FUSS & O'NEILL

Goals, Objectives, and Action Items
North Branch Park River Watershed Management Plan

Goal/Objective	Action Items
Goal 1: Plan Implementation	

Objective 1. Establish a watershed organization to take a leadership role in the implementation of the North Branch Park River Watershed Management Plan, and encourage inter-municipal coordination.	• Establish an independent 501(c)3 non-profit organization for the Park regional watershed, with specific focus on the North Branch Park River watershed.
	• Secure funding for and hire a watershed coordinator.
	• Include representatives from each of the watershed municipalities, while focusing on Hartford, West Hartford, and Bloomfield where greater than 97% of the watershed is located.
	• This organization would be a core group specifically focusing on implementing the North Branch Park River Management Plan and would take the lead on implementing specific action items identified in the watershed plan, including:
	  ○ Identify funding opportunities for grants or other financial assistance,
	  ○ Periodically review and update action items in the plan (at least every 5 years),
	  ○ Develop annual work plans (i.e., specific "to-do" lists),
	  ○ Plan and lead public outreach activities,
	  ○ Host annual public meetings to celebrate accomplishments, recognize participants, review lessons learned, and solicit feedback on plan updates and next steps.
	• Encourage adoption of the watershed plan by the watershed municipalities.
	• Identify funding sources, as well as prepare and submit grant applications for projects identified in the watershed plan.

Objective 2. Conduct additional field assessments in non-priority subwatersheds to identify future implementation activities and to guide plan updates.	• Not all of the North Branch Park River subwatersheds were assessed during the development of this watershed management plan. Field inventories should be performed in the remaining subwatersheds (West Hartford Reservoir, Cold Spring Reservoir, Tumbledown Brook South, Wash Brook West, and Tunxis Reservoir) and other previously un-assessed stream reaches to identify additional site-specific issues and restoration projects. • Consider performing future assessments as citizen stream walks, led by individuals trained and experienced in stream assessment methods
Goal 2: Water Quality	
Objective 1. Eliminate existing CSO and SSO discharges to the North Branch Park River.	• Implement and consider modifications to the MDC CSO Long Term Control Plan (see Objective 2 below)

Objective 2. Mitigate the negative impacts of stormwater runoff on hydrology and water quality through the use of Low Impact Development (LID) practices and Green Infrastructure (GI) approaches.	• Conduct a comprehensive study to evaluate the feasibility and benefits of incorporating green infrastructure approaches in the MDC's CSO Long Term Control Plan, with a focus on the northwestern neighborhoods of Hartford, which are located within the NBPR watershed. Potential elements to consider include:
	  ○ Rain gardens
	  ○ Green streets
	  ○ Pervious pavement
	  ○ Green roofs
	  ○ Green walls/columns (integrating vertical city construction with a vertical watershed concept)
	  ○ Downspout disconnection

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	○ Outfall retrofits • Implement the MDC "Green Capitols" or similar green infrastructure demonstration project within the City of Hartford. Other watershed municipalities should incorporate LID/GI into municipal projects, including roadway projects using "green streets" approaches. These watershed municipalities should take a leadership role by incorporating LID/GI into a high-profile demonstration project at a publicly-owned facility. The site should be regularly monitored and actively used for educational purposes. • Watershed municipalities should incorporate LID and GI stormwater requirements into their local land use regulations to 1) satisfy existing and future Phase II Stormwater Program regulatory requirements, 2) require LID practices and GI approaches to be implemented for new development and redevelopment projects, and 3) address other local drainage and natural resource protection issues identified by the municipalities. • More specific regulatory recommendations to be developed as part of ongoing land use regulatory review. • Install priority stormwater retrofits (municipal, state, and private outfalls and/or sites) for water quality improvements based on watershed field inventory recommendations. The best opportunities for retrofits include: ○ Parking lot upgrades (bioretention, pervious pavement, vegetated buffers, water quality swales) ○ Athletic fields at parks and educational institutions (water quality swales, vegetated buffers, infiltration, bioretention, stormwater reuse for irrigation) ○ Road repair/upgrades (green streets – bioretention, water quality swales, tree planters, below-ground infiltration chambers) • Education for developers, designers, municipal staff, and the public.
Objective 3. Improve water quality by identifying and eliminating illicit discharges and encouraging stream cleanups.	• Follow-up with recommended discharge investigations (by the responsible municipality) identified during the watershed field inventories. • Ensure that illicit discharge detection and elimination (IDDE) efforts of the watershed municipalities (required by the MS4 General Permit) include their respective areas of the North Branch Park River watershed. • Ensure that the watershed municipalities implement IDDE programs as required by the existing and future MS4 General Permit, including an ordinance or other regulatory mechanism to effectively prohibit non-stormwater discharges into the regulated municipal separate storm sewer system and an IDDE Plan to detect and eliminate existing and future non-stormwater discharges, including illegal dumping. • Implement priority stream cleanup projects identified during the watershed field inventories. • Educate municipal staff and the public.

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Objective 4. Protect existing and restore degraded riparian buffers.	• Implement priority buffer reforestation projects identified during the watershed field inventories.
	• Pending passage of enabling legislation by the Connecticut state legislature, adopt riparian buffer protection regulations that would establish a contiguous buffer strip on either side of the North Branch Park River and its tributaries (rivers and perennial streams) such that they remain in a natural, undisturbed state.
	• Incorporate minimum buffer widths (a minimum of 50 feet depending on the resource and land use) for watercourses into local Inland Wetlands and Watercourses Regulations.
	• Adopt LID regulations, which include site design credits or other similar incentives for developers to restore or establish vegetative buffers as part of site development.
	• Amend the Greater Hartford Flood Commission regulations to:
	  ○ Acknowledge the importance of vegetation within the riparian zone.
	  ○ Establish regulated riparian zones within the Flood Plain District,
	  ○ Establish maximum disturbance and include vegetation replacement and mitigation for various activities,
	  ○ Limit the area of vegetation that can be disturbed for various regulated activities,
	  ○ Limit disturbance within specified distances from the top of bank for certain activities,
	  ○ Where the standards cannot be met, provide greater than 1:1 compensation in the form of re-vegetation and placing a deed restriction on the compensation area.
	• Partner with the Connecticut Department of Transportation on state roadway projects in the watershed to request Transportation Equity Enhancement funding available for habitat/ecological restoration projects under SAFETEA-LU.
	• Educate developers, designers, municipal staff, and the public about the value and importance of riparian buffers.

Objective 5. Implement an ongoing water quality and biological monitoring program to assess the effectiveness of implementation efforts and build upon the existing water quality database to guide future decision making.	• Establish a long-term water quality and biological monitoring program building upon previous baseline monitoring and ongoing monitoring efforts. • Conduct a field monitoring study of the effectiveness of new LID practices (pervious pavement, rain gardens, etc.) in the watershed. The study could be used as a demonstration project to highlight a "local, real-world" example of LID stormwater design.
Goal 3: Habitat Protection and Restoration	
Objective 1. Enhance in-stream and riparian habitat along the river and its tributaries to sustain a diversity of aquatic life.	• Conduct a fish passage assessment to refine the understanding of fish passage barriers throughout the watershed and opportunities for restoring fish passage and aquatic habitat for various parts of the river system. • Investigate the feasibility of removal or modification of the dam at the University of

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	Hartford campus to provide passage of resident fish and migratory eel. The need for a fish/eel ladder at the NBPR conduit entrance should be evaluated because of an 8-12 foot drop/water fall into the conduit. • Revise local storm drainage design standards and regulations such that new or modified stream crossings are designed consistent with the Connecticut DEP Stream Crossing Guidelines. • Implement priority stream restoration projects identified during the watershed field inventories. • Implement stream daylighting projects for portions of the North Branch Park River and its tributaries identified during the watershed field inventories.
Objective 2. Protect and enhance forested areas and urban tree canopy within the watershed.	• Building on a previous urban forest canopy analysis performed by the City of Hartford, Knox Parks Foundation, the US Forest Service and the DEP Division of Forestry as well as an ongoing tree canopy analysis by the University of Vermont for the City of Hartford, establish an Urban Tree Canopy (UTC) goal for the watershed and develop a plan to achieve the UTC goal. Potential recommendations include: o Land acquisition, conservation easements o Amend site development regulations and zoning to restrict tree removal and to require landscaping and parking lot shading o Reforest public lands, beginning with priority sites, and connect to the Regional Forest Plan o Encourage reforestation of private land by developing education, stewardship and incentive programs o Support adoption of proposed City of Hartford Tree Ordinance and consider similar tree ordinances for the other watershed communities • Identify priority parcels for reforestation based on watershed field inventories and detailed tree canopy analysis results.
Objective 3. Control or diminish the prevalence of invasive species	• Implement priority invasive species management projects identified during the watershed field inventories. • Develop an invasive species management plan for the watershed, including prevention and education efforts to preempt arrivals, early detection and citizen monitoring efforts, rapid response measures for successful eradication, and when a species cannot be eradicated, continued control efforts that are necessary to minimize ecological and economic impacts. • Educate residents, facility maintenance personnel, landscapers, and land use commissions about the negative effects of non-native invasive species
Goal 4: Sustainable Growth and Land Use	
Objective 1. Promote sustainable growth and economic development through smart growth principles.	• Modify local land development codes, ordinances, and plans of conservation and development to promote the use of and remove common barriers to implementing smart growth principles. General recommendations include:

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	○ Allow or require mixed-use z ones ○ Use urban dimensions in urban places to allow for more compact development ○ Fix parking requirements to reduce unnecessary impervious cover ○ Increase density and intensity in centers ○ Modernize street standards ○ Designate and support preferred growth areas and development sites ○ Use green infrastructure to manage stormwater ○ Establish a water budget based on site conditions before development
Objective 2. Manage, maintain, and promote existing open space and continue to protect/acquire open space that meets resource protection and recreational goals.	• Continue efforts to protect and/or acquire unprotected open space as recommended in this watershed management plan and by local open space plans and plans of conservation and development. Priority areas generally include headwater subwatersheds, riparian areas, and contiguous unfragmented parcels of open space. • Implement existing municipal open space plans and update the plans at least once every 5 years. Endorse the remaining priority open space in the watershed as high priority open space conservation areas in the municipal open space plans and plans of conservation and development. • Continue ongoing efforts by the Bloomfield Conservation, Energy & Environment Committee to identify and protect priority farmland. • Incorporate urban agriculture component in the plan. Further develop this concept. • Seek alternative funding sources and approaches for open space acquisition such as state grants, limited market rate development on a parcel to help fund the acquisition of the remainder of the parcel as open space, transferring development rights from sensitive locations to locations better suited for development. • Create a watershed-wide "green" map of environmental features and recreational amenities. Promote awareness and appropriate use of existing open space by publicizing parks, trails, community gardens, and historic landscapes as well as educational events, (such as a bio-blitz) on open space parcels.
Objective 3. Promote the development of a greenway network within the watershed and the region without adversely impacting natural resources.	• With respect to block-by-block urban contextual differences, improve and protect the stream corridor within Hartford. Distinguish between the needs of residents, and the interests of regional recreational projects as well as water quality and habitat values. • Complete key links in the East Coast Greenway Project. Study alignments and feasibility of connecting north Bloomfield with the existing pathway systems in Simsbury and Granby. • The Greenway recreational trail should be routed to avoid disturbing ecologically sensitive areas of the river corridor including wetlands, floodplains, sensitive wildlife areas and existing or planned open space. • Incorporate LID and other sensitive design elements into greenway designs including maintaining and/or restoring natural riparian vegetation along the stream banks, appropriate setbacks/buffers for wetlands and streams, designated access

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	points to the river to maintain as much natural riparian habitat as possible, use of permeable pavement or other materials to reduce runoff, and use of other LID techniques. Incorporate these recommendations into local and facility master planning documents. • Concerns of local residents and abutters on both sides of the trail should be accommodated in the trail alignment and design.
Objective 4. Increase public access to the North Branch Park River and its tributaries to enhance public appreciation and stewardship of the river.	• Where appropriate, enhance river access at existing public open spaces. • Develop a public access area inventory (existing and potential) for the North Branch Park River and its tributaries. The inventory should include a list and map of the areas with location, size of area, ownership, and potential active and passive uses. • Public access areas should not adversely affect sensitive areas. • Incorporate LID and other sensitive design elements into access area designs. Incorporate these recommendations into local and facility master planning documents. • Introduce signage, interpretive stations and online resources to tell the story of the North Branch Park River's history and natural environment.
Goal 5: Public Education and Stewardship	
Objective 1. Creation of a formal comprehensive K-12/higher education and stewardship network along the North Branch Park River.	• Develop a framework for watershed place-based K-12 education that strengthens comprehensive relationships between local, regional and global natural science as well as guidelines for local environmental stewardship. This program will develop a sequence of K-12 field research, classroom experiences and regional networking into learning activities that build shared scientific knowledge and stewardship experiences. • Work with K-12 educators within the Park River watershed as well as with area higher-education teacher training programs to build a place-based educational "toolkit" along with a school stewardship network. This Park Watershed Educational Network program will serve as a statewide model. The "toolkit" will include recommendations for field research and documentation (photographs and GIS mapping) that can link into an online network that allows for both internal and external (public) postings. Guidelines for learning activities will conform to state curriculum standards.
Objective 2. Conduct outreach to campus facility managers about the water quality and nonpoint impacts of campus management practices.	• Host a series of hands-on workshops to demonstrate best practices and local resources regarding maintenance strategies such as brush/leaf litter and turf management; parking lot and road maintenance (deicing, snow management); drainage system maintenance (catch basins and storm drains); and stormwater BMP maintenance (LID and traditional structural stormwater BMPs). Provide funding and/or project assistance incentives for campus managers who complete the program. • Encourage awareness and involvement of student and faculty in campus (and golf

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	course) management decisions, including annual or bi-annual volunteer service events.
Objective 3. Build awareness of land stewardship and management practices and reduce nonpoint source impacts in residential areas.	• Increase watershed stewardship signage (watershed, stream, stormwater pollution prevention, and storm drain markings). • Encourage disconnection of rooftop runoff from the storm drainage system to reduce the quantity of runoff by redirecting the runoff to pervious areas or through the use of rain barrels or rain gardens. • Tailor education efforts to the types of pollution producing behaviors observed in residential neighborhoods throughout the watershed (buffer encroachments, yard waste, piped discharges, septic system maintenance for unsewered areas, etc.). • Encourage the creation of backyard habitat in residential areas that abut the North Branch Park River and its tributaries and recognize efforts of the public.
Objective 4. Advance local government and community business awareness of the North Branch Park River through pollution prevention education and watershed restoration outreach activities.	• Watershed municipalities should review the current compliance of their municipal facilities in the watershed with pollution prevention best management practices and applicable regulatory programs. "Good housekeeping" at municipal facilities should serve as demonstration sites for comparable private operations. Recognize examples of good practices and hold them up as models. • Watershed municipalities should create incentives (such as fast-track permits/approvals) for projects that utilize Low Impact Development or green infrastructure, incorporating state-wide guidance currently being developed by DEP. • Watershed municipalities should improve implementation of municipal stormwater management programs during the second term of the MS4 General Permit. • Conduct compliance assistance outreach (e.g., visits, group training, and/or printed materials) for specific types of businesses in the watershed (e.g., light industry, offices, commercial retail centers, restaurants). • Create educational displays in highly visible, strategic locations throughout the watershed to highlight water quality and habitat amenities, and to reinforce the watershed protection efforts in the watershed. • Increase watershed stewardship signage (watershed, stream, stormwater pollution prevention, and storm drain markings). • Improve maps, online resources, and signage to educate citizens about the environment of the Metacomet Ridge within the MDC Reservoir area.