PUTTING THE PIECES TOGETHER

Achieving Community Goals and Protecting the St. Croix River

St. Croix River from Osceola Bluff
Photo from National Park Service

Goal	What you can do	How-to, Resources and Assistance	Bonus
Increase use of community parks and beaches. 1) Reduce algal blooms at local beaches. 2) Beautify community parks.	**Action:** Establish parks management policies that reduce erosion and runoff from park property. Improve landscaping and plantings at community parks. **Policy:** Minimize impervious surfaces in parks and use infiltration and bioretention techniques to reduce stormwater runoff and increase groundwater recharge. **Practices:** 1) Require all new parks to minimize impervious surfaces in parks and use infiltration and bioretention techniques to reduce stormwater runoff and increase groundwater recharge. 2) Include stormwater retrofits during all upgrades and repaving projects within existing parks.	The Minnesota Stormwater Manual (www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/stormwater-management/minnesota-s-stormwater-manual.html) has technical information for best management practices. In the near future, the MIDS project (Minimal Impact Design Standards) will provide additional design standards for infiltration and bioretention systems. Refer to St. Anthony Falls Lab's Stormwater Treatment manual (http://stormwaterbook.safl.umn.edu) for help assessing and maintaining new practices. Contact your Soil and Water Conservation District or Watershed District (MN) or Land and Water Conservation Department (WI) to inquire about technical and financial assistance for parks projects.	**Bonus!** After planting raingardens and native plantings at a local park, people begin renting the park facilities for special events. This results in a new revenue source for your parks department. **Could it really happen?** Golden Valley planted native buffers around stormwater ponds and wetlands in one of their parks and the park is now a popular site for weddings and graduations. The city also saves money on parks maintenance because there is less mowing and line trimming. **Contact:** Al Lundstrom Golden Valley 763-593-8046 ALundstrom@ci.golden-valley.mn.us

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Create a more pedestrian-friendly environment in town to meet the following objectives of the Statewide Health Improvement Plan: 1) Reduce obesity 2) Improve safety for residents	**Action:** Establish a "Complete Green Streets" policy. **Policy:** Encourage narrower roadways, sidewalks and bike lanes, and landscaping elements that reduce stormwater runoff and calm traffic. **Practices:** 1) Require traffic calming measures that incorporate stormwater treatment when streets are developed, redesigned or under construction. 2) Consider reducing roadway widths and adding sidewalks or bike lanes during all street reconstruction projects.	Refer to Design for Health (www.designforhealth.net) for case studies, sample policy language, research findings, fact sheets and presentations and other resources. Refer to the National Complete Streets Coalition for information on pedestrian and bike friendly streets that are also green: http://www.completestreets.org/complete-streets-fundamentals/	**Bonus!** After reconstructing a street in town by adding pedestrian friendly sidewalks, bike lanes, trees and stormwater treatment, several new businesses open up along that stretch. **Could it really happen?** In 1993, 80% of the properties in West Palm Beach's downtown were vacant, the streets were overrun with criminal activity, and wide multi-lane one-way streets were unsafe for pedestrians. The city narrowed the roads, reduced driving lanes and added traffic-calming measures, trees and other streetscaping. Today, 80% of the properties are occupied and property values have risen from $6/sq.ft. to $40/sq.ft. A similar revitalization has happened on Franklin Ave. in Minneapolis. **Contact**: Timothy Stillings West Palm Beach (561) 659-8031 tstillin@ci.west-palm-beach.fl.us

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Allow community growth and development without impacting sensitive water resources and groundwater recharge.	**Action:** Map surface waters, high-quality habitat, groundwater recharge potential and other sensitive resources. Develop a land use plan that includes LID (Low Impact Development) policies. **Policy:** Require new development to preserve natural hydrology by reducing impervious surfaces and using bioretention, infiltration and other best management practices to break up impervious areas. **Practices:** 1) Create subdivision ordinances that encourage the use of microtechniques to distribute stormwater management throughout subdivisions and large building sites. 2) Provide guidance for developers to minimize clearing and grading when developing new sites.	Visit the Minnesota Pollution Control Agency website (www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/stormwater-management/low-impact-development-stormwater-management.html) to find sample LID language for a comprehensive plan, a summary of LID ordinances, LID case studies and other resources. The Low Impact Development Center, www.lowimpactdevelopment.org, also has resources including fact sheets, manuals and presentations from around the country.	**Bonus!** When a new mixed-use development in your community is constructed using LID (low impact development) techniques, the total cost for infrastructure and maintenance is less expensive than it would have been for a conventional development. **Could it really happen?** Inver Grove Heights was facing large stormwater fees and local landowner resistance as the city planned for urban growth in its landlocked northwestern portion of town along I-494 and Hwy 55. After many studies and creation of an overlay district with completely new LID zoning and stormwater ordinances, the city has created a 3,000 acre LID zone. Development within this zone will preserve 20% of the land in open space, will create far less stormwater runoff and will cost an estimated $28,515 less for infrastructure, operations and maintenance over the 30-year life of the project than a conventional development. **Contact:** Brett H. Emmons EOR 651.770.8448 bemmons@eorinc.com

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Reduce flooding and stormwater pollution caused by runoff from commercial areas in town.	**Action:** Develop policies and incentives for local businesses to install stormwater treatment measures. **Policy:** Require commercial properties to minimize impervious surfaces and use best management practices to treat stormwater runoff when developing or redeveloping. **Practices:** 1) Require stormwater retrofits for all commercial properties that expand or remodel. 2) Offer a stormwater tax credit to businesses that reduce impervious surface or install stormwater treatment measures. 3) Develop a recognition program for local businesses that install innovative stormwater treatment measures.	Use www.cleanwatermn.org/businesses to find information about best management practices for stormwater pollution prevention at commercial properties. Work with your Soil and Water Conservation District or Watershed District (MN) or Land and Water Conservation Department (WI) to provide technical and financial assistance to businesses to install stormwater treatment measures. Contact Murphy Warehouse to learn how they have used native plantings, green roofs, infiltration and other techniques to reduce stormwater and save money: Richard Murphy Jr., ASLA Richard@murphywarehouse.com www.murphywarehouse.com	**Bonus!** New parking lot raingardens at a local business beautify the facility and double as a picnic area for employees during their lunch hour. **Could it really happen?** HB Fuller Company in Vadnais Heights built parking lot raingardens that reduce stormwater runoff by 73%, sediment by 94% and phosphorus by 70%. Employees now park their cars near the raingardens instead of in other parts of the parking lot and eat lunch near the gardens. **Contact:** Dana Larsen-Ramsay H.B. Fuller Company 651-236-4554 dana.larsen-ramsay@hbfuller.com

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Improve aging roadways. 1) Repair potholes and crumbling pavement. 2) Eliminate flooding and other drainage issues.	**Action:** Develop a plan to replace aging roadways in town and reduce stormwater runoff. **Policy:** Create transportation corridors within the community that preserve natural drainage and storage features and mimic natural hydrology. **Practices:** 1) Minimize impervious surface created by roads and sidewalks. 2) Use street improvement projects as an opportunity to reduce road widths and install vegetated swales, infiltration basins and buffers to capture stormwater runoff in developed portions of the community. 3) Work with homeowners and other property owners to install raingardens in city right-of-way during road repair projects.	Several local communities including Maplewood, Stillwater, Lake Elmo and St. Paul Park now include stormwater retrofits and right-of-way raingardens in city street repair projects. To learn more: Maplewood - Ginny Gaynor 651-249-2416 Virginia.Gaynor@ci.maplewood.mn.us Stillwater – Torry Kraftson 651-430-8831 tkraftson@ci.stillwater.mn.us Lake Elmo - Ryan Stempski 651- 292-4487 ryan.stempski@tkda.com Contact your Soil and Water Conservation District or Watershed District (MN) or Land and Water Conservation Department (WI) to inquire about technical and financial assistance for road projects.	**Bonus!** With a well-designed road repair plan in place, your city is able to apply for a big grant with a short turnaround time. **Could it really happen?** Middle St. Croix WMO developed a "Green Streets" plan in 2009. With this plan written, they were able to quickly submit a grant request when funding became available through the St. Croix River Association in 2010. The $70,000 grant will be used to retrofit stormwater treatment facilities on streets in the developed portions of Stillwater and Bayport. **Contact:** Amy Carolan Middle St. Croix Watershed Management Organization 651-275-1136 x.22 amy.carolan@mnwcd.org

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Preserve the rural character of the community and highlight natural amenities.	**Action:** Map scenic views and high quality natural areas such as lakes, wetlands, woods and prairie within the community. Develop a land use plan that allows these areas to be preserved as open space. **Policy:** Protect sensitive natural resources, while allowing development. Preserve trees and natural vegetation where possible. **Practice:** 1) Within a stormwater credit system, allow credits for open space protection. 2) Establish zoning ordinances that reward developers for preserving open space. 3) Use the orderly annexation process to encourage orderly development of areas proposed for high-density development and areas having high development potential. Establish resource protection as one of the considerations when making annexation decisions. 4) When evaluating development plans, encourage developers to retain natural vegetation instead of lawn.	Contact your Soil and Water Conservation District (MN) or Land and Water Conservation Department (WI), as well as the Department of Natural Resources to inquire about programs available to place land in permanent protection. Embrace Open Space (www.embraceopenspace.org) has resources for elected officials and staff including reports, videos, manuals and a toolbox for local governments. Arendt, Randall. 1996. Conservation Design for Subdivisions: A practical guide to creating open space networks. New York: Island Press.	**Bonus!** A conservation development ordinance that requires all new developments to retain 50% of the land in native vegetation prevents your city from having to drill a new municipal well to meet summer irrigation needs. **Could it really happen?** Hanover, MN entered into a collaborative agreement with the Minnesota Pollution Control Agency to find a development practice that meets the city's growth needs while preserving natural resources and the rural character of the city. Using a conservation design approach, they created a development prototype that features 50 percent open space with green space adjacent to every back yard, a trail system, habitat creation, distinct neighborhoods, and a natural stormwater management system. The prototype allows more homes to be built than with a traditional design approach, but preserves more open space and protects sensitive resources. **Contact:** Daniel Buchholtz City Administrator – Hanover 763-497-3777 Comprehensive plan available at www.hanovermn.org.

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Attract new businesses to a planned commercial development in town with reduced infrastructure and maintenance costs.	**Action:** Create a LID (Low Impact Development) plan for the commercial development. **Policy:** Require new commercial developments to retain a percentage of land as open space and to use best management practices to treat stormwater runoff. Encourage the use of native vegetation, shrubs and trees in lieu of lawn for outside areas. **Practice:** 1) Develop zoning codes that promote integration of storm water management facilities into parking lot layouts, decrease the size of parking stalls and aisles, and increase parking lot landscaping. 2) Develop zoning codes that encourage the use of native landscaping, low-mow grass and other vegetation types that do not require irrigation.	Visit www.cleanwatermn.org/businesses for information about LID and other best management practices for businesses, as well as local case studies. Contact your Soil and Water Conservation District or Watershed District (MN) or Land and Water Conservation Department (WI) to inquire about technical and financial assistance for commercial projects.	**Bonus!** Builders in your new office park use green building techniques as well as LID (Low Impact Development) to increase their cost savings. **Could it really happen?** Fairview Office Park in Baxter estimates that they will save $460,000 over their first 10 years of operation because they used green building techniques, such as materials reuse and heating and cooling optimization, as well as LID techniques like raingardens and reduced impervious surfaces. **Contacts:** Janelle Riley Syvantis Technologies 218-822-5701 Janelle.riley@syvantis.com Jackie Froemming Crow Wing County Ex. 218-824-1068 froem022@umn.edu

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Reduce the amount of sediment and organic debris washed into St. Croix River tributaries during spring snowmelt.	**Action:** Implement a community street sweeping program and work with residents and local community groups to collect sand for re-use, and bag and collect leaves and other organic debris (seeds, pollen, flowers, fruit, pinecones, etc.) along roadways in the fall and early spring. **Policy:** Use a combination of municipal street sweeping and community clean-ups to reduce the amount of sand and organic debris in runoff from spring snowmelt. **Practices:** 1) Sweep arterial, commercial and heavy industrial streets 9 – 12 times per year and residential streets 4 – 9 times per year. a. Or…remove debris along street edges just before winter, anytime feasible during winter, and just prior to spring snowmelt. 2) Organize one or two days in the fall to collect bagged leaves and yard waste from residents. 3) Encourage residents to mulch yard waste. 4) Support existing "community clean-ups" and include pick-up for organic debris and leftover sand as well as litter and junk.	Minnesota's Local Road Research Board has this resource to assist agencies with street sweeping best practices: http://www.lrrb.org/pdf/2008RIC06.pdf Ramsey Washington Metro Watershed District worked with Schilling Consulting Services to develop three reports on street sweeping. Find them at www.rwmwd.org > Library > Technical Reports. Contact the following communities to learn about their experiences with specific street sweeping technology: Osceola, WI - Neil Soltis 715-294-3498 St. Paul, MN - Doug Drusch Doug.Drusch@ci.stpaul.mn.us Prior Lake, MN - Ross Bittner (952) 447-9831 rbintner@cityofpriorlake.com White Bear Lake, MN – Mark Burch 651-429-8531 mburch@whitebearlake.org The Freshwater Society has resources and information to help you organize a community clean-up day: www.freshwater.org/index.php/projects/community-cleanups-for-water-quality. Minnesota Soil and Mulch (http://www.mnmulchandsoil.com/) may have tips on ways to recycle both organic debris and winter sand.	**Bonus!** A combination of street sweeping and biannual spring and fall Community Clean-ups keeps debris out of municipal storm ponds so that dredging is only required once every 20 years instead of once every 10 years. **Could it really happen?** Between 2003 and 2010, community volunteers in cities along the Minnesota River collected enough leaves and organic debris during Community Clean-ups to keep 8,400 pounds of phosphorus out of the river – the equivalent of 8,400,000 pounds of algae! **Contact:** Community Clean-ups Freshwater Society 952-471-9773 freshwater@freshwater.org

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Reduce phosphorus loading to the St. Croix River and its tributaries in order to meet TMDL (Total Maximum Daily Load) requirements.	**Action:** Work cooperatively to implement pollution prevention practices upstream, beyond municipal boundaries. **Policies:** 1) Support the phosphorus reduction efforts of neighboring communities. 2) Participate in countywide and regional phosphorus reduction initiatives. **Practices:** 1) Work with state regulatory agencies to develop a phosphorus credit trading system. 2) Offer financial incentives to farmers to implement best management practices. 3) Offer financial assistance to smaller communities and townships to implement pollution reduction projects.	Learn more about the Lake St. Croix TMDL and interagency protection efforts at www.pca.state.mn.us/index.php/water/water-types-and-programs/surface-water/basins-and-watersheds/st.-croix-river-basin/st.-croix-river-basin.html. Contact one of the many people listed on the "resources page" for information on collaborative efforts underway in your area.	**Bonus!** Your city is able to reduce expenditures for wastewater treatment plant upgrades by trading credits with farmers upstream. **Could it really happen?** Cumberland, WI has worked with the WDNR on a phosphorus trading system with local farmers. The city spent $49,000 in 1997 to remove 2200 lbs of P from wastewater effluent ($22/lb). They now spend an average of $14,500 a year to help farmers implement best management practices that keep 8800 lb of P a year out of local waterways ($1.70/lb). This type of credit trading is currently only used in three basins in Wisconsin, but will likely be allowed in the St. Croix Basin once a TMDL plan is approved. **Contact:** Pete Prusak Wisconsin DNR 715-822-2152 peter.prusak@wisconsin.gov