Standards: Standard details in the City's Technical Standards for curbing on roadways and parking areas inadvertently create the necessity for closed drainage systems.

Recommendation: Clarify or modify design details to accommodate open drainage systems, and/or consider adding sections to the street and parking design standards that specifically recommend curb breaks or no curbing as a part of post-construction stormwater management plans.

▪ Pervious Pavement Installations

Current Standard: Pervious pavements are inadvertently precluded from use due to current sidewalk, street and parking design standards.

Recommendation: Modify the Site Plan standards to require the consideration of pervious pavements on developments proposing to exceed minimum parking requirements by more than 10%. Waivers could be granted for inappropriate soils or other design restrictions. Modify the Technical Design standards to include pervious pavement cross-section detail for sidewalks and parking areas. Allow the use of pervious pavements (porous asphalt, pervious concrete, pervious pavers, as examples) where appropriate for private parking, sidewalks and along non-city streets as a part of post-construction stormwater management planning.

Section III – Traffic Design Standards and Guidelines

▪ Parking Lot/Parking Space Design- Compact Car Spaces

Current Compact Spaces Standard: Any parking lot may be designed with a maximum allowance of 35 percent compact spaces over and above the required minimum number of spaces by the zoning ordinance. The space shall have a minimum design of 7-1/2 feet wide by 15 feet long.

Recommendation: Allow 35% or more of required minimum off-street parking to be composed of compact car parking spaces. Consider requiring compact car spaces in applicable zones and recommended in others. Compact car spaces are most appropriate for non-commercial/retail establishments and therefore consider varying compact car spaces by zone or use. Consider varying minimum compact car size requirements for commercial/retail zones.

▪ Parking Lot/Parking Space Design – Parking Space Dimensions

Current Standard: The standard parking space is 9' x 19'.

Recommendation: Modify standard to maximum 9' x 18' with consideration for narrower or wider dimensions by zone or use.

New Specifications for Enhanced Stormwater Management

▪ Loam Specifications and Installation



Currently, the City of Portland Technical Design Standards Manual does not define loam or provide specifications for loam and loam placement. As land is developed, infiltration tends to decrease and stormwater runoff increases in both rate and volume due to increases in impervious area, soil crusting, and soil compaction.

Studies indicate that the addition of organic material and mechanical tillage has shown potential to reduce runoff from compacted soils after construction from 36 to 91 percent. Residential development of single family homes typically provides 50% or more of open space, making the soil profile of a residential parcel a potential water management and water storage resource.

Numerous states have adopted soil specifications and management Best Management Practices specifically for stormwater control. The Maine Department of Transportation (MaineDOT) does define Loam in Section 615 of the MaineDOT Standard Specifications but area preparation and final organic content percentages are not consistent with other stormwater management guidance.

Recommendation: Develop a Loam material and installation specification that will at a minimum meet MaineDOT standards. Consider the development of a Loam standard which will allow loamed areas to meet specific developed, landscaped stormwater management storage requirements (currently 0.4" runoff in state stormwater standards). Examples will be shown in the Appendix of the Watershed Management Plan. The stormwater management standard must be achievable for local contractors which should be contacted prior to final development of the proposed standard.

City of Portland Code of Ordinances - Land Use

Chapter 14

Section 14-343 and 14-344

- Shared Parking or Overall Parking Reductions

Recommendation: Modify parking standards under Section 14-526 to allow off-street parking reductions if the applicant demonstrates that the off-street parking proposed is adequate for the use based upon parking demand/supply study for the project and/or consideration of the availability of transit service, joint use or other alternative transportation.

Division 26.7 Stream Protection Zone

- Stream Protection Zone Expansion

Currently the Stream Protection Overlay District does not extend up the Western, Northern or Eastern Tributaries of Capisic Brook and may not include other important intermittent stream channels and/or hydrologically-connected wetland systems.

Recommendation: Expand the Stream Protection Overlay District into unprotected hydrologically connected areas of Capisic Brook (example of minimum expansion zone shown on figure). Modify the language within the overlay zone to enhance/maintain riparian vegetation and conservation of wetland/riparian area hydrologic functions (i.e. fill placement, subsurface diversions, compaction, etc.). This recommendation will require field mapping, confirmation and documentation of hydrologically-connected areas. This mapping will reduce the potential of over or underestimating Stream Protection Overlay zones.



Chapter 14

Section 14-526 and Section V--Technical Design Standards Manual

▪ Stormwater Management During Redevelopment Projects

It is not clear whether redevelopment projects require stormwater management when not regulated by the state stormwater law. Additionally, the City of Portland currently requires Flooding standards to be met by developments that would not typically meet flooding standards under state law.

Recommendation: Clearly define redevelopment within the City code. Require some level of stormwater quality management during redevelopment projects of certain size thresholds. Consider reducing the volume requirement, as appropriate, from state standards (1" off impervious area / 0.4" off developed landscaped area) to make stormwater management less expensive or more manageable on small sites. Remove the flooding standard from Minor or Major Site Plan projects of less than 3 acres when they do not discharge to the municipal storm drain system. This would make the City code more consistent with the state standards, reduce cost burden to landowners and improve potential use of distributed LID systems. Flooding standards can often require significant storage of stormwater and can reduce the potential for use of LID on small development sites. Additionally, flooding standards for 10 and 25 year storms do not necessarily reduce flooding in infrastructure as design storms follow a storm event distribution that does not commonly exist in the historic rainfall record. Flooding standards often result in the common phenomenon of detention ponds that never fill with water.

City of Portland Code of Ordinances - Sewers

Chapter 24

Section 24-44

▪ Direct Connection of Private Stormwater Drainage to Combined Sewer System

Currently the section of code that deals with public sewer connection limitations indicates that "no person shall make" connection of drainage infrastructure to sanitary sewer, but does not require separation of these connections during combined sewer separation projects.

Recommendation: Modify the language to require (new, re-) development in combined sewer areas to consider all on-site retention before connection to combined sewer is allowed. Modify existing language to require private drainage infrastructure to be connected to storm sewer system during combined sewer separation projects.

▪ Direct Connection of Private Stormwater Drainage to Separated Storm Sewer System

Stormwater and other "unpolluted" drainage may be discharged to storm sewer or combined sewers.

Recommendation: Modify this section to encourage the use of on-site retention and other best management practices to reduce potential for direct connection of drainage infrastructure to municipal stormwater drainage system. Details and programmatic guidance should be developed with other revisions to the Technical Design Standards Manual. In some cases disconnection may not be the most appropriate management of stormwater due to erosion concerns.



General Policy Recommendations

- Incent Redevelopment within Zone B4

Recommendation: Modify zoning in B4 to allow more flexibility (e.g. maximum impervious surface ratios, floor to area ratios, building height,) in zones within the Capisic Brook to attract redevelopment as a means to offset costs associated with increased stormwater requirements. Develop program in connection with Pollution Prevention recommendations (see Section XXX) that would enhance environmental and aesthetic quality of this zone. These efforts may include tree planting, streetscaping, or other program developments.

- Identify Solutions to Winter Deicer related Chloride Issues

Numerous studies have established that chlorides from winter deicers can severely compromise freshwater environments, can pollute groundwater supplies and are detrimental to infrastructure and automobiles. There is increasing exposure within the state associated with this issue as a result of the Maine Road Salt Risk Assessment project report

(<http://mcspolicycenter.umaine.edu/?q=RoadSalt>)

Recommendation: Develop a subcommittee of the Interlocal Stormwater Working Group or other relevant Committee or Organization to dialogue with local, state, and regional organizations in order to identify long-term solutions to winter deicer issues.

- Maine Department of Transportation and Maine Turnpike Projects

Recommendation: Promote/advocate stormwater management enhancements for state and MTA projects through PACTs project requests or during other transportation planning efforts with specific short-term focus on Maine Turnpike widening project and Exit 48 upgrades.

- Critical Lands Acquisition and Conservation

Recommendation: Cooperate with the Portland Land Bank Commission and other state and regional conservation organizations to advocate for the preservation and conservation of critical lands within the Capisic Brook Watershed. Several areas/parcels within the Capisic Brook Watershed Projects have been identified in the City of Portland Wetland Compensation Opportunities Assessment: Phase 1 (Boyles Associates, July 2009) and the Portland Land Bank Commission Annual Report (2007).

City of Westbrook, Maine Turnpike Authority and Maine Department of Transportation

The aforementioned planning and policy recommendations focus largely on the City of Portland as the primary regulated discharger into Capisic Brook. As has been noted in Section 2 of the Capisic Brook Watershed Management Plan, the City of Westbrook, Maine Turnpike Authority and the Maine Department of Transportation also currently have permitted discharges into Capisic Brook and comply with the Maine General Stormwater Discharge Permit.

Additionally, the Maine DEP General Permit – Post Construction Discharge of Stormwater in the Long Creek Watershed (promulgated in 2009) directs the four municipalities within the watershed including the transportation agencies to implement the Long Creek Watershed Management plan



as a condition of the General Permit. Over the next several years, the Long Creek Watershed Management District (LCWMD) will be working with the regulated municipalities and agencies to implement the following recommendations. These have been included as reference and to indicate that the Long Creek general permit requirements are generally consistent with the recommendations identified for the City of Portland within the Capisic Brook watershed.

▪ Implement Code, Zoning and Design Guidelines Revisions

Consider exceeding MEDEP Chapter 500 stormwater thresholds for new development. Sites with less than 1 acre of impervious surface can contribute to stormwater pollution but are not currently required to provide post-construction stormwater management. To provide increased protection from stormwater pollution, parcels smaller than 1 acre could be required to provide some level of treatment for stormwater runoff from impervious surfaces (e.g. detain and filter 0.5 inch of runoff from on-site impervious surfaces) and more flexible design standards for stormwater treatment systems could be allowed to maximize designer opportunities and minimize cost.

▪ Modify and/or clarify redevelopment stormwater management requirements.

The Center for Watershed Protection identifies the establishment of stormwater management standards for redevelopment projects as the single greatest mechanism for long-term watershed improvement (CWP Manual 3, 2007). Current state stormwater management law does not comprehensively require redevelopment projects to meet stormwater management standards upon project completion. Modifying local code or redevelopment definitions to require stormwater management on projects that alter existing drainage infrastructure, change traffic patterns or convert existing land use on a given parcel would greatly aid in the long-term improvement and protection of the Long Creek watershed. Conversely, establishing a threshold based on the difference in stormwater runoff volumes before and after the completion of redevelopment projects to determine when stormwater treatment systems should be required will not provide the same level of improvement or protection.

▪ Modify local code, design standards and guidelines to incorporate LID techniques.

A 2008 national study by American Rivers indicates that architects, developers and builders have cited existing code standards and requirements as the primary barrier to using and applying Low Impact Development (LID) techniques on new and redevelopment projects. The basis of LID techniques is the minimization of impervious surfaces on a developed site.

- Reduce off-street parking requirements. Consider minimums based on LID guidance for particular zones and actual parking needs as identified in the Parking Generation report of the Interstate Transportation Engineers. Allow further reductions in parking for shared parking lots, parking near transit stops and compact car only options.
- Allow peak demand overflow parking to be developed using pervious pavement technologies.
- Modify pavement cross-section design standards to allow for pervious pavement design.
- Reduce the minimum parking stall dimensions requirement. Allow the use of 9' by 18' for regular parking stall dimensions and 8' by 16' for compact car spaces.
- Reduce mandatory road widths.



- Expand the use of alternative transportation by requiring bicycle and pedestrian infrastructure for all new and redevelopment projects.
- Allow open drainage in appropriate locations or at a minimum promote or allow the use of curb breaks for drainage from curbed roadway.
- Allow or promote the separation of and beneficial reuse of rooftop runoff.
- Allow or promote stormwater management within required setback areas. Landscaping design guidelines and required planting densities should be consistent with plantings for stormwater management systems. Review design guidelines or requirements and enhance consistency with appropriate structural BMPs. Promote full-size trees and tree planting locations on developed sites that will create the greatest potential for shading of impervious areas.
- Consider zone or development parcel specific stormwater master planning. Municipal Identification of specific locations within a developed area that could be used as a shared (multiparcel) treatment system. Shared systems will enhance parcel by parcel stormwater management and minimize costs for developers. Parcel specific stormwater management systems can be more costly and less effective than shared stormwater management systems.

- Implement transportation demand (TDM) strategies to decrease the use of single occupant vehicles.

Broadly, TDM is the application of strategies and policies to reduce automobile travel demand. In addition to decreasing the impacts from the pavement needed to provide “car habitat,” TDM offers other multiple benefits, including reduced traffic congestion, road and parking facility cost savings, crash cost savings, consumer cost savings, air pollution reduction, and more efficient land use (Litman, 2008).

- Implement parking demand strategies to reduce the need for existing and future paved parking facilities.

Cost-effective parking management programs can usually reduce parking requirements by 20-40% compared with conventional planning requirements, providing many economic, social and environmental benefits (Litman, 2008).

- Consider market incentives for enhanced stormwater management.

These could include tax incentives for infill redevelopment, LID designs and structured or shared parking lots. Some communities create non-monetary incentives through expedited site plan review for “green” or LID designs.

- Reference MaineDOT Waterway and Wildlife Crossing Policy and Design Guide, 3rd Edition (2008) within the municipal design standards for new culverts and stream crossings.

- Develop and enhance shoreland zoning regulations for all watershed streams as defined by state criteria and use as a basis for shoreland zone setback standards.

- Continue ongoing dialogue with the Maine Turnpike Authority on Turnpike expansion.



Developing a process to address potential issues related to turnpike expansion through the Long Creek watershed in cooperation with MTA planning staff. In addition to managing new stormwater runoff from expansion, future expansion projects should also address existing stormwater runoff from the Maine Turnpike into Long Creek.



MEETING AGENDA

This Meeting:	Capisic Brook Watershed Management Plan Planning and Policy Initiatives Team
Date/Time:	10AM – 1PM, July 29, 2010
Location:	Woodard & Curran – Conference Room 1 41 Hutchins Drive, Portland



Meeting Objectives

- Reach consensus on draft recommendations
- Identify processes and responsible parties for draft recommendations
- Shared understanding of next steps and interim deliverables

Introductions

Name & Company	Email	Phone
George Flaherty – Retired City of Portland Employee	CONCEALED	
Doug Roncarati – City of Portland		
Robyn Sounders – GZA		
Ryan Hodgman – Maine DOT		
Kristel Sheesley – USM -Muskee School Student		
Molly Casto – City of Portland (Planning)		
Barbara Barhydt – City of Portland (Planning)		
Jeff Dennis – Maine DEP		
Liz Flanagan – Maine DEP		
Kathy Earley – City of Portland		
Mike Bobinsky – City of Portland		
Zach Henderson - Woodard & Curran		
Garnet Valliere - Woodard & Curran		

Overall Project Status

- Capisic Brook Watershed Management Planning project is currently in Phase II (Policy and Plan Development).
- Goal is to have Policy and Planning Recommendations complete after today's meeting.
- Structural Inventory still to be finalized.
- Marketing Draft Plan is being finalized. Focus Group Meeting recently held to get public comment on draft Marketing Plan:
 - * Attendance was 17, good diverse group
 - * General lack of knowledge of how a stormwater drainage system works
 - * W&C will compile Focus Group Meeting Minutes and distribute to Planning and Policy Team as well as Marketing Strategy Team.



Overview of Draft Planning and Policy Recommendations

- Reviewed the latest draft of the Planning and Policy Recommendations Report for comment and discussion on each recommendation. The recommendation “list” below refer to July 29 draft policy recommendations distributed to team.

Discussion

General Comment - Kathy/Barb would like to see Technical Design and Standards recognized as Technical Design Manual as opposed to Technical Design Standards.

Recommendation 1 – Drainage and Curbing

- Include definitions with open drainage and when it is appropriate to use. Design details should also include description of maintenance. Need to develop specifications for curb inlets associated with open drainage systems and other BMPs (e.g.: tree well filters, rain gardens, etc.).

Recommendation 2 – Pervious Pavements

- Long-Term Maintenance Plan for all stormwater BMPs proposed to be built into standards (Manual); Reference to Chapter 32, Article III of the ordinance. Clarify that these pavements are for use on private sites only. Clarify requirements/guidance on overflow parking scenarios only.

Recommendation 3 – Parking Space Design – Compact Car Allowance

- Parking spots for mopeds/motorcycles and compact vehicles. Language should be more inclusive of vehicles and not just cars. Modify language to “increase” % as oppose to “allow” percentage as recent revisions to site plan standards have already changed this policy.

Recommendation 4 – Parking Space Design – Dimensions

- Include language that applicant may consider shortened spaces (from 9' x 18') as a part of post-construction stormwater management plan.

Recommendation 5 – Loam Specifications

- Team members voiced a concern over requiring a loam specification for residential development due to limited ability to manage or enforce. Team agreed that this would be okay to develop a loam standard as a BMP but specific loam specification may only be appropriate for commercial or municipal projects.

Recommendation 6 – Shared Parking

- Clarify criteria applicability to be as clear as possible.

Recommendation 7 – Stream Protection Overlay Zone

- Recommendation is okay but MaineDEP should be a technical partner in developing this expanded overlay zone.

Recommendation 8 – Stormwater Redevelopment Standards

- Recommendation tabled. To be discussed with city staff and project team at future meeting TBD.

Recommendation 9 – Sewer Connections

- Recommendation is okay.

Recommendation 9 – Storm sewer Connections

- Recommendation is okay.

Recommendation 10 – Incent Redevelopment in Zone B4

- Should attempt to determine what commercial property owners would see as an additional incentive to develop in this area, as this zone is already very limited on requirements and has many



non-conforming lots. This question of what would be attractive for redevelopment in this zone will be talking point during commercial landowner meeting this fall.

Recommendation 11 – Winter Deicer Solutions

- Recommendation is okay.

Recommendation 12 – MaineDOT and MTA Project Coordination

- It will take cooperative effort to make sure roadway projects are considering stormwater best management. It may not be appropriate for city to always initiate this discussion as a formal request.

Recommendation 13 – Critical Lands Acquisition

- Expand language to include private entities. Private developers and utilities may offer the potential for cooperative wetlands mitigation and banking projects, specifically Central Maine Power.

Implementation Processes and Responsible Parties

- Group to assist Doug and Zach related to what role they see themselves playing with regard to scheduling, in-house or sub-consulting, and costs associated.

Next Steps

- Review planning related permit recommendations for Long Creek to determine if their implementation will benefit Capisic Brook.
- Informal Commercial Landowner Meeting – Discuss Incentives for Redevelopment and Pollution Prevention
- Informal Neighborhood Meeting – Discuss draft marketing plan and stormwater friendly lawn care.
- Final Policy Recommendations with cost of implementation– Early September
- Finance Committee Meeting
- Capisic Brook Watershed Management Plan Draft– October/November 2010